



science
& technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

Department of Science and Technology
ANNUAL REPORT 2011/12

Vision

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

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.

Table of contents

List of abbreviations	2	Public entities reporting to the Department	89
Foreword	4	Academy of Science of South Africa	90
Preface	8	Africa Institute of South Africa	92
Introduction	11	Council for Scientific and Industrial Research	94
Structure	14	Human Sciences Research Council	96
Performance overview	16	National Advisory Council on Innovation	98
1. Introduction	17	National Research Foundation	100
2. Performance overview	17	South African National Space Agency	102
3. Overview of performance per Programme	28	Technology Innovation Agency	104
Programme 1: Administration	28	Annual financial statements	106
Programme 2: Research, Development and Innovation	34	Human Resources	197
Programme 3: International Cooperation and Resources	47	DST corporate information	216
Programme 4: Human Capital and Knowledge Systems	57		
Programme 5: Socio-Economic Partnerships	72		

List of Abbreviations

AISA	Africa Institute of South Africa	GEOSS	Global Earth Observation System of Systems
AMI	Advanced Metals Initiative	GMES	Global Monitoring for Environment and Security
AMTS	Advanced Manufacturing Technology Strategy	HCD	human capital development
ANDI	African Network for Drugs and Diagnostics Innovation	HCKS	Human Capital and Knowledge Systems
ARC	Agricultural Research Council	HEI	higher education institutions
ART	assisted-reproductive technology	HESA	Higher Education South Africa
ASSAf	Academy of Science of South Africa	HSRC	Human Sciences Research Council
ASWSD	Accelerating Sustainable Water Service Delivery Initiative	HySA	Hydrogen South Africa
ATM	African Traditional Medicine	IAA	Internal Audit Activity
AYGS	AISA Young Graduates and Scholars	IAT	Institutes of Advanced Tooling
BRICS	Brazil, Russia, India, China and South Africa	IBSA	India-Brazil-South Africa
CAPRISA	Centre for the AIDS Programme of Research in South Africa	ICR	International Cooperation and Resources
cGMP	current good manufacturing practices	ICT	information and communications technology
CoC	centre of competence	IGD	Institute for Global Dialogue
CoE	centre of excellence	IIASA	International Institute for Applied System Analysis
COP17	Seventeenth Conference of the Parties to the UNFCCC	IK	indigenous knowledge
COST	Cooperation in Science and Technology	IKS	indigenous knowledge system
CSIR	Council for Scientific and Industrial Research	INCONTACT	International Contact Points for International Cooperation
DDG	deputy director-general	INPE	Instituto Nacional de Pesquisas Especiais
DST	Department of Science and Technology	INSITE	International Science, Innovation and Technology Exhibition
EDCTP	European and Developing Countries Clinical Trials Partnership	IP	intellectual property
EGNOS	European Geostationary Navigation and Overlay Services	IPR-PFRD Act	Intellectual Property Rights from Publicly Funded Research and Development Act
ENE	Estimates of National Expenditure	ISI	Institute for Scientific Information
EU	European Union	KIRMU	Knowledge Information and Records Management Unit
EXCO	Executive Committee	KZN	KwaZulu-Natal
FACTS	Follow-on African Consortium for Tenofovir Studies	MAC	Ministerial Advisory Committee
FP7	The Seventh Framework Programme of the European Union	MAST	Mauritius Academy of Science and Technology
GEO	Group on Earth Observations	MITRA	Multifrequency Interferometry Telescope for Radio Astronomy

MoU	memorandum of understanding
MSP	Master Systems Plan
NACI	National Advisory Council on Innovation
NASA	US National Aeronautics and Space Administration
NASAC	Network of African Science Academies
NIC	nanotechnology innovation centre
NIKMAS	National Indigenous Knowledge Management Systems
NIPMO	National Intellectual Property Management Office
NNPTTP	National Nanoscience Postgraduate Teaching and Training Platform
NRDS	National Research and Development Strategy
NRF	National Research Foundation
NRS	National Recordal System
NSI	National System of Innovation
NSW	National Science Week
ODA	official development assistance
OECD	Organisation for Economic Cooperation and Development
OPCO	Operational Committee
OTT	office of technology transfer
PAERIP	Promoting African European Research Infrastructures Partnership
PUMP	Passive Underground Mine-water Purification
R&D	research and development
RDI	Research, development and innovation
REC	Research Ethics Committee
RIMS	Research Information Management System
RIS	Regional Innovation System
S&T	science and technology
SABSSM	South African National HIV, Behaviour and Health Survey

SADC	Southern African Development Community
SAEOS	South African Earth Observation Strategy
SAJS	<i>South African Journal of Science</i>
SANHANES	South African National Health and Nutrition Examination Survey
SANHARP	South African Nuclear Human Asset and Research Programme
SANReN	South African National Research Network
SANSA	South African National Space Agency
SARS	South African Revenue Service
SASSCAL	Southern African Science Services Centre for Climate Change and Adaptive Land Use
SAYAS	South African Young Academy of Science
SEP	Socio-Economic Partnerships
SET	science, engineering and technology
SITA	State Information Technology Agency
SKA	Square Kilometre Array
SME	small and medium enterprises
SMS	Senior Management Service
STEMI	science, technology, engineering, mathematics and innovation
STI	science, technology and innovation
TAP	Technology Assistance Package
TDCA	Trade, Development and Cooperation Agreement
TDM	tool, die and mouldmaking
TIA	Technology Innovation Agency
TLIU	Technology Localisation Implementation Unit
TYIP	Ten-Year Innovation Plan
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
WIPO	World Intellectual Property Organisation



“Our investment in astronomy, as a priority science mission, has elevated the importance of science and technology in South Africa and Africa as a whole. It has allowed South Africa to play an important leadership role in promoting science in Africa.”

Foreword by the Minister

The period under review has been an extraordinarily active and productive period for the Department of Science and Technology (DST). The Annual Report details the progress we have made in our key strategic priorities, as set out in the National Research and Development Strategy and the Ten-Year Innovation Plan.

In this foreword I would like to focus on some of the highlights of the year. Two of the areas in which I believe South Africa will achieve world-class success are astronomy and information communication technology (ICT). The Department is also using science and technology to meet some of the key challenges facing the nation and the continent.

Astronomy and space science

Space science is one of the five key programmes of our Ten-Year Innovation Plan. Our investment in astronomy, as a priority science mission, has elevated the importance of science and technology

in South Africa and Africa as a whole. It has allowed South Africa to play an important leadership role in promoting science in Africa.

South Africa, with its eight partner countries – Botswana, Ghana, Kenya, Madagascar, Mauritius, Mozambique, Namibia and Zambia – has been working on the bid to host the Square Kilometre Array (SKA) since 2003. Africa's bid file was submitted on 15 September 2011. The African partner countries provided letters of commitment to offer customs and excise duty concessions, as well as a pristine environment for the SKA.

An important aspect of the SKA is the MeerKAT telescope, which is being built in the Northern Cape by South African scientists, engineers and other partners. The MeerKAT will supplement the sensitive SKA Phase 1 dish array, providing the major part of the collection area of what will be the most sensitive radio telescope in the world. Great strides have been made by the local radio astronomy community since South Africa first signalled its interest in the SKA. Furthermore,



in our attempt to contribute to the proliferation of radio astronomy in Africa, South Africa has partnered with Ghana to build the first radio telescope in Ghana. In Mozambique, a 7,6-metre communication dish antenna donated by Telkom will be converted into a teaching radio telescope to complement the establishment of a radio astronomy university programme in that country. A South Africa-Mauritius partnership has started the construction of the Multifrequency Interferometry Telescope for Radio Astronomy, a low-frequency array telescope. We are now working towards building an African Very Long Baseline Interferometry Network to connect us to existing global networks.

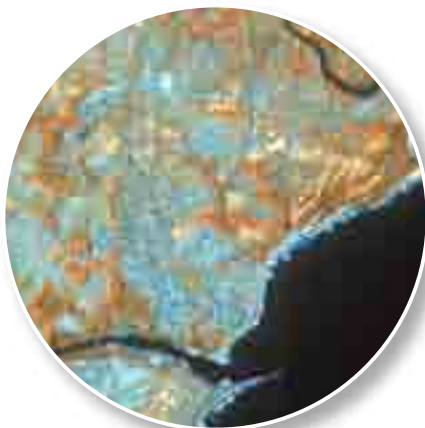
Over the past few years, my Department has consistently worked to present the case for astronomy as a priority focus area for science partnerships between Africa and Europe. We have extended the existence of the astronomy desk for another three years, and appointed Prof. Ramesh Bharuthram to head it. The desk's primary role is to assist the Department in creating a suitable entity to govern and manage the development of astronomy in South Africa.

Our satellite, SumbandilaSat, made a sterling contribution to South Africa's scientific work. The South African National Space Agency is developing an implementation blueprint for our next satellite and for our contribution to the African Resource Management Constellation — a joint effort by Algeria, Kenya, Nigeria and South Africa. We are excited at the opportunities created through securing new investments in a satellite development programme.

During the year under review the South African Post Office launched a series of 11 special stamps to celebrate our country's significant role in global astronomy. The stamps feature SumbandilaSat images taken from various sites in South Africa.

Information and communication technologies (ICT)

Our country's research capacity in ICT is becoming a strong competitive advantage. In the past 18 months we have announced several targeted partnerships with global ICT companies. In



2011/12 these companies invested over R15 million in cash and in kind in our ICT research and development programme. This was matched by DST funds.

The South African National Research Network (SANReN) is an essential part of DST-funded national cyberinfrastructure. The network means lower bandwidth costs for all research and higher education institutions in South Africa and world-class connectivity for researchers. In the year under review SANReN was extended to 107 institutions and projects, including our two major global scientific projects, the Southern African Large Telescope and the SKA pathfinder, the MeerKAT.

The bioeconomy

The Department of Science and Technology is playing a significant role in shaping a new growth path to build a knowledge-based economy. It is a path that includes a greater emphasis than before on knowledge and sustainability as drivers of long-term economic development. I plan

to announce a revitalised bioeconomy strategy towards the end of 2012. I believe we can build a vibrant bioeconomy and that, in partnership with the private sector and universities, we could create hundreds of jobs and viable enterprises.

Technology localisation support

Our technology localisation support programme is going to be an important contributor to strengthening science, engineering and technology institutions and industry. This programme has continued its support to 24 companies in the foundry sector.

Fluorochemicals initiative

The fluorspar chemicals sector is another area that has, I believe, enormous economic potential. We are implementing a fluorochemicals development programme targeting human capital development, new business formation and novel processes and products. A multi-purpose

fluorination pilot plant has been completed in the period under review and will be launched in July 2012. South Africa has abundant fluorspar reserves, as well as competence in the handling of fluorochemical processes and products. This strategic advantage needs to be converted into industrial activity and business as well as job creation.

Titanium initiative

We have also invested close to R108 million in titanium initiatives. Activities include the commercialisation of a novel process for the low-cost production of titanium powder. Researchers are now able to produce kilogram quantities of titanium powder. The next stage is production of the powder at 2 kg/hour. This will be achieved through the creation of a titanium powder pilot plant at the CSIR campus in Pretoria.

International collaboration

A further exciting area of success is our international linkages. Science and technology encompass sectors and opportunities that have vast potential for our nation and our continent. We wish to strengthen our focus on the study of Africa and on creating a dedicated, well-resourced centre focused on the study of our remarkable continent. The Human Sciences Research Council is doing very useful work in investigating indigenous agricultural responses to the impact of climate change and the Africa Institute of South Africa is collecting useful data on traditional practices in conflict-resolution in order to craft a guide to peaceful resolution of conflict on the continent.

We have also continued our support for several continental flagship institutions such as the African Institute for Mathematical Sciences, the SADC Biotechnology Network and the African component of the International Centre for Genetic Engineering and Biotechnology.

The International Cooperation and Resources Programme of the DST has a brief to facilitate and nurture scientific cooperation with international organisations and countries in Africa, Europe,

the Americas and Asia. In the year under review the Department grew the profile of South African science through multilateral forums such as the Seventeenth Conference of the Parties to the United Nations Framework Convention on Climate Change (COP17), and assumed a leadership position in the Group on Earth Observations. We also hosted a successful Carnegie Group meeting in Cape Town.

In conclusion

The funding of science and technology must be improved if we are to realise our ambitious national goal of building a knowledge-based economy. We are alert to the global economic crisis, but it is vital to increase support for research if we are to retain the critical edge of an emerging world-class research destination. Areas that need to be addressed are increased support for postgraduate study and senior researchers, as well as a more stable funding model for all our research institutions.

In closing, I wish to thank Deputy Minister Derek Hanekom and Director-General Dr Phil Mjwara for their hard work and leadership, as well as all the ministerial and departmental officials, board chairs, science council CEOs, Dr Ngcobo and the other members of the Portfolio Committee on Science and Technology, and our dedicated scientists and researchers. None of what we do would be possible without them.



Naledi Pandor

Minister of Science and Technology



“In partnership with science councils and institutions of higher learning, the DST has shown how innovation can substantially benefit all the citizens of our country.”

Preface by the Deputy Minister

The Annual Report presents an overview of the Department of Science and Technology's most significant achievements during the past financial year. These include new inventions, successful clinical trials, groundbreaking research, improved understanding of the impacts of global change, and winning the lion's share in the bid for the most powerful radio telescope in the world.

Global change

During the year under review we continued our efforts to address the issue of global change, recognising that it is crucial to improve the scientific understanding of changes to our global environment so that our country can respond effectively and appropriately to climate change.

One of DST's main partners, the CSIR, has developed a new freshwater ecosystem atlas, containing 19 priority area maps, which show which rivers and wetlands need to be kept in a natural condition. The atlas content summarises the data and on-the-ground knowledge of the freshwater ecological community in South Africa, representing over 1 000 person years of collective experience.

Renewable energy

The Department supports a number of renewable energy initiatives as part of its Ten-Year Innovation Plan, which identifies energy security as one of five priority areas. We have established research programmes at various universities, focusing on solar and wind energy, as well as on biofuels, to enable us to use locally developed technologies to harness these resources.

Some of the most innovative pioneering work is being done in developing hydrogen and fuel cells, potentially the clean fuel of the future. Most hydrogen fuel cells use catalysts made of platinum group metals. South Africa has more than 75% of the world's known platinum reserves. This advantage, together with the very capable researchers at our centres of competence, places us in a strong position to seize the opportunities offered by a future hydrogen economy.

Considerable progress has been made in hydrogen fuel cell development by HySA Catalysis, one of the Hydrogen South Africa centres of competence. This year, HySA Catalysis developed a very promising platinum-based catalyst for fuel cells and further tests are being carried out on



this catalyst to benchmark it with those that are already commercially available. Our preparations for the commercialisation of hydrogen fuel cell products include the establishment of a South African company that will market and eventually manufacture fuel cells, and the finalisation of an agreement with a Norwegian partner for the commercialisation of a hydrogen storage material, which is a HySA systems patent.

Health

The Ketlaphela/Lonza initiative was announced earlier this year. We plan to build a plant to manufacture active pharmaceutical ingredients for the production of antiretroviral drugs (ARV) through a partnership between the government, the Industrial Development Corporation and Pelchem, a subsidiary of the Nuclear Energy Corporation of South Africa. A multi-departmental task team set up by Cabinet, which includes the DST, the Department of Trade and Industry, the Economic Development Department, the Department of Health and the National Treasury, is collaborating on this initiative. The intention is to secure a significant proportion of the ARV market for local producers.

The 2011 launch of the African Network on Drugs and Diagnostics Innovation (ANDI) represents another important development in the African health sector. ANDI is based in Addis Ababa at the Economic Commission for Africa offices of the United Nations. The board has agreed that five

regional hubs will be created to support regional research initiatives. South Africa has offered to host the southern hub. ANDI has evaluated African research initiatives on drugs and diagnostics and has identified 35 centres of excellence throughout Africa that will receive priority attention. Fifteen of the centres are in South Africa. All these centres are researching responses to the most intractable health burdens of the continent.

Palaeontology

South Africa has some of the richest evidence of how plant and animal life evolved and how modern humans originated. In order to fully exploit this priceless heritage, we worked closely with our palaeontologists and archaeologists to develop a strategy for the palaeosciences, which was approved by Cabinet in February this year. The strategy is directed at building human capital, providing resource support, enabling legislation to collect, curate and research our invaluable palaeoscience treasures, and increasing public engagement on all aspects of this exciting field of scientific endeavour.

Implementation of the strategy has already begun — the new Centre of Excellence in Palaeontology will be established next year, and two new research chairs in the palaeosciences have been awarded. During the period under review Minister Pandor unveiled a state-of-the-art palaeosciences microfocus CT scanner at the University of the Witwatersrand, funded by the

National Research Foundation. This scanner, the only one of its kind in Africa, can take non-invasive X-rays and provide high-resolution imaging of fossils, even if they are encased in millions of years of lime and stone deposits. The scanner will undoubtedly help to solve even more mysteries about the origins of humankind, adding to our country's growing reputation as an innovator in this field.

Human capital

The DST continues to employ initiatives such as Science and Mathematics Olympiads and competitions to identify and nurture talented young people. We provided support to more than 13 000 grade 10 to 12 learners from Dinaledi schools so that they could participate in the 2011 National Science Olympiad.

In December last year, South Africa successfully hosted the International Junior Science Olympiad in Durban, with 43 countries participating. The South African science centre community hosted the 6th Science Centre World Congress in Cape Town, which attracted delegates from over 50 countries.

The DST, working closely with the Department of Basic Education and the Eastern Cape Department of Education, has started an initiative looking at how a range of technologies can be deployed to address education-related challenges in a rural context. The chosen site for this initiative is the Cofimvaba School District in the Eastern Cape, concentrating initially on the 26 schools in the Nciba Circuit. A team from the Council for Scientific and Industrial Research (CSIR) has already conducted a comprehensive scoping exercise of these schools. The Human Sciences Research Council (HSRC) will be doing the monitoring and evaluation work, and will assist in guiding choices of interventions that offer the best solutions to achieve better educational outcomes.

Fighting poverty through sustainable livelihoods

In our drive to apply knowledge and technology in the fight against poverty and unemployment, we have introduced pilot projects to determine the technical, environmental and financial feasibility of technology solutions in the cultivation of medicinal plants, fish, essential oils and

new plant cultivars. Successful pilot projects will be converted into commercial ventures and serve as models to stimulate further expansion.

We have supported the development and use of new energy-efficient and attractive construction materials through the CSIR-led infrastructure innovation programme. A total of 410 houses were built in Kleinmond, creating an integrated suburb.

Another critical present-day challenge to which the DST has responded is helping to ensure that our entire population has access to clean drinking water. The lack of safe water has a profound impact on the health of our poor and vulnerable communities. Recognising this, we launched a pilot project in Mbelu, aiming to provide clean drinking water in six remote rural villages in the Eastern Cape, where people were collecting water from polluted rivers and streams. The project comprises the installation of solar-powered water purification units, combined with ceramic water filters provided to households.

Six task teams were trained by the HSRC in hygiene and health promotion, thus ensuring that improved hygiene practices accompany the provision of clean water. A total of 1 775 households in these villages now have access to safe drinking water. The second phase of this project will be piloted in Mpumalanga and Limpopo.

In conclusion

It continues to be a privilege to work under the dynamic leadership of Minister Pandor, and with a committed department under the able leadership of Dr Phil Mjwara. I would also like to express our appreciation for the consistent support we receive from members of all parties in the Portfolio Committee, under the leadership of the Chairperson, Dr Ngcobo.



Derek Hanekom

Deputy Minister of Science and Technology



“During the year under review the Department continued its work to ensure that science and technology contributes to social and economic development.”

Introduction by the Director-General

It is my privilege to present the DST's annual report for the 2011/12 financial year. I am pleased to report that the Department maintained its high standards of financial performance, spending 99,9% of its annual budget, and receiving an unqualified report from the Auditor-General. The Department has continued to ensure that funds are allocated and spent in line with good corporate governance standards through working with line Programmes. Of the R4,407 billion appropriation for the 2011/12 financial year, the Department spent R4,403 billion.

Enterprise risk management

During the year under review, the Department implemented an updated system governing the practice of enterprise risk management. The Enterprise Risk Management unit is using risk management awareness to embed a risk management culture in the Department, and is elevating risk management to a strategic level within the Department to improve the DST's risk maturity level. In this regard, the Department had a finalised risk profile at the start of a financial year for the first time. As a result, Internal Audit was able to finalise the Department's 2012/13

risk-based audit coverage plan, which was approved by the Audit Committee and myself as the Accounting Officer. Another achievement was the finalisation of the Department's 2012/13 fraud risk profile. An updated management system governing the practice of enterprise risk management was introduced. This includes a policy, strategy, process maps and a risk analysis matrix for enterprise risk management. As part of risk awareness, the Department's Risk Management Committee held awareness sessions and regular meetings. The Fraud Prevention Committee also held regular meetings.

Internal audit

In the year under review, Internal Audit enhanced its controls in selected high-risk areas, in particular contract management, the efficiency and effectiveness of operations, risk management and the quality of performance information. During this period internal audit methodologies and approaches were refined, including the use of data analytics to ensure continuous auditing and wider audit coverage.

Policy, planning, governance, monitoring and evaluation

The Subprogramme: Policy, Planning, Governance, Monitoring and Evaluation, which facilitates the coordination and alignment of strategic initiatives across the Department, plays a crucial role in developing and maintaining processes, procedures and systems that enhance good corporate governance. The subprogramme also ensures good governance in the public entities. In the year under review, this included the finalisation of the Boards of the National Research Foundation and the Council for Scientific and Industrial Research, as well as developing the Annual Performance Plan for the Department, which was tabled in Parliament on 6 March 2012 in compliance with National Treasury requirements.

National Research and Development Strategy

The 1996 White Paper on Science and Technology first put forward the concept of a national system of innovation (NSI). The term NSI was coined to ensure that the system's activities focused on science, technology, development and innovation. The White Paper further identified leadership, coordination and cooperation as critical to the development and effectiveness of NSI, and set out government's role as ensuring that different components of the NSI are in place and interacting in the pursuit of agreed goals.

The 2002 National Research Development Strategy identified technology missions and science platforms, and proposed a target for research and development expenditure of 1% GDP. The choice of science platforms was informed by South Africa's geographic advantages, and targeted investments in these areas were intended to increase knowledge-generation capacity to reach 1% of the world share of publications and to make South Africa a global leader in these areas. In this regard, over 68 publications were produced under the National Astrophysics and Space Science Programme (NASSP) and the Multi-wavelength Astronomy Programme. Over 50 publications

were produced in astronomy, while five special publications were produced on the discovery of a fossil hominid in 2010 and 2011. Other notable achievements include the publication of 150 papers under the Antarctic Research Programme.

At the forefront of technology

During the year under review, the Research, Development and Innovation Programme, through the South African National Space Agency (SANSA), launched a space weather centre in Hermanus (formerly the Hermanus Magnetic Observatory). SANSA space science also provided space weather and geomagnetic services to the South African National Defence Force and more generally for navigation, communication and electrical power distribution. Research was undertaken in near space science and solar earth interactions, instrumentation, data and signal processing as well as radar technology. This research enabled a better understanding of the Earth-Sun system and its effects on technology and humanity. Research activities in earth observation included collaborative research in niche areas, data/image processing, geospatial information systems and remote sensing. The DST joined in activities related to South Africa's participation in the Group on Earth Observations (GEO). South African scientists also contributed towards the establishment of the Global Earth Observation System of Systems (GEOSS). Through this participation in GEO and GEOSS, the South African Earth Observation System was implemented.

Partnership with the private sector

One major achievement in the area of hydrogen and energy is the partnership between Impala Platinum and HySA Systems. The Department received R6 million in co-funding from Impala Platinum and the partnership between Anglo Platinum and the Department resulted in Anglo Platinum providing HySA with R2 million in co-funding.



Technology Innovation Agency

The Technology Innovation Agency established regional offices in Limpopo and the Free State in the 2011/12 financial year. This is in addition to those it established in Gauteng, the Western Cape, the Eastern Cape and KwaZulu-Natal in 2010/11. This will facilitate widespread access to provide support for technopreneurs across the country to commercialise a greater proportion of their technology products and services.

National Intellectual Property Management Office (NIPMO)

NIPMO was established as an interim office within the Department as of January 2011, following the coming into effect of the Intellectual Property Rights from Publicly Financed Research and Development Act on 2 August 2010. Key achievements in this area include hosting the inaugural NIPMO intellectual property (IP) conference, "Accelerating intellectual property and innovation in South Africa" in September 2011. It was attended by more than 200 delegates, including representatives of the Licencing Executives Society International, the World Intellectual Property Organisation (WIPO), Biotechnology Industry Organisation and African Union. Also in the year

under review, we held a successful summer school on IP with WIPO as part of the concerted drive to ensure an adequately skilled workforce in IP, technology transfer and commercialisation.

Appreciation

The achievements of the Department are underpinned by its senior managers' commitment to good corporate governance and strategic planning, as well as the dedicated efforts of the public entities and other stakeholders in the National System of Innovation. I would like to express my sincere gratitude to Minister Naledi Pandor and Deputy Minister Derek Hanekom for their vibrant and visionary leadership and continued support.

Dr Phil Mjwara

Director-General of Science and Technology

Structure



Naledi Pandor

Minister of Science and Technology

Derek Hanekom

Deputy Minister of Science and Technology

Dr Phil Mjwara

Director-General of Science and Technology



Nombuyiselo Mokoena

Programme 1: Deputy Director-General
Corporate Services



Dr Valanathan Munsamy

Programme 2: Deputy Director-General
Research, Development and Innovation



Dr Thomas Auf Der Heyde

Programme 3: Deputy Director-General
International Cooperation and Resources



Dr Daniel Adams

Programme 4: Acting Deputy Director-General
Human Capital and Knowledge Systems



Imraan Patel

Programme 5: Deputy Director-General
Socio-Economic Partnerships



Thulani Mavuso

Chief Operations Officer



“ The DST’s Ten-Year Innovation Plan seeks to contribute to the transformation of the South African economy into a knowledge-based economy, in which the production and dissemination of knowledge will lead to socio-economic benefits and enrich all fields of human endeavour. ”

Performance overview

1. Introduction

The Department of Science and Technology (DST) derives its mandate from the 1996 White Paper on Science and Technology. The DST is the custodial coordinator for the development of the National System of Innovation (NSI) and influences this system through key strategies such as the National Research and Development Strategy (NRDS) and the Ten-Year Innovation Plan (TYIP). The latter, particularly, seeks to contribute to the transformation of the South African economy into a knowledge-based economy, in which the production and dissemination of knowledge will lead to socio-economic benefits and enrich all fields of human endeavour. In this regard the measure of success will be the level to which science and technology (S&T) play a driving role in enhancing productivity, economic growth and socio-economic development. The framework of the TYIP will be used in the medium and long-term to guide the achievement of the strategic goals of the DST, which are to –

- develop the innovation capacity of the NSI and thereby contribute to socio-economic development;
- enhance South Africa's knowledge-generation capacity in order to produce world-class research papers and turn some advanced findings into innovative products and processes;
- develop appropriate science, technology and innovation (STI) human capital to meet the needs of society;
- 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; and
- 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, thereby steering the NSI.

This report captures the DST's major achievements between 1 April 2011 and 31 March 2012, outlining the progress made by the DST in realising long-term strategic goals during the period

under review. The report provides an overview of progress as per the Department's strategic objectives, and shows the progress made in achieving each individual indicator and target in the financial year under review.

2. Performance overview

The implementation of the NRDS and the TYIP has continued to be the primary focus of the DST in the 2011/12 financial year; and financial resources were committed to achieving the goals outlined in the NRDS and TYIP. Some of the highlights in respect of the progress made are set out in this section.

Through its Research, Development and Innovation Programme, the Department continued to enhance South Africa's knowledge-generation capacity in order to produce world-class research papers and turn some advanced findings into innovative products and processes.

A highlight for this financial year was the bid to host the Square Kilometre Array (SKA) radio telescope. South Africa and eight African partner countries submitted Africa's bid file on 15 September 2011. The bid file was the culmination of preparations that started in 2003, following Cabinet approval to bid for the megafacility. The SKA African partner countries provided letters of commitment to offer favourable customs and excise duty concessions as well as a pristine environment for the SKA. The South African provincial premiers also rallied behind the SKA bid by providing pledges of commitment to create favourable conditions for the SKA in South Africa. In January 2012 the African Union Heads of State Summit in Ethiopia re-endorsed support for the African SKA bid and proposed the inclusion of radio astronomy as a priority focus area for Africa's S&T partnerships. In the 2012 budget speech, the Minister of Finance announced that the SKA would qualify for VAT relief if the global community decided to award the hosting of the SKA to Africa.

As part of contributing to human capital development (HCD), the SKA HCD programme provided 56 additional bursaries and research grants to technicians, undergraduates, postgraduate students and postdoctoral fellows. This brings the total number of bursaries and research grants awarded since 2005 to 379. In addition, South Africa has agreed with Brazil to place two master's and two doctoral Portuguese-speaking students from Mozambique in a study programme at Brazil's Instituto Nacional de Pesquisas Especiais (INPE). National competitions for primary schools and high schools were undertaken to create an awareness of study and career opportunities in radio astronomy, engineering and information technology.

Furthermore, towards contributing to the proliferation of radio astronomy in Africa, South Africa has partnered with Ghana to build the first radio telescope in Ghana. A 32-metre communications antenna acquired from Vodafone will be converted into a radio telescope. Negotiations between the DST and Telkom SA Limited culminated in the donation of a 7,6-metre communication dish antenna by Telkom. The antenna will be converted into a teaching radio telescope to complement the establishment of a radio astronomy university programme in Mozambique. A South Africa-Mauritius partnership has started the construction of the Multifrequency Interferometry Telescope for Radio Astronomy (MITRA), a low-frequency array telescope. MITRA will have antenna stations in South Africa and Mauritius.

As part of developing institutional structures that facilitate technology development and its progression into national and international markets, the Technology Innovation Agency (TIA) and the National Intellectual Property Management Office (NIPMO) are now operational. NIPMO was established as an interim office (chief directorate) within the Department as of January 2011. This is a result of the Intellectual Property Rights from Publicly Financed Research and Development Act (IPR-PFRD Act) coming into effect on 2 August 2010. During the 2011/12 financial year, NIPMO assisted with supporting existing offices of technology transfer (OTTs) at institutions such as the Agricultural Research Council (ARC), University of Johannesburg, University of the Witwatersrand and University of the Western Cape. A regional office was established in the Eastern Cape for Nelson Mandela Metropolitan University, Rhodes University, Walter Sisulu University and Fort Hare University, and another in KwaZulu-Natal (KZN) for the University of KwaZulu-Natal, Mangosuthu University of Technology, Durban University of Technology and the University of Zululand. A total of R17 687 083 was committed to these institutions over

a three-year period. On the other hand, TIA established regional offices in Limpopo and the Free State in 2011/12 (in addition to those in Gauteng, the Western Cape, the Eastern Cape and KZN established in the previous financial year). This will serve to facilitate widespread access to support for technopreneurs across the country, enabling them to commercialise more of their technology products and services.

Through its International Cooperation and Resources Programme, the Department continued 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.

During the period under review, the Department grew the profile of the South African science system internationally by strengthening its role in multilateral forums, as demonstrated during climate change negotiations at the Seventeenth Conference of the Parties to the United Nations Framework Convention on Climate Change (COP17), and through leadership positions in the Group on Earth Observations and the Carnegie process. South Africa has become a strategic partner for S&T with many countries and is growing as an attractive destination for global science. The MeerKAT project, for example, is already attracting scientists from all over the world.

Partnerships with multinational information and communication technology (ICT) companies received a major boost through the signing of several memoranda of agreement. The partnerships will strengthen South Africa's human resource base for scarce skills and assist in nurturing innovation and entrepreneurship. This period also saw over R280 million being secured to support various programmes and projects in the NSI from various international sources, including official development assistance (ODA), European Union (EU) competitive funding programmes, and multinational companies. A number of initiatives aimed at building regional and continental capacity, especially through joint calls, were also established.

During the period under review, the Human Capital and Knowledge Systems Programme continued to provide leadership in the creation of an innovative and competitive society with highly skilled human capital and cutting-edge knowledge and research infrastructure. As part of the DST's commitment to increase skilled human capital in science, engineering and technology (SET),

an amount of R152,7 million was reprioritised in 2010 in order to provide additional funds for students and researchers. This investment enabled the National Research Foundation (NRF) to increase the individual bursary values of 3 057 postgraduate students and support an additional 2 626 postgraduate students. In 2011/12, R254,5 million was spent on bursaries in an effort to ensure that there was financial assistance for financially needy and academically deserving students. These investments have contributed to achieving the 2014 postgraduate output targets in the Minister's performance agreement with the President; recent (2010) Higher Education Management Information System data show that all postgraduate targets were exceeded. In order to develop cutting-edge knowledge and research infrastructure, the Department has worked to establish a National Nanoscience Postgraduate Teaching and Training Platform (NNPTTP) and conducts a one-week nanoschool every second year in order to create a cadre of young researchers equipped with the fundamentals of nanoscience and thus expedite the creation of a critical mass of researchers to conduct cutting-edge research in nanotechnology. The NNPTTP offers a master's degree in nanoscience. It is implemented by four universities identified on the basis of their capabilities. When fully implemented, the NNPTTP will accommodate a minimum annual intake of 40 students.

Through its Socio-Economic Partnerships Programme, the Department supported the growth and development priorities of government through targeted S&T interventions and the development of strategic partnerships with other government departments, industry, research institutions, and communities. In contributing towards socio-economic development, the Department focused on the demonstration, application and use of existing knowledge and technology interventions in providing solutions, particularly in addressing developmental challenges and service delivery gaps. One achievement is the completion of the Kleinmond low-cost housing project in the Overstrand Local Municipality in the Western Cape. The demonstrated improvements to a typical subsidy house as currently in use in the Kleinmond project could serve as a blueprint for the low-cost housing industry. The settlement was planned in a holistic manner and besides providing shelter to 410 families, it also serves as a development model whereby various alternative technologies perform to improve the quality of life and help to reduce the dependency of the development on municipal services. The project received a special merit award from the Southern African Housing Foundation.

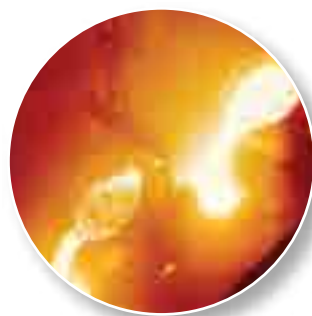
Another successful intervention was the completion of an initial intervention for interim access to water in the Eastern Cape. A stakeholders' workshop held in September 2011 confirmed that, despite the delays attributed to an unstable municipal environment, the Accelerating Sustainable Water Service Delivery through Technology Innovation (ASWSD) initiative of the DST is worthwhile and will be continued with. The first leg of the ASWSD initiative in the Amathole District Municipality has been successfully completed, giving access to safe, drinkable water to almost 600 households in Cwebe, Mbelu and Ntilini villages. A total of 1 176 households at sites in Jali/Bakhuba, Khwenxura/Khalalu and Mnxekazi in the OR Tambo District Municipality will have access to water as soon as the last remaining sections of the water network are finished by the local contractor. Complementary interventions such as household ceramic water filters (almost 2 000 filters were distributed to households), a groundwater protection plan and water quality monitoring will enhance the sustainability of the direct interventions. The success of these interventions is to a large extent due to the fact that there was adequate consultation with the communities, which therefore accepted the projects and took ownership of the interventions. The active participation of the communities in the decision-making processes, as well as in the training and health and hygiene promotion initiatives (such as organising health clubs) and in the protection of water resources has significantly increased the levels of knowledge among these communities and contributed to social capital growth. Technology transfers have been supported by extensive documentation for municipal operators and community trainers, and included educational posters translated into isiXhosa.

The ASWSD initiative has also created jobs and contributed to skills development. In Amathole District Municipality, 56 jobs were created during the construction phase and 3 594 people received health and hygiene training. In OR Tambo District Municipality 40 jobs were created during the construction phase and 5 293 people received health and hygiene training. The task teams dealing with health and hygiene training and the use of technology recruited young people and provided them with new ideas and skills. The successful application of technologies different from the conventional mainstream technologies, especially the technologies based on solar energy used for the Mbelu and Mnxekazi communal water stations, provided these two rural municipalities with convincing examples of new options for service delivery. The ASWSD initiative continues in Limpopo and Mpumalanga, with emphasis now being placed on the appropriateness of the solutions and on developing a model for sustainability and replication.

National Treasury requires departments to provide strategic indicators that link the department's performance to its expenditure. In an effort to meet this requirement, the Department identified 10 indicators that were included in the Estimates of National Expenditure (ENE) for the year under review. While the overall achievement of the Department was at 67% during this financial year; the Department was able to achieve 80% of its ENE targets during the 2011/12 financial year. This is a 13% increase of achievement rate of 67% of ENE targets that was reported in 2010/11.

Table 1: DST Selected ENE Indicators – 2011/12 Financial Year

Indicator	Programme	Strategic objective	ENE target for the 2011/12 financial year	ENE adjusted targets for the 2011/12 financial year	Baseline (actual output) 2010/11	Actual progress to date	Reasons for variance	Status
I. Number of patents, patent applications and trademarks resulting from publicly funded research	Socio-Economic Partnerships (SEP)	Grow and strengthen a portfolio of niche high-potential research and development (R&D) capabilities that support the development of new industries with high growth potential in advanced manufacturing, chemicals, advanced metals and ICT	19	13	16 added to the intellectual property (IP) portfolio	<p>The following have been added to the IP portfolio:</p> <ol style="list-style-type: none"> 1. Development of a costing model for the foundry industry completed. 2. Production of hexafluoropropylene oxide patent filed (Patent No. 2012/01951). 3. Improvement and validation of design optimisation software package for conventional aircraft/UAS configurations completed. 4. Algorithm to reduce the time it takes to search for and access fingerprints in a database completed. 5. "Switching between video streams" method or algorithm completed. 6. Internet of Things platform. The platform is designed to allow for easy communication between "things", services and humans. 7. Data pack for an unmanned helicopter capable of carrying high payloads (~10 kg) at high altitudes (Pretoria environment) generated. 8. Total fluoride-plasma route for zirconium metal provisional patent granted. 	The Programme exceeded the target by one. The nature of an IP item makes it impossible to predict an exact outcome, or whether the project will generate a patent or not.	Achieved



Indicator	Programme	Strategic objective	ENE target for the 2011/12 financial year	ENE adjusted targets for the 2011/12 financial year	Baseline (actual output) 2010/11	Actual progress to date	Reasons for variance	Status
						<p>9. Reduced pressure tester equipment (foundry technology) to improve the quality of the melt by degassing and making it possible to test the quality of the melt prior to casting completed.</p> <p>10. Natural fibre composite panel for tertiary aerospace applications patent lodged.</p> <p>11. Insulating roof tile composite made from bio-based materials prototype completed.</p> <p>12. Natural fibre composite parcel tray for automotive applications prototype completed.</p> <p>13. Provisional patent filed for nanostructured support material for gold and all platinum group metals placed onto the novel support.</p> <p>14. Provisional patent filed for method of producing metal matrix nanocomposites by liquid state processing.</p>		Achieved

Indicator	Programme	Strategic objective	ENE target for the 2011/12 financial year	ENE adjusted targets for the 2011/12 financial year	Baseline (actual output) 2010/11	Actual progress to date	Reasons for variance	Status
						<p>The following are at an advanced stage of completion:</p> <ol style="list-style-type: none"> 1. Verbal interactions to electronic systems. 2. Temporal analysis of time series data, used for pattern recognition and classification. 3. Cognitive radio to enable efficient management of white spaces and dynamic spectrum. 4. The detail design of two titanium pilot plants has commenced – primary titanium powder pilot plant and downstream additive manufacturing pilot plant. 5. Fruit packaging crate made from recyclable biocomposite crate prototype expected by the second quarter of 2012/13, after which the value of patenting will be assessed. 		Achieved



Indicator	Programme	Strategic objective	ENE target for the 2011/12 financial year	ENE adjusted targets for the 2011/12 financial year	Baseline (actual output) 2010/11	Actual progress to date	Reasons for variance	Status
2. Number of companies provided with a technology assistance package (TAP) per year to facilitate successful participation in infrastructure public procurement processes	SEP	Support an efficient, competitive and responsive economic infrastructure network.	24	24	26 companies provided with TAPs	<p>24 companies continued to be provided with TAPs by 31 March 2012.</p> <p>TAP requests for an additional 13 companies were developed by TIA under the DST contract. Two TAP requests were also developed for companies linked to the MeerKAT infrastructure build programme. They are in the process of being assessed by the Technology Localisation Implementation Unit (TLIU).</p> <p>TAP requests for a further 10 companies have been approved for implementation. The TLIU has commenced with the process of implementing these TAPs.</p>		Achieved
3. Total number of postgraduate students supported	Human Capital and Knowledge Systems (HCKS)	Build a SET human capital pipeline to ensure increased availability of researchers and innovators for South Africa's global competitiveness.	6 600		2 359 students supported	<p>A total of 7 083 postgraduate students were supported by the DST through the NRF by the end of the 2011/12 financial year.</p> <p>1 692 honours, 3 478 master's and 1 913 PhD bursaries awarded.</p>	NRF received more funds and therefore more students were funded.	Achieved
4. Total number of researchers supported	HCKS	Promote and enhance research productivity to increase South Africa's world share of knowledge outputs	2 500		There is no baseline as this is a new target, introduced in the 2011/12 financial year.	2 886 researchers supported by the Department during the 2011/12 financial year.	NRF received more external funding and therefore more researchers were funded.	Achieved

Indicator	Programme	Strategic objective	ENE target for the 2011/12 financial year	ENE adjusted targets for the 2011/12 financial year	Baseline (actual output) 2010/11	Actual progress to date	Reasons for variance	Status
5. Total number of postgraduate students financially supported	SEP	Build a SET human capital pipeline to ensure increased availability of researchers and innovators for South Africa's global competitiveness	80	200	99 students funded for research degrees through S&T for Economic Impact and 34 master's/PhD students funded in the social sciences and humanities	232 postgraduate students funded or co-funded by 31 March 2012	<p>One of the DST mandates is the creation of human capital in order to help alleviate the current skills gap and to expedite the technology development projects of the Department. The funding of postgraduate studies is therefore high on the DST agenda. Programme 5's projects, which are aimed at expanding the technological boundaries towards developing new industries of the future, are very dependent on postgraduate students to cover the technical gaps.</p> <p>In contrast to undergraduates who complete a general degree, postgraduate students start to specialise in a technical direction in which they are personally interested or that they find attractive due to specific technical challenges.</p>	Achieved

Indicator	Programme	Strategic objective	ENE target for the 2011/12 financial year	ENE adjusted targets for the 2011/12 financial year	Baseline (actual output) 2010/11	Actual progress to date	Reasons for variance	Status
							<p>In addition, lecturers only start attracting postgraduate students as their own profile and research ranking improve. Both of these are time dependent and difficult to forecast.</p> <p>It is therefore very difficult to forecast the exact number of postgraduate students that will be funded in a specific year, even in ongoing programmes. Care (conservative estimates) is therefore required in defining the targets.</p> <p>Programme 5 can report that the above occurred in defining the number of students in Strategic Objective 4. In most instances, a conservative approach was followed in defining the targets – and this was often acknowledged internally at the start of the financial year.</p>	

Indicator	Programme	Strategic objective	ENE target for the 2011/12 financial year	ENE adjusted targets for the 2011/12 financial year	Baseline (actual output) 2010/11	Actual progress to date	Reasons for variance	Status
							In addition, research institutions co-fund postgraduate studies, leading to an increase in the number of students. The largest deviation in the reported and actual number of students occurred in the Advanced Manufacturing Technology Strategy (AMTS) portfolio that was managed by an external agency, where the postgraduate students were distributed across a number of universities.	
6. Value of foreign funds leveraged per year in support of STI cooperation	International Cooperation and Resources (ICR)	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	R199,3m	R285m	Total of R231,1m. R184,5m funding and in-kind assistance leveraged. R53,1m foreign funds spent in support of South African STI cooperation.	The DST leveraged a total of R285m in pursuit of research-led socio-economic development. R214m includes all ODA, cash and in-kind, R1,368m for EU-South Africa TDCA memorandum of understanding (MoU) on STI and R71m from the EU Seventh Framework Programme (FP7) initiatives.	More funds were leveraged than budgeted due to more success in the participation of calls with foreign partners.	Achieved

Indicator	Programme	Strategic objective	ENE target for the 2011/12 financial year	ENE adjusted targets for the 2011/12 financial year	Baseline (actual output) 2010/11	Actual progress to date	Reasons for variance	Status
7. Number of technologies in development per year	RDI	Create and support multi-directional policy and institutional linkages between R&D and commercialisation in order to increase the commercialisation potential of R&D outcomes	9	35	7 technologies and one service	10 new technology products/processes/ services developed for commercialisation	The definition of the new technologies had initially assumed the inclusion of technology improvements. However, it was agreed that technology improvements are not the same as new technologies, and hence the Department reported separately.	Partly achieved
8. Number of households benefiting from technology-based interventions per year	SEP	To demonstrate strategic technology-based interventions for poverty reduction in order to support the creation of sustainable job and wealth opportunities, and contribute to sustainable human settlements and enhanced service delivery in areas of deprivation	300	3 000	1 640 households benefited from the introduction of communal water stations in the Eastern Cape.	410 households benefited from technology-based interventions by 31 March 2012.	The process of ensuring that communities are adequately consulted took longer than anticipated. Since the ultimate success of the project is dependent on community consultation, it was decided to spend more time on the social mobilisation work.	Partly achieved
9. Number of joint STI initiatives between the DST and other departments per year	SEP		13	0	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	13 joint STI initiatives between the DST and other departments supported by 31 March 2012.		Achieved

Indicator	Programme	Strategic objective	ENE target for the 2011/12 financial year	ENE adjusted targets for the 2011/12 financial year	Baseline (actual output) 2010/11	Actual progress to date	Reasons for variance	Status
10. Total number of institutions implementing the Research Information Management System (RIMS)	SEP		25	0	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	All 32 institutions are participating in RIMS and were at different stages of implementation by 31 March 2012	There was no adjustment for this target. The reason for the variance was due to the initial conservative estimate of the target. The Programme was able to achieve 32 instead of 25 due to the participation of all institutions in the 2011/12 financial year.	Achieved

3. Overview of performance per Programme

Programme I: Administration

This Programme is tasked with the overall management of the Department and with providing centralised support services to ensure that funded organisations comply with good corporate governance practices and are aligned with the strategic focus of the NSI. It is divided into *Corporate Services* and the *Office of the Chief Operations Officer*.

A. Corporate Services

Corporate Services executes its mandate through the pursuit of the following objectives:

- To enable and capacitate the Department to achieve its mandate through resource allocation.
- To proactively position the Department positively both internally and externally to ensure informed employees and citizenry.
- To proactively partner with the Programmes in optimising organisational performance and improving levels of compliance with relevant policy frameworks and legislative requirements.
- To provide a seamless service to all customers to ensure efficiency and effectiveness in service delivery.

- (a) **Finance:** This subprogramme is responsible for ensuring 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, assets and liability transactions through the financial systems used by the Department. Finance is also responsible for providing and streamlining procurement services in accordance with a system that is accountable, fair, equitable, transparent, competitive and cost-effective. In addition, it is responsible for the general management and maintenance of the Department's assets and ensuring that the working environment is safe.

Funds have been allocated and spent in line with good corporate governance standards. This was achieved by working in conjunction with the line Programmes. Of the R4,407 billion appropriation for the 2011/12 financial year, the Department spent R4,403 billion, or 99,9%.

- (b) **Knowledge Information and Records Management:** This subprogramme provides information and knowledge management services intended to optimise business processes and preserve institutional memory. This includes developing information resources and subscribing to



different knowledge databases to enhance the Department's research and decision-making capabilities.

The Knowledge Management Strategy was revised and submitted to the Operating Committee (OPCO), and it is now awaiting Executive Committee (EXCO) consideration and approval. The Knowledge Information and Records Management Unit (KIRMU) renewed all existing subscriptions to databases, and added another research tool subscription requested by Strategy and Planning, the Institute for Futures Research. The Resource Centre is now fully functional and capable of handling interlibrary loan requests and literature searches efficiently. Staff are increasingly using the Resource Centre services, including the current book collection, showing a growing level of confidence in the facility.

Enterprise content management is a set of tools and methods that allows the DST to obtain, organise, store and deliver information required for its operations. The Alfresco platform has been created in order to capture, manage, store, preserve and provide users with requested information. KIRMU has also provided new sources of content, such as unstructured data from social networking (new intranet). The business intelligence/business

analytics application Pentaho, which assists the DST to use the available information to guide business decisions, was implemented and is now used by the Radio Astronomy Subprogramme to analyse data on the SKA.

Records Management seeks to achieve effective and efficient record-keeping practices in the DST. To date, the DST file plan has been approved by the National Archives and the Registry Procedure Manual has been finalised. The DST Promotion of Access to Information Act manual has been finalised and approved. KIRMU is having the manual translated into all official South African languages.

- (c) **Information Systems:** This subprogramme is responsible for the delivery of services that support the Department's strategic plan through the effective use of information technology. Its purpose is to align the IT strategy with the strategic plan to ensure that the Department uses its resources optimally. In addition, the unit is tasked with the responsibility of providing cutting-edge technologies that will optimise the use of information in a reliable and secure manner. This includes the implementation of effective and efficient business systems that meet users' needs, the provision of a reliable IT infrastructure and environment, and creating capacity for proper information management and business intelligence.

In terms of the COBIT-aligned IT governance framework, the terms of reference for the IT Steering Committee were approved, and committee members were appointed by the Director-General. The committee is now in operation. The IT governance capability maturity assessment was conducted for the DST by the State Information Technology Agency (SITA). The implementation road map is now available as a guide to implementing COBIT-based IT governance.

The Master Systems Plan (MSP) was reviewed to align the IT strategy with the corporate business strategy. The MSP was endorsed by both OPCO and EXCO and approved by the Director-General. The MSP implementation plan was approved by EXCO and is being implemented.

The IT policies have been reviewed to align them with the current DST business environment with regard to legislation, business and contractual requirements, emerging new threats and information technology vulnerabilities. The policies were endorsed by both OPCO and EXCO and have been approved by the Director-General.

The adoption of Alfresco, an electronic content management system, made it necessary to have adequate capacity in terms of device performance and storage space so that information could be structurally and centrally stored, archived and managed, as well as disseminated through a responsive system. New devices with adequate capacity were purchased to replace older technology.

The DST needed an operational wireless facility on its premises. The existing wireless facility was reactivated to allow Internet access to wireless-enabled computers. Information security was considered.

After a careful consideration, a Blackberry Enterprise Services facility was introduced to enhance current communications services and cost savings through unified communication.

The DST requires that all members of staff should be able to remotely access the corporate network and perform business-related work, e.g. approving and signing documents. A secure remote facility is now available and operational.

In order to ensure IT service continuity, the DST identified the need for a capacitated disaster recovery site away from the premises. SITA was approached to identify and host a site for the DST. The site was identified and equipped with the devices necessary for it to respond adequately to disasters. The warm disaster recovery site has been established in the Pretoria central business district.

The DST had continuous network connectivity problems due to ageing and inadequate technology that hosted some of the critical network systems. This technology was replaced successfully, and security controls were optimised. As part of the ongoing process of optimising the data centre, the IT unit replaced the old uninterrupted power supply and installed a new air cooler and environment-monitoring system.

The need for the DST to have a searchable email archiving facility for email discovery purposes was identified. This is best practice as recommended by the King III report. An archiving facility that archives all incoming emails is now available and is accessible to all users through the Web interface.

Information Systems has identified the need to move away from being a helpdesk support function and adopt innovative tactics in supporting the Department. An analysis was done on the current structure and it was found that the IT skills of current IT staff were misaligned. It was then decided to restructure the unit and move employees to positions where they would add more value to the Department. A realigned IS unit has been approved by the Director-General and is awaiting finalisation from the Subprogramme: Human Resources.

Information Systems, Enterprise Risk Management and Security Services collaborated to host a risk and security awareness day on 12 August 2011, exposing DST staff to risk, fraud and information and physical security issues. This was done to ensure that an effective and consistent level of risk and security management was applied in the Department.

- (d) **Science Communication:** This subprogramme is responsible for ensuring effective communication between the Department and its key stakeholders, and creating awareness of the Department's key objectives and activities. The subprogramme raises the profile of the work done by the other Programmes in line with the vision and mission of the Department.

It also facilitates the preparation of information that the Minister and the Deputy Minister communicate externally. Its overall focus is to brand the Department and create awareness about the developments, benefits and opportunities in publicly-funded S&T initiatives across the country's science system. In addition, it is important to this subprogramme to ensure that information to the public is accessible.

The subprogramme has revised the communication strategy, and this has been approved by EXCO. New marketing and communication initiatives were also undertaken, such as the new green technology billboard, communication strategies for the launch of the ASWSD project in the Eastern Cape and the German-South African Year of Science. Public participation programmes were held for the Deputy Minister and Minister in De Aar and Tzaneen. The subprogramme, in partnership with IT, launched the revised website and intranet. Other initiatives include drafting speeches for the Minister, Deputy Minister and Director-General, and supporting programmes with events management.

Africa's bid to host the SKA, championed by the DST, received unprecedented media publicity, with communications in this regard being ramped up. Apart from many press releases (available on DST's website), a briefing was held for the South African National Editors' Forum, which was attended even by the international media, and generated huge coverage for the Department.

- (e) **Legal Services:** This subprogramme is responsible for providing effective and efficient legal services to the Department in order to ensure that the interests of the Department are protected against any legal risk. It is imperative for the Department to consider legal compliance, not only as a risk that needs managing, but also as a matter of good corporate governance and ethical behaviour. The emphasis is on value-based decision-making, not merely risk limitation.

General legal advisory and contract drafting and review services were provided by the unit, as instructed by various units in the Department. Other services that the unit provided include legislative drafting services (repeal/amendment to AISA and HSRC Acts and review of draft Indigenous Knowledge Systems Bill). The compilation of a regulatory universe

for legal compliance was finalised. The process of compiling other legal compliance frameworks and instruments is under way and will be completed soon. Legal workshops/information dissemination sessions were conducted on the Promotion of Administrative Justice Act, pre-contracting evaluation and contract management. The unit also provided comments (ministerial briefings) on draft legislation and other legal instruments to be tabled before Cabinet.

- (f) **Security Services:** This subprogramme is responsible for the maintenance of security operation systems in the Department. This involves proactively implementing layers of defence and mitigating physical security threats and risks. Security audits are conducted and deficiencies identified to assist in reducing the risks associated with managing and handling assets, documents and information.

Security Services works to limit and minimise risks and threats through analysing safety and security environment conditions, evaluating and upgrading security standards, implementing policies and procedures, conducting inspections, surveys and audits, practising direct emergency responses, and liaising with other security stakeholders and law enforcement agencies to achieve its objectives and goals.

B. Office of the Chief Operations Officer

The Chief Operations Office Programme executes its mandate through the pursuit of the following objectives:

- To coordinate and align strategic initiatives across the Department.
 - To support the executive and political leadership in developing and maintaining processes, procedures and systems that enhance good corporate governance.
 - To facilitate the attraction, development and retention of a competent, productive and representative workforce.
- (a) The Ministry and Office of the Director-General coordinate activities within the Department and NSI to steer the system towards the development of a knowledge-intensive economy with higher productivity levels, coordinating the implementation of the NRDS and the TYIP in line with the Medium Term Strategic Framework.



Support was provided to the Director-General and Minister during cluster meetings, including the coordination of meetings and the preparation of briefing notes. Support was also provided to the Minister and the Deputy Minister when DST memoranda were presented to Cabinet and during Portfolio Committee meetings. The Office of the Director-General facilitated the effective participation of the Department in a number of cluster processes and ensured that the Department's work was integrated into a number of key outcomes.

The Department responded to all Parliamentary questions, and no question was outstanding during the period under review. As part of monitoring EXCO decisions, dashboard reports were tabled and discussed at EXCO. Twenty-three Portfolio Committee meetings were attended by the DST and its entities. Cabinet briefing notes were prepared in preparation for Cabinet meetings.

Ministerial visits abroad increased awareness of the DST and its role both locally and internationally.

- (b) Policy, Planning, Governance, Monitoring and Evaluation facilitates the coordination and alignment of strategic initiatives across the Department, and supports the executive and political leadership in developing and maintaining processes, procedures and systems that enhance good corporate governance. The subprogramme coordinated the preparation of the DST 2010/11 Annual Report by 30 September 2011, in respect of which the Department received a clean audit. In addition, the subprogramme facilitated the development of the annual performance plans and operational plans of the Department. These documents have been approved by the Minister and the Director-General.

To ensure good governance in the public entities, the subprogramme finalised the appointment of the NRF Board on 1 October 2011 and the Council for Scientific and Industrial Research (CSIR) Board on 29 November 2011, both for a three-year period. The annual performance plans of the public entities were presented to the Minister on 24 February 2012. Furthermore, the subprogramme facilitated the tabling of the annual reports of the public entities on 29 August 2011.

During the reporting period, the DST complied with the National Treasury requirements by coordinating the medium-term planning process, of which the output was the DST 2012/13 Annual Performance Plan. This was submitted to the National Treasury on 30 August 2011 and 30 November 2011, and was tabled in Parliament on 6 March 2012.

The subprogramme also facilitated the finalisation of the Ministerial Review Committee Phase 2 Report. The report, with recommendations, was submitted to the Minister on 30 March 2012.

- (c) 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.

As part of improving the maturity of the practice of risk management, the DST appointed a director to guide and steer the organisation risk management to a strategic level. The Department implemented an updated management system governing the practice of enterprise risk management. The enhanced management system includes a policy, a strategy, process maps and a risk analysis matrix for enterprise risk management. The management system is further enhanced by the inclusion of detailed guidebooks which cover risk identification, control activities, risk assessment, risk rating and response strategy. The charters governing the Risk Management and Fraud Prevention committees were approved. Strategic and operational risk profiles were finalised and approved for the 2011/12 and 2012/13 financial years. For the first time in the planning process, the Department has an approved risk profile at the start of a financial year. Also, due to the timely finalisation of the Department's risk profile, the Internal Audit function was able to finalise and have the Department's 2012/13 risk-based audit coverage plan approved by the Audit Committee and the Director-General. The Department's 2012/13 fraud risk profile was finalised in the period under review, including the recommendation by the Risk Management Committee for the Director-General to approve. The Department conducted risk and fraud awareness sessions, targeted at directors and deputy directors. The Department reviewed its management system governing fraud risk management and has started the process of

enhancing the system. The enhancement of the management system should be finalised by the end of the first quarter of 2012/13. The Department's Risk Management Committee had four standard meetings and two special meetings for the period under review, while the Department's Fraud Prevention Committee had two standard meetings.

- (d) Human Resources aims to be a strategic partner that helps the Department to achieve its strategic and operational activities by providing consistent and best employment practices, attracting and retaining employees, championing change and transition, setting and managing performance standards, and promoting a career-development environment in which all employees can reach their potential and contribute to a culture of service excellence.

During the year under review, the change management framework was put in place. This framework will guide all future changes in the DST, irrespective of their magnitude. The subprogramme facilitated the appointment of an external service provider that will offer a counselling service to employees and their immediate family members at any time. The Department's employment equity plan and policy, which will drive interventions to promote equal opportunities for all races and designated groups in the Department, were approved by EXCO. The DST Women in Management platform, chaired by the Director-General, was successfully launched. Senior Management Service (SMS) members were trained in the interpretation of performance standards, which will ensure that individual performance is aligned to organisational performance. Mentors were successfully identified and mentees were trained to initiate the formal mentoring process for employees. Executive development programmes targeted at the SMS were successfully rolled out. Through the Department's bursary support, one master's and two doctoral degrees were produced. The Department kept the vacancy rate below 10% and continuously monitored the filling of posts to ensure that they were filled within 90 days. The Department's second cohort of interns was successfully trained and exited the Department by the end of March 2012. The third cohort was recruited and deployed from 1 April 2012. Human resource policies were reviewed and employees were trained on the implementation of the policies. Performance management descriptors were defined and employees trained on the formulation of outputs and indicators.

- (e) Internal Audit Activity (IAA) performs internal appraisal activities to improve the effectiveness of control and governance processes. This is accomplished through the provision of independent, objective assurance and consulting services designed to add value to the Department's operations. IAA initiatives and objectives are primarily linked to the achievement of the strategic plan, which is crucial to the success of the TYIP and NRDS. The IAA maintains a flexible audit approach and follows a dynamic audit plan.

Methodologies and approaches have been refined and the use of data analytics adopted to ensure continuous auditing, as well as wider audit coverage. With the implementation of continuous auditing by using data analytics software to identify inefficiencies, the capturing of leave timeously was improved. Audit interventions focused on the enhancement of controls in selected high-risk areas of the Department, specifically contract management, the efficiency and effectiveness of operations, risk management and the quality of performance information. A reporting template was developed to improve the reporting on project deliverables by the implementing agencies.

Programme 2: Research, Development and Innovation

This Programme facilitates knowledge generation and exploitation through R&D in key priority areas, namely space science, biotechnology, and energy. It also promotes the exploitation of our knowledge stock through stimulating the development of innovative products and services, and commercialising them where appropriate.

The main objectives of the Programme are to –

- support RDI initiatives in strategic areas (i.e. space, energy, biosciences and innovation research) to enhance South Africa's knowledge and skills base;
- create and support multidirectional policy and institutional linkages between R&D and commercialisation in order to increase the commercialisation potential of R&D outcomes;
- 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 has four subprogrammes, namely, Space Science and Technology, Hydrogen and Energy, Biotechnology and Health Innovation, and Innovation Priorities and Instruments.

Space Science and Technology

The subprogramme focuses on creating the necessary strategic and institutional regimes for developing a viable space programme and an earth observation system. It provides policy leadership for the innovative utilisation of space S&T that enhances economic growth and sustainable development. This is primarily achieved through policy and institutional instruments such as the National Space Strategy, the South African Earth Observation Strategy (SAEOS) and the South African National Space Agency (SANSA). The subprogramme provides an oversight function over SANSA and strategic and policy leadership for space S&T. This includes providing strategic direction on key aspects linked to the construction of the SKA demonstrator telescope and related activities to ensure that Africa is well positioned to host the SKA. Targeted national space initiatives are intended to harness the benefits of space S&T for socio-economic growth and sustainable development. The following progress can be reported:

SANSA was launched in December 2010 with a vision of becoming a leading agency on the continent, coordinating and implementing space activities to contribute to socio-economic growth and sustainable development. Its mission is to deliver an enabling environment through the following: the development of space technology platforms, the use of space for observational and scientific missions and the development of space applications. To this end, SANSA established programmes on Earth Observation, Space Science, Space Engineering and Space Operations.

In the Earth Observation programme, SANSA currently manages a sensor portfolio that includes imagery from the SPOT 4 and 5, Landsat 5 and 7 and MODIS satellites. It distributes images from Digital Globe, GeoEye, TerraSAR-X and TanDEM-X SAR satellites. In addition to its sensor portfolio management, SANSA activities also include data management. In this regard, SANSA supports earth observation data acquisition, processing, archiving and distribution. A major focus was the development and implementation of the Earth Observation Data Centre. In terms of geospatial informatics, SANSA has actively participated in developing applications, particularly with regard to land cover and land use. Achievements for the period under review include the

implementation of an earth observation data catalogue, the collection of 4 000 image scenes, and the distribution of 40 000 scenes (including the annual SPOT product). A major output was the finalisation of an Informal Settlement Atlas for the North West.

In the Space Operations programme, SANSA currently hosts infrastructure and provides space operation support services in the areas of launch support, orbit testing, satellite life cycle, emergency support, mission control and navigation. Support was provided for various satellites, including IS-17, IS-17 In-Orbit Testing (IOT), New Dawn, New Dawn IOT, Space-based Infrared Systems, Telstar 14, Delta II/SAC-D, Astra 1N, SES-2, AB 7, OS-3 and Galileo. Such support provides significant external revenue for SANSA.

In the Science Programme, SANSA activities were aimed at providing space weather and geospace data services, as well as space science data management services. A space weather centre was established at the SANSA Space Science unit in Hermanus (formerly Hermanus Magnetic Observatory). SANSA Space Science provided space weather and geomagnetic services to the South African National Defence Force and more generally for navigation, communication and electric power distribution. Space science data was distributed to global data centres, including the International Real-time Magnetic Observatory Network, DIDBase, International Space Environment Service, SuperDARN and World Wide Lightning Location Network. SANSA Space Science also provided applied S&T services to private companies.

In addition to activities in the above programmes, SANSA conducted research activities with regard to space science and earth observations. In terms of the former, collaborative research was undertaken in near space science and solar earth interactions, instrumentation, data and signal processing and radar technology. This research enabled a better understanding of the Earth-Sun system and its effects on technology and humanity. Research activities in earth observation included collaborative research in niche science areas, data/image processing, geospatial information systems and remote sensing. Collaborations included Multi-angle Imaging Spectro Radiometer, African Monitoring of the Environment for Sustainable Development, Global Monitoring for Environment and Security (GMES), GARNET-E and Tiger. SANSA is in the processes of establishing its space engineering programme.

In addition to the oversight function with regard to SANSA, the subprogramme has engaged in activities related to South Africa's participation in GEO. In this regard, a number of contributions were made by South African scientists towards the establishment of a Global Earth Observation System of Systems (GEOSS). This contribution and involvement in GEO and GEOSS has in turn informed the implementation of SAEOS. As a result, the National Earth Observations and Space Secretariat (South Africa's GEO secretariat) has been initiated to engage user communities, through the mechanism of multidisciplinary communities of practice, to better align Earth observation activities with user needs. Access and discovery of national and international data by user communities, from citizens and decision makers to scientists, has been enabled with the establishment of the SAEOS portal and adherence to GEOSS interoperability principles.

The subprogramme has also facilitated the development of a number of strategic interventions in Earth Observation. The Bridging Actions for GMES and Africa is an FP7 initiative established to support and facilitate dialogue in Africa to implement the GMES and Africa initiative. The DST leads Work Package 3 in this project, which involves building extensive and comprehensive stakeholder networks, establishing connections and identifying synergies with related projects. The Directorate: Earth Observation of the Subprogramme: Space Science and Technology initiated a project on product and/or service development through earth observation research at the CSIR and the Council for Geoscience. The main aim of the project was to implement SAEOS and to populate the SAEOS Portal. The research done towards accumulating spatial data is in the area of environmental studies (i.e. forest monitoring in the Dukuduku area), enhancement of the Wide Area Monitoring Information System and Advanced Fire Information System for simplified application and use by South Africans, and an inventory of South African geo-hazards and geoportals for these studies in order to access the study reports and products and/or services. These projects are also used as a vehicle for academia and research centres to work together as there are students that are housed at the research centres, who are furthering their postgraduate studies through research in these areas.

Work continues through the Directorate: Space Technology on establishing a calibration and validation site in Paardefontein. In the year under review the directorate engaged European teams and local stakeholders Air Traffic and Navigation Services, Civil Aviation Authority and SANSA to establish the extension to Southern Africa of the European Geostationary Navigation

and Overlay Services (EGNOS). These discussions are at an advanced stage. It is envisaged that the EGNOS extension will be implemented by 2014. Following discussions at Cabinet level, the directorate led a study to advise government on the feasibility of re-establishing a South African launching capability. The study has been concluded and will be presented to Cabinet for further discussion.

The bid to host the SKA

On 15 September 2011, South Africa and its eight African partner countries submitted Africa's bid file. This was a culmination of preparations that started in 2003, following Cabinet approval to bid for the megafacility. The SKA African partner countries provided letters of commitment to offer favourable customs and excise duty concessions, as well as a pristine environment for the SKA. South African premiers also rallied behind the SKA bid by providing pledges to create favourable conditions for the SKA in South Africa.

In January 2012, the African Union Heads of State Summit in Ethiopia re-endorsed support for the African SKA bid and proposed that radio astronomy be included as a priority focus area for Africa's S&T partnerships. In the 2012 budget speech, the Minister of Finance announced that the SKA would qualify for VAT relief if the global community decided to award the hosting of the SKA to Africa.

SKA human capital development

In the 2011/12 financial year, the SKA HCD programme provided 56 bursaries and research grants to technicians, undergraduates, postgraduate students and postdoctoral fellows. This brings the total number of bursaries and research grants awarded since 2005 to 379. In addition, South Africa has concluded an agreement with Brazil to place two master's and two doctoral Portuguese-speaking students from Mozambique in a study programme at INPE. School competitions for primary and high school learners were undertaken to create an awareness of study and career opportunities in radio astronomy, engineering and information technology.

Proliferation of radio astronomy in Africa

South Africa has partnered with Ghana to build the first radio telescope in Ghana. A 32-m communications antenna acquired from Vodafone will be converted into a radio telescope.

Negotiations between the DST and Telkom SA Limited culminated in the donation of a 7,6-metre communication dish antenna by Telkom. The antenna will be converted into a teaching radio telescope to complement the establishment of a radio astronomy university programme in Mozambique. A South Africa-Mauritius partnership has started the construction of MITRA, a low frequency array telescope. MITRA will have antenna stations in South Africa and Mauritius.

MeerKAT infrastructure construction in the Northern Cape

The next phase in the development of the Karoo Array Telescope in the Northern Cape is the construction of the 64-dish MeerKAT. The preparatory phase prior to MeerKAT construction has started. This includes the construction of a road network and a light aircraft landing strip at the MeerKAT site. Construction camps and electrical and fibre ducting reticulation have also started at the site. The manufacture of two 5 MVA transformers to upgrade the Karoo substation is under way to supply some of the future energy requirements for the MeerKAT site.

Protecting astronomy investments in the Northern Cape

The Minister of Science and Technology has published two notices in the *Government Gazette* to protect current and future radio telescopes in the Northern Cape. The first was the regulations to protect telescopes against extreme levels of radio frequency interference. The second notice was the intention to restrict certain activities at the MeerKAT telescope site that might have had detrimental effects on the operations of radio telescopes.

Economic spin-off benefits from MeerKAT technology development

A study confirmed that the establishment of an electronics cluster near Upington is feasible. It is envisaged that some of the IP from telescope technology development will catalyse new or existing companies to produce competitive electronic products for local and export markets. The study recommends that the scope for the cluster be broadened to include electrical and electromagnetic products. The cluster has the potential to make a significant impact on economic growth and employment creation.

Hydrogen and Energy

The subprogramme provides policy leadership in long-term and cross-cutting RDI in the energy sector. It 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 the nascent global economy. The following progress can be reported:

The South African Nuclear Human Asset and Research Programme (SANHARP), together with iThemba LABS, hosted a successful 2nd Annual Postgraduate Conference in Cape Town from 12 to 14 October 2011 to showcase the research outputs of SANHARP-sponsored postgraduate students. For the first time, SANHARP hosted 120 grade 11 learners (from four SANHARP-adopted schools in the Western Cape) at the Nuclear Expo Session facilitated by iThemba LABS. SANHARP also hosted a Life Skills session on 3 and 4 March 2012 and was able to accommodate nine students from the Nuclear Energy Corporation of South Africa bursary scheme, together with the SANHARP-sponsored students. Thirteen academic excellence awards were awarded to deserving students. SANHARP continued to support the students to ensure that they were employed once they completed their studies. Three students were employed permanently by Rand Water, three by Unilever and one by the CSIR, thus bringing the total number of students employed to seven. A total of 121 undergraduate and postgraduate students were funded by SANHARP during the period under review.

The Pebble Bed Modular Reactor IP capability and skills audit was completed in order to determine how best IP and skills could be preserved. This will inform how future nuclear R&D projects should be structured and managed. The Nuclear Energy Research, Development and Innovation Strategy was also completed to guide the nuclear R&D efforts for South Africa in order to support and sustain the existing nuclear sector, as well as the envisaged nuclear build.

With regard to biofuels, three patents were filed in respect of (i) the modification of xylan, (ii) a method for producing hydrogel and (iii) modelling the conversion of lignocellulose material. These are PCT/IB2011/001245; PCT/IB2011/001250; PCT/IB2011/001590.

Hydrogen South Africa

It has been four years since the official launch of the Hydrogen South Africa (HySA) programme, which marked the initiation of R&D activities by two centres of competence (CoCs), HySA Catalysis and HySA Systems.

Clean Energy, a South African fuel cell company that will initially market and eventually assemble and manufacture fuel cells in sub-Saharan Africa in partnership with Anglo Platinum and Altergy Power Systems, was established. The company is still in its market development stage and has already sold 18 fuel cell back-up power systems to Vodacom.

The three established CoCs have made progress in securing partnerships with the international private sector, which will enable HySA to penetrate the global fuel cell market. One of the partnerships is a technology transfer partnership between HySA Systems and Germany for the manufacture of membrane electrode assemblies. An automated manufacturing line has been commissioned at HySA Systems and it is envisaged that its installation will be completed by mid-2012, with samples already being manufactured and sent for testing to commercial customers by the end of the financial year.

A commercialisation agreement is being negotiated with a Norwegian partner for the commercialisation of a hydrogen storage material (HySA Systems patent). The parties have agreed to co-fund the pilot plant and upscale it into a fully-fledged manufacturing plant in South Africa. In collaboration with Hot Platinum, HySA Systems developed a power management system for portable power applications. The CoCs have successfully secured co-funding from the private sector. One major achievement in this regard is the partnership between Impala Platinum and HySA Systems. R6 million in co-funding was received from Impala Platinum and the partnership between Anglo Platinum and the Department resulted in Anglo Platinum providing HySA Infrastructure with R2 million in co-funding.

Biotechnology and Health Innovation

The Subprogramme: Biotechnology and Health Innovation provides policy leadership for the development of a world-class bioeconomy in South Africa. The subprogramme's objective is to establish and grow the bioeconomy across all relevant industry sectors in South Africa through the creation of enabling policies for biotechnology and health RDI that lead to the commercialisation and/or utilisation of bio-based products, processes or services for socio-economic impact, while preserving essential social, cultural and environmental values. This will be achieved through strategic investments in R&D, fostering innovative biotechnology and health research programmes, developing high-end human resources, creating critical mass in key strategic areas,

and the development of the appropriate connections for the commercialisation of innovative bioproducts and bioprocesses to grow the South African economy. The following progress can be reported:

Preclinical drug development platform

The project is intended to establish an infrastructure that is required for establishing a drug/phytomedicine development industry in South Africa. This is a crucial part of the value chain in drug development. It is also intended to provide a facility of international standing for the testing of South African vaccines produced by the Biovac Institute, which is currently spending up to R5 million per year on testing its vaccines abroad. The immediate outputs would be a preclinical testing facility in South Africa, which meets the current good manufacturing practice (cGMP) requirements for the testing of Biovac vaccines and drugs. The Biovac Institute will become one of the first clients of the new small animal preclinical testing facility at North West University, and the upgrading of their small animals unit will be done in such a manner that it will cater for the needs of the Biovac Institute. The small animal facility at North West University will be developed to include the breeding of small animals, a preclinical pharmaceutical development, a toxicity facility, a cGMP pharmaceutical potency and safety assessment facility, and a training facility. The final outcome will be a complete value chain in the drugs/phytomedicines industry, and the protection of South African IP.

Follow-on African Consortium on Tenofovir Studies

The historic CAPRISA 004 clinical trial, funded by the subprogramme and carried out by the Centre for the AIDS Programme of Research in South Africa (CAPRISA), showed that tenofovir gel, when used before and after sex, was 39% effective in preventing HIV infection in women. The findings of the CAPRISA 004 study were the first step in determining whether tenofovir gel is effective in preventing HIV. FACTS 001, a phase-3 clinical trial, has been designed to confirm and extend the findings of CAPRISA 004. FACTS 001 will help to confirm tenofovir gel's level of effectiveness, a critical step toward licensure of and access to tenofovir gel. FACTS is conducting a two-arm placebo-controlled safety and effectiveness study by testing tenofovir gel using the same dosing regimen as the CAPRISA 004 trial in 16 to 30-year-old women. This study includes nine South African sites and over 2 600 women, and is designed to simultaneously assess the effectiveness of coitally-related use of tenofovir gel against both HIV-1 and HSV-2.

The total combined budget for the study is R332 million over three years. Following discussions with the subprogramme, the Bill and Melinda Gates Foundation committed an amount of \$10 million to cover the funding shortfall for FACTS 001. The clinical trial was officially launched in June 2011 by the Deputy Minister and the US Ambassador to South Africa. Following the launch, the clinical trial sites in Cape Town, Garankuwa, Soshanguve, Yeoville, Pietermaritzburg, Tembisa, Ladysmith, Soweto and Rustenburg began to screen and enrol women for the study. The Cape Town site enrolled the first study participant for the trial on 21 October 2011. If the FACTS 001 study confirms that the gel is safe and effective, the information gathered could contribute to the licensure of the first microbicide product and consequently provide women with a new women-controlled HIV-prevention method.

Ketlaphela project

The official announcement that South Africa was planning to establish a R1,6-billion plant to manufacture active pharmaceutical ingredients for antiretroviral medicines was made during the reporting period. In the 2011/12, the subprogramme made available an amount of R2 964 617 to Pelchem (Pty) Ltd to support the Ketlaphela project. Ketlaphela is a joint venture between the South African government and Swiss chemicals and biotechnology company Lonza Ltd. Its primary aim is to manufacture, formulate and distribute pharmaceuticals locally to reduce the burden of disease in Southern Africa. Ketlaphela will first address the burden of communicable diseases such as HIV/Aids, tuberculosis and malaria, and later on non-communicable diseases such as diabetes, hypertension and cancer. It is anticipated that the Ketlaphela project will reduce the country's dependence on imports and help to mitigate the country's fast-rising trade deficit in the pharmaceutical sector, as well as providing security of supply of priority drugs.

Review of technology platforms

The subprogramme commissioned a study to review the current portfolio of investments in technology platforms to ensure that they are aligned with the mandate of the managing entity, TIA, and to evaluate their appropriateness, strategic intention and utility within the NSI. The need arose from TIA inheriting a portfolio of platforms that varied significantly in structure and function as a result of independent investment decisions, due diligence processes, geographic locations and the differing mandates of the instruments/entities that were migrated into TIA from the biotechnology innovation centres.

The review of the technology platforms was completed during the reporting period. A guideline document on technology platforms and recommendations for current platforms is being drafted based on the outcomes of the review process. This will be presented to EXCO for consideration in the 2012/13 financial year.

Biopharming initiative

The subprogramme is investing in building South Africa's competitive advantage for the production of biologics using plants as expression systems. CSIR Biosciences has received funding from the subprogramme to build on its current competency with other local state-owned enterprises (BioVac and Onderstepoort Biological Products) and has made fair progress during the reporting period.

CSIR Biosciences has produced a method (platform technology) for improving the potency for influenza vaccines using a conjugation method within the biopharming initiative, i.e. for expression of this improved biologic in plants. An advantage of this method is that it will reduce the number of vaccinations required to one vaccine. The current vaccination regime stipulates that two vaccines are needed to elicit protection in individuals, but with a more potent vaccine there should be no need to administer a booster vaccine. This should reduce the cost of producing the vaccine and thus make it more affordable. In addition, it may reduce the time frames for production, a critical factor in responses to pandemic influenza outbreaks.

Innovation Priorities and Instruments

The Subprogramme: 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. This is achieved through designing and creating policy and institutional structures that facilitate technology development and its progression into national and international markets.

Technology Innovation Agency

In line with its objective to have representation in all provinces, TIA established regional offices in Limpopo and the Free State in the 2011/12 financial year. This is in addition to those established in Gauteng, the Western Cape, the Eastern Cape and KZN in 2010/11. This will facilitate widespread access to provide support for technopreneurs across the country to commercialise



a greater proportion of their technology products and services. Since its operationalisation in the 2010/11 financial year, TIA has provided a range of technical and financial support services, including support to 18 new technology-based enterprises, and the development, with TIA funding, of 10 new technology products/processes/services.

National Intellectual Property Management Office

NIPMO was established as an interim office (chief directorate) within the Department as of January 2011, following the coming into effect of the IPR-PFRD Act on 2 August 2010. The interim office is mandated to conduct all the duties of NIPMO as set out in the legislation. It is anticipated that NIPMO will be a fully-fledged government agency by 1 April 2013.



Key achievements for the 2011/12 financial year include hosting the inaugural NIPMO IP conference, “Accelerating intellectual property and innovation in South Africa”, in September 2011. The conference was attended by over 200 delegates and included speakers and representatives from the Licensing Executives Society International, the World Intellectual Property Organisation (WIPO), the Biotechnology Industry Organisation and the African Union.

The Intellectual Property Fund was operationalised, with rebates amounting to R13 255 000 being awarded to institutions for IP protection costs. Institutions are eligible for up to 50% rebate on the costs they incur for IP protection and maintenance.



Another successful summer school on IP was hosted with WIPO in November/December 2011 as part of the concerted drive to ensure an adequately skilled workforce in IP, technology transfer and commercialisation.

NIPMO supported existing OTTs at the ARC, University of Johannesburg, University of the Witwatersrand and University of the Western Cape. A regional office was established in the Eastern Cape for Nelson Mandela Metropolitan University, Rhodes University, Walter Sisulu University and Fort Hare University, and another in KZN for the University of KwaZulu-Natal, Mangosuthu University of Technology, Durban University of Technology and University of Zululand. A total of R17 687 083 was committed to these institutions over a three-year period.

IP Wise was piloted as a direct engagement with researchers to educate them about the fundamental aspects of IP and how they can comply with the IPR-PFRD Act. The programme was piloted at the University of Limpopo, the University of Venda, Walter Sisulu University and Fort Hare University and reached 76 researchers.

NIPMO interaction with Higher Education South Africa

NIPMO has engaged with Higher Education South Africa (HESA) on the development of a full-cost matrix framework for costing R&D. This activity by HESA is a joint effort by a number of institutions to obtain common understanding and practice on how to comply with the legislative requirement for institutions to demonstrate how they cost their R&D activities. This has direct bearing on IP ownership as provided for in the IPR-PFRD Act. NIPMO's participation in the full-cost HESA forum has been solely as an observer. The activities of HESA in this regard do not negate the obligation of HEIs to submit their individual matrices on full cost to NIPMO for approval. NIPMO will be embarking on road shows to all institutions affected by the IPR-PFRD Act during the 2012/13 financial year.

Service delivery achievement

Table 2: Programme 2: Research, Development and Innovation

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
Support RDI initiatives in strategic research areas, namely, space, energy, bioscience and innovation research to enhance South Africa's knowledge and skills base.	Number of undergraduate and postgraduate students funded in space, bioscience and energy-related research	HCD in physical sciences and engineering	220 undergraduate and postgraduate students and technicians funded by 31 March 2012	62 new bursaries awarded to students and postdoctoral fellows.	A total of 255 undergraduates and postgraduates were financially supported through DST initiatives during the 2011/12 financial year.		Achieved
	Number of MeerKAT antennae constructed	MeerKAT antennae, infrastructure layout and construction jobs created	Roads, electrical reticulation and MeerKAT construction site camp contract awarded by 31 March 2012	The construction of the MeerKAT precursor array, which is the seven-dish Karoo Array Telescope (KAT-7), was completed at the SKA site near Carnarvon. KAT-7 is being commissioned to conduct astronomy research operations. The completed KAT-7 provided information that led to the redesign of MeerKAT from 80 centre-fed dishes to 64 offset dishes based on the final SKA design.	A contract to construct roads, electrical reticulation and the MeerKAT construction site camp was awarded and the site was handed over to the contractor.		Achieved
	Number of jobs created		100 construction jobs created in the Northern Cape by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	The jobs were not created.	The contract was awarded in March and site handover was done in the middle of March. This was due to some administrative delays during the bidding process for the contract.	Not achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
	Number of new research chairs and CoCs supported in space, bioscience and energy-related research	Research chairs and CoCs in space and bioscience-related research supported	5 research chairs supported by 31 March 2012	Research chairs have been identified, but are on hold until funding has been finalised.	80% of this annual target was achieved during the period under review. The Department provided support to a total of 4 research chairs through the NRF.	An appropriate candidate for the research area of the fifth chair could not be found.	Partly achieved
	Number of publications as a result of R&D-funded initiatives	Publications as a result of R&D-funded initiatives	6 publications resulting from R&D-funded initiatives by 31 March 2012	12 papers were published in peer-reviewed journals and a book chapter was written.	6 peer-reviewed publications resulting from R&D-funded initiatives have been produced, including a book chapter		Achieved
To create and support multi-directional policy and institutional linkages between R&D and commercialisation in order to increase the commercialisation potential of R&D outcomes.	SANSA fully operational	RDI institutions (SANSA, TIA and NIPMO) supported	SANSA foundational operating phase finalised by 31 March 2012	Public launch of SANSA was held on 9 December 2010. The CEO and Board have been appointed.	SANSA is now fully operational.		Achieved
	NIPMO fully operational		NIPMO interim operational phase completed by 31 March 2012	The interim NIPMO moved into its own offices. Interviews for the interim head of NIPMO were concluded.	NIPMO interim office is now operational.		Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
	Number of feasibility studies conducted towards the establishment of TIA regional offices	RDI institutions (SANSa, TIA and NIPMO) supported	4 feasibility studies conducted for the establishment of TIA regional offices in the Northern Cape, Mpumalanga, Limpopo and Free State by 31 March 2012	TIA regional offices were established in Gauteng, the Western Cape, the Eastern Cape and KZN in 2010/11.	No feasibility studies were conducted, but TIA regional offices were established in Limpopo and the Free State in the 2011/12 financial year. At present the Limpopo office is catering for Mpumalanga and the North West, and the Free State office is catering for TIA clients in the Northern Cape.	The target could not be achieved because of the misalignment between DST plans and implementing agency plans. TIA did not have this indicator in their plans, but had the "establishment of regional offices in provinces" as their target.	Partly achieved
	Number of new OTTs established/ recapitalised	OTTs established/ recapitalised	4 OTTs established and/or recapitalised by 31 March 2012	4 new OTTs established by January 2011 (one in each of the following provinces: Gauteng, KZN, the Western Cape and the Eastern Cape). Payments were transferred in support of OTT establishments.	No new OTTs were funded during this financial year.	The target could not be achieved because of the lack of budget allocation to NIPMO.	Not achieved
	Number of new technology-based enterprises supported	Technology-based enterprises supported	14 new technology-based enterprises supported by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	A total of 18 new technology-based enterprises were supported by the TIA by the end of the 2011/12 financial year.	TIA is a new organisation and the only one of its kind in South Africa. There was therefore no South African baseline and TIA had to estimate its output target.	Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
	Number of new technology products/ processes/services developed for commercialisation	Technology products/ processes/services developed for commercialisation	35 new technology products/processes/ services developed for commercialisation by 31 March 2012	One service developed and 7 technologies developed	10 new technology products/ processes/services commercialised.	The definition of the new technologies had initially assumed the inclusion of technology improvements, however, it was agreed that technology improvements were not the same as new technologies, and hence were reported separately.	Partly achieved
	Number of new CoCs and/or technology demonstrators supported	CoCs and demonstration plants conceptualised and funded for establishment	4 CoCs and/ or technology demonstrators established by 31 March 2012	The CoC core team operational and funded. Core team planning and implementing a feasibility study. Core team developing the business plan.	The CoCs and/ or technology demonstrators were not established for various reasons.	For the Biotechnology and Solar CoCs, the process towards technology demonstrators has been delayed. The solar technology road map is being revised to inform the business plan better. For Space, the budget was transferred to SANSA through the reprioritisation process, as no allocation for SANSA had been received from National Treasury and therefore the DST had to use its own budget for SANSA to be operational.	Not achieved



Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
	Number of candidates trained in IP and technology transfer specialised skills	Candidates trained in IP and technology transfer specialised skills	40 candidates trained in IP and technology transfer specialised skills by 31 March 2012	59 people were trained in IP management.	A total of 150 individuals participated in different IP training activities. These include 76 researchers/ research managers who participated in the IPWise™ training; 28 candidates trained through the WIPO Summer School on IP, 42 technology transfer professionals who participated in the Association for University Technology Managers webinar sessions, 5 technology transfer professionals training.	NIPMO is a new organisation and only became operational in this financial year. Its targets were therefore estimates.	Achieved
	Number of prototypes developed and patents registered	Prototypes developed and patents registered	1 prototype developed and 3 patents registered resulting from HySA related CoCs by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	1 prototype was developed and funding for a pilot plant was secured from the DST. In addition, 1 patent was registered during the period under review. Patent Application ZA 2011/03817 (South Africa, provisional specification).		Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
	Number of requests for satellite datasets honoured	Honoured requests for datasets required for R&D and decision making	4 000 requests for datasets honoured by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	A total of 62 372 requests for datasets were honoured by the end of the 2011/12 financial year.	SANSA was launched in December 2010. This was a new indicator, and therefore an estimate. There was no baseline at the time against which to benchmark this target.	Achieved
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.	Number of policy briefs and concept documents developed in space, energy, bioscience and technology commercialisation-related fields	Policy briefs and concept documents on key RDI technology missions	4 policy briefs and concept documents developed by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	<p>2 policy briefs and concept documents were completed during the period under review. One was deferred and the last one is still outstanding.</p> <p>IP policy guideline on MeerKAT and SKA-related research has been completed and handed over to NIPMO for refinement with the NRF.</p> <p>The review of the technology platforms was completed in February 2012.</p>	<p>The Health Innovation Strategy was not finalised – awaiting finalisation of Bioeconomy Strategy.</p> <p>Proposal to develop venture capital concept document within the DST to be deferred pending the outcome of engagements with other government departments, including National Treasury, that may be in the process of developing venture capital fund initiatives.</p>	Partly achieved



Programme 3: International Cooperation and Resources

The International Cooperation and Resources (ICR) Programme is responsible for positioning the DST and South Africa as a strategic international partner with respect to STI cooperation, in both bilateral and multilateral contexts, and increasingly also with respect to private multinational corporations. The purpose of this is to maximise the benefit to the NSI from opportunities to access international STI resources such as research funding, knowledge networks, research infrastructure and institutions, policy discourses, and ODA.

The main objectives of the Programme are 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;
- increase South African and foreign funds spent on S&T-based socio-economic development in Africa;
- 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;

- 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 following progress can be reported:

During the period under review, a total of R285 million in foreign STI funds was leveraged in stimulating international technology transfer and knowledge production, and in enhancing innovation in pursuit of research-led socio-economic development. This includes R214 million ODA in cash and in kind, and R71 million from South African participation in FP7 initiatives.

The Department also spent a total of R63,8 million on S&T based socio-economic development in Africa. These funds were spent on the following initiatives: BioFISA (R7,5 million), Promoting African European Research Infrastructures Partnership (PAERIP) (R3,6 million), ODA (R3,6 million), European Developing Countries Clinical Trials Partnership (EDCTP) (R6 million), African Institute for Mathematical Sciences (R1,5 million), the African Laser Centre (R3 million), NEPAD S&T Office (R0,25 million), the World Association of Industrial and Technological Research Organizations (WAITRO) (R0,6 million), Southern African Network for Water Sciences Centre of Excellence

(CoE) (R1 million), EU-Joint Research Centre (R5 million), and joint calls with Algeria (R10 million), Egypt (R4 million), Kenya (R4 million), Namibia (R5 million) and Zambia (R2,4 million).

South African STI role players had access to 3 460 foreign participants in global knowledge and STI networks. The access was under the following initiatives: SAFIPA (65), INCONTACT (53), various development partnership programmes (266), FP7 initiatives (2 348), joint calls with African partner countries (100), and joint calls with overseas partner countries (598).

In order to contribute to a competent and equitable pool of SET skills in South Africa, the Department increased the number of South African students participating in international cooperative STI research projects. A total of 1 270 South African students participated in international cooperative STI research projects under development partnership programmes (166), FP7 Cooperation in Science and Technology (COST) engagements (26), African bilateral engagements (100), and overseas bilateral programmes (978).

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

During the period under review, through the leadership of this subprogramme, the Department participated in the inaugural Senior Officials Meeting of Brazil, Russia, India, China and South Africa (BRICS). Already the DST is leveraging opportunities for Africa in radio astronomy, innovation and technology transfer, and space S&T. South Africa will be hosting the next Senior Officials Meeting later in 2012, which will be used to take forward decisions on the implementation of an S&T programme under BRICS. Under the India-Brazil-South Africa (IBSA) banner, engagements have been initiated in the areas of oceanography and nanotechnology and on the IBSA satellite programme. Discussions will be finalised in 2012 on the implementation plan for the IBSA satellite programme. The building of strong South-South relations was further enhanced with the establishment of the nanotechnology binational centre between South Africa and Argentina, with a focus on health sciences, food security and water research. Strategic bilateral partnerships have also been leveraged to promote regional activity. One such case is that of the Southern African Science Service Centre for Climate Change and Adaptive Land Use (SASSCAL), which

has the partner countries of Germany, Angola, Botswana, Namibia, Zambia and South Africa, who have engaged to finalise the signing of a cooperation agreement.

The Subprogramme: 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 achieve shared economic and social development in the region and the continent.

During the 2011/12 financial year, the subprogramme focused on an enhanced African agenda and sustainable development. With the Department currently working to bring global astronomy programmes to Africa, the DST secured R120 million from the African Renaissance Fund for the Very Long Baseline Interferometry Network, which will allow astronomical observations over much larger areas. This initiative will develop the much needed human capital and skills base in SET in the African continent.

Through this subprogramme, South Africa continued to contribute towards the Draft Regional Strategic Plan and to play a leading role in the region as demonstrated in the number of Southern African Development Community (SADC) projects. The number of strategic African partner countries with which S&T agreements have been signed reached 18 when an agreement was signed with Tanzania in April 2011.

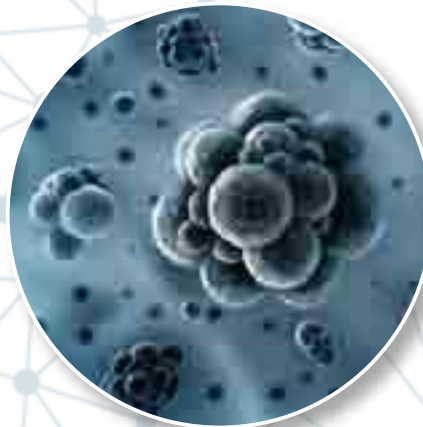
The Department was instrumental in the climate change negotiations at COP17, leading the technology development and transfer agenda which resulted in the establishment of the technology mechanism. As part of its COP17 legacy projects, the Department launched the Southern African Young Scientists Summer Programme in collaboration with the International Institute for Applied Systems Analysis (IIASA) and the NRF, with a view to building interdisciplinary capacity through scientific studies on environmental, economic, technological and social issues. IIASA has also partnered with a South African university in co-hosting a research chair in Earth Systems Analysis.

The Subprogramme: 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.

As we mark the 15th anniversary of South Africa's S&T partnership with the EU, a special event to present the next phase of the EDCTP, a programme currently worth more than €400 million, for which funding will be increased to support the fight against HIV/Aids, tuberculosis and malaria will be held later this year, presided over by the Minister of Science and Technology and the European Commissioner for Research, Innovation and Science. The strong partnership with the EU received a major boost when Written Declaration No. 45 on "Science capacity building in Africa: Strengthening European-African radio astronomy partnerships" was adopted in the European Parliament by its elected representatives. The tabling of the declaration and its subsequent adoption demonstrates that key partners from European governments and industry share the perspective that not only does Africa have compelling geographic advantages for the hosting of radio astronomy facilities, but that the continent is an attractive and valued partner for science and innovation. The written declaration comes after the statement by African Heads of State, who, at the African Union Summit held in January 2012 in Addis Ababa, called for radio astronomy to be a priority focus area of the Joint Africa-EU Strategy's Science, Information Society and Space Partnership.

The Department also worked to strengthen strategic partnerships with the private sector with the aim of developing scientific human capacity and research supporting infrastructure linked to various priority areas, particular the ICT sector. Agreements were concluded with multinational companies such as Microsoft, Nokia and SAP, while discussions with IBM, CISCO and Telespazio are at an advanced stage. Among the programmes implemented as part of these relationships are the joint organising of Imagine Cup South Africa with Microsoft, and the establishment of a cutting-edge mobile applications laboratory at the Innovation Hub which is set to unleash mobile entrepreneurship across Southern Africa in partnership with Nokia, the World Bank's Information for Development programme and the government of Finland. Imagine Cup is an annual competition sponsored and hosted by Microsoft which brings together young technologists worldwide to help resolve some of the world's toughest challenges. The South African winners will join others from over 180 countries at the finals in Sydney, Australia.

General Budget Support from the EU to the value of R144 million over three years was secured towards supporting Innovation Partnerships for Rural Development. These funds will augment the already successful EU Sector Budget Support allocation of approximately R300 million for S&T for poverty alleviation, which is to be deployed between 2009 and 2015.



Service delivery achievement

Table 3: Programme 3: International Cooperation and Resources

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
To increase leverage of foreign funds that will stimulate international technology transfer and knowledge production, and enhance innovation in pursuit of research-led socio-economic development	Amount of foreign STI funds	Foreign STI funds leveraged	R285m in foreign STI funds leveraged by 31 March 2012	A total of R184,487m was received by the DST (R104,222m in actual funding, R27,765m in in-kind contributions through ODA, and R52,5m through the FP7).	The DST leveraged a total of 285m in pursuit of research-led socio-economic development (R214m includes all ODA, cash and in kind, R1,368m for EU-South Africa TDCA STI MoU and R71m from the FP7 initiatives).		Achieved
To increase South Africa and foreign funds spent on S&T-based socio-economic development in Africa	Amount of South African and foreign funds spent on S&T-based socio-economic development in Africa	South African and foreign funds spent on S&T-based socio-economic development in Africa	R45m South African and foreign funds spent on S&T-based socio-economic development in Africa by 31 March 2012	The amount spent for the year is R53,1m	R63,8m South African and foreign funds spent on S&T-based socio-economic development in Africa, as follows: BioFISA R7,5m, PAERIP R3,6m, ODA R3,6m, EDCTP R6m, joint calls with African countries R25,4m (Algeria R10m, Egypt R4m, Kenya R4m, Namibia R5m, Zambia R2,4m), transfers (R6,35m to AIMS, R1,5m to the ALC, R3m to NEPAD S&T Office 250k, WAITRO R600 000, R1m to Southern African Network for Water Sciences CoE) and leveraged R5m (€461 000) from EU-Joint Research Centre.	ICR has been able to secure R18,8m more than the target due to the ongoing effort to increase the funds spent on S&T-based socio-economic development in Africa. This is still a relatively new indicator, which makes the setting of accurate targets challenging, especially because this target depends on sometimes unpredictable variables.	Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
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 in global knowledge and STI networks	Foreign participants in global knowledge and STI networks	3 380 foreign participants in global knowledge and STI networks by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	3 460 foreign participants in global knowledge and STI networks such as SAFIPA, INCONTACT, PAERIP and other programmes. Also bilateral corporation between South Africa and countries like Algeria, Egypt, Kenya, Namibia and Zambia.	There were more foreign participants than planned, mainly owing to improved data quality of bilateral cooperation. The target is also dependent on the number of successful bids South Africa has under the FP7 calls.	Achieved
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.	Number of South African students participating in international cooperative STI research projects	South African students participating in international cooperative STI research projects	730 South African students participating in international cooperative STI research projects by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	1 270 South African students participated in international cooperative STI research projects such as development partnership programmes, FP7 COST engagements, overseas programmes and projects in countries like Algeria, Egypt, Kenya, Namibia and Zambia.	540 more students than planned participated in international cooperative STI research projects, mainly owing to efforts to improve the reporting and tracking of the international participants.	Achieved



Table 4: Programme 3: International Cooperation and Resources (Additional Indicators)

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
Cross-cutting	Number of continental STI initiatives/events organised		19 continental STI initiatives/events organised by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	A total of 21 continental STI initiatives were organised by the Department during the period under review. These include a BioFISA stakeholder workshop, an SADC research management workshop and donor forums.	2 more opportunities than originally targeted arose from the ongoing work in the continent.	Achieved
Cross-cutting	Number of innovation initiatives		10 innovation initiatives by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	A total of 10 innovation initiatives were led by the Department during the period under review. These include MoUs signed between the DST and SAP, Microsoft and Nokia, and an innovation workshop with Switzerland.		Achieved
Cross-cutting	Number of international engagements held		21 international engagements held by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	By the end of the 2011/12 financial year, a total of 31 international engagements had been held. These include GEO's Executive Committee and Post-2015 Working Group meetings, and meetings with countries such as Angola, Algeria, Kenya, Zimbabwe and Mozambique.	ICR participated in a number of international engagements in addition to the planned ones primarily because some were proposed by our international partners. South Africa's successful partnerships have not gone unnoticed, so time and again, the country has been invited to share experiences with other parties and in various multilateral forums.	Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
Cross-cutting	Value of funds committed to published calls with international partners		R103m value of funds committed to published calls with international partners by 31 March 2012.	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	Only R68,3m of funds were committed to published calls with international partners during the 2011/12 financial year. This was only 66% of the targeted amount for the period under review.	Some of the calls were not published due to the reprioritisation of funds or for political reasons.	Partly achieved
Cross-cutting	Number of engagement strategies approved		11 engagement strategies approved by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	The following engagement strategies were approved: EU, Foundations and Philanthropic Organisations, Germany, France, Switzerland and Norway (with some additions). The remaining strategies (for Tanzania, Namibia, Ghana, Angola and multilateral organisations) were submitted and approved (again with minor additions required).		Achieved
Cross-cutting	Number of countries secured to exhibit at International Science, Innovation and Technology Exhibition (INSITE)		10 countries secured to exhibit at INSITE by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	No countries were secured to exhibit at INSITE during the period under review.	INSITE was cancelled by EXCO.	Not achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
Cross-cutting	Number of strategic engagements held (which include policy dialogue and joint workshops)		5 strategic engagements held (which include policy dialogue and joint workshops) by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	A total of 13 strategic engagements were held during 2011/12. These include a European Research Council information session with a presentation delivered by Prof. Donald Dingwell, Secretary-General of the European Research Council, 2011 EU Joint Cooperation Council meeting held in Brussels, and an SA-EU Summit side event on climate change held at the DST.	ICR participated in 8 more strategic engagements than originally planned because unique opportunities were presented by the DST's international partners, some of them even being funded by the instruments of the partners.	Achieved
Cross-cutting	Amount of funds secured from other DST programmes		R20,5m in funds secured from other DST Programmes by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	By the end of the 2011/12 financial year, Programme 3 had secured R44,3m from other DST Programmes.	A very attractive, but unforeseen, opportunity was presented on HIV collaboration, that resulted in the additional R23,8m being secured from other DST Programmes.	Achieved
Cross-cutting	Number of international STI initiatives		8 international STI initiatives led by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	A total of 18 international STI initiatives were led by the Department during the period under review. These include an ERAfrica workshop in Stellenbosch in March and another in Mombasa in June, ERAfrica meetings in Brussels and Portugal (DST is a regional coordinator) and SAccess/ESASTAP information sessions in Europe.	ICR was able to lead in 10 more international STI initiatives than originally planned, mainly through the expansion of the EU relationship into Africa	Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
Cross-cutting			16 international SKA partners engaged by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	A total of 25 international SKA partners were engaged by the Department during the period under review. The engagements included high-profile addresses, engagement at EU parliamentary sessions, a lobbying mission in Italy, a lobbying mission in China, and 8 African partners engaged at the jointly organised 6th SKA Working Group and 4th Steering Committee meeting with Programme 2. DST also attended the Canada SKA Global Forum Meeting. Botswana SKA MoU signed. Ministerial visits to Botswana, Mauritius and Mozambique, and letters of commitment received from all African partner countries.	The additional 11 international SKA partners were engaged as the DST had to increase the lobbying in pursuit of securing the SKA bid for Africa.	Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
Cross-cutting	Number of strategic documents approved by EXCO		13 strategic documents approved by EXCO by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	13 strategic documents were approved by EXCO by 31 March 2012, as follows: ODA Strategy, Multinational Conceptual Framework, Impact of EU Involvement, Organisation for Economic Cooperation and Development (OECD) Impact Report, Africa Multilateral Strategy, International Centre for Genetic Engineering and Biotechnology briefing, IBSA lessons in light of BRICS, BRICS Strategy, INSITE, German-SA Year of Science, Senior Science and Technology Representatives Report, TIA as South Africa's National Focal Point for the International Council for Scientific and Technical Information, SA-Korea International Technology Transfer Programme.		Achieved



Programme 4: Human Capital and Knowledge Systems

The Programme provides leadership in the creation of an innovative and competitive society with highly skilled human capital, cutting-edge knowledge and research infrastructure.

The main objectives of the Programme are to –

- build a SET human capital pipeline to ensure increased availability of researchers and innovators for South Africa's global competitiveness;
- promote and enhance research productivity to increase South Africa's world share of knowledge outputs;
- identify and support the development of new and emerging research areas and technologies for their application in the improvement of quality of life and enhancement of economic competitiveness;
- ensure the availability of appropriate infrastructure for enhancement of RDI competitiveness;
- promote and develop RDI in indigenous knowledge systems (IKS) for improved quality of life.

Subprogramme: Human Capital and Science Platforms

This subprogramme 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. Focus areas include astronomy, archaeology and palaeontology. The research chairs at South African universities, CoEs, and a postdoctoral fellowship programme are instruments that the Department uses in these focus areas.

This subprogramme continued to build a SET human capital pipeline to ensure increased availability of researchers and innovators for South Africa's global competitiveness. During the period under review, the subprogramme focused on developing key strategic documents and policies that will guide the building of South Africa's SET human capital pipeline. As part of conceptualising national strategies that contributed to HCD of this country, the subprogramme has been developing a Human Capital Development for Research, Innovation and Scholarship (HCD for RIS) Strategy during the period under review. This strategy is aimed at increasing the number and improving the equity profile of honours, master's and doctoral graduates, and postdoctoral fellows, nurturing and supporting emerging researchers, and maximising the effectiveness of established researchers.

The strategy contributes to the objectives of South Africa's Human Resource Development Strategy, to increase the supply of skilled personnel in the areas of SET, and to improve South Africa's performance in teaching, research and innovation, and the commercial application of high-level SET knowledge. The content of the draft HCD for RIS Strategy has been approved by the Minister. During 2012/13 its financial model and implementation plan will be finalised. In addition, in closing the policy gap in dealing with bursaries offered by the NRF, the Programme developed a policy directive on bursaries and fellowships and had it approved by EXCO. This policy directive is meant to enhance the HCD support effectiveness, efficiency and impact, increase public accountability, and improve policy coherence across government departments to facilitate equitable access to postgraduate studies. Meanwhile, more than 7 000 postgraduate students were supported through the NRF, with 1 692 honours, 3 478 master's and 1 913 PhD bursaries awarded.

In addition, the Department contributed significantly in increasing the number of researchers and enhancing research and innovation skills in South Africa. The number of researchers supported through the NRF increased by 29% within three years (from 2009 to 2011). The total rose from 2 054 in the 2008/09 financial year to 2 886 in the 2011/12 financial year, with an investment of R693 million during 2011/12.

Endeavours to produce scientists, engineers and technologists also depend on the availability of school leavers with appropriate aptitude and attributes to pursue higher education SET studies. As part of stimulating learners' interests in science, technology, engineering, mathematics and innovation (STEMI), as well as identifying and nurturing youth talent and potential, a total of 29 science centres were awarded development grants during the period under review. The South African science centre community also hosted a successful 6th Science Centre World Congress in Cape Town, in which over 50 countries participated. Seventeen African countries interested in establishing science centres attended the congress, an indication of the high level of interest in establishing science centres on the continent. One of the resolutions from the congress was that there should be increased engagement of African countries in science centre development. South Africa, having the largest number of science centres in Africa, was requested by the congress to assist other African countries in the development of science centres. Forms of support considered here include capacity building and sharing of technical experience. A STEMI strategy for the NSI will be developed in 2012/13.

As part of its drive to promote awareness of S&T in South African communities, the Department supported very successful science festivals, which saw 412 592 participants taking part during the 2011/12 financial year. This success can be attributed to an intervention at the Rand Show in the first quarter, and participation in the Lesotho and Mozambique National Science Weeks during the second quarter.

In December 2011, South Africa successfully hosted the International Junior Science Olympiad (for 15-year-olds) in Durban, in which 43 countries participated. This was an achievement as the Olympiad event overlapped with COP17. During the past financial year, 10 new centres were established, where talented learners in mathematics were coached in problem solving, which will increase the talent from rural and disadvantaged areas participating in the provincial and national Mathematics Olympiads.

The 2011 Women in Science Awards ceremony held in August (Women's Month) successfully showcased South Africa's top women researchers. The winner of the Distinguished Young Woman Scientist Award in Natural, Life and Engineering Sciences, Prof. Jolanda Roux of the University of Pretoria, went on to win the international Commonwealth Forestry Association's Queen's Award for Forestry. Prof. Roux is a member of the DST/NRF Centre for Tree Health Biotechnology with the Forestry and Agricultural Biotechnology Institute.

In promoting and enhancing research productivity to increase South Africa's world share of knowledge outputs, this subprogramme finalised the South African Strategy for the Palaeosciences, which was gazetted in August 2011 and approved by Cabinet in February 2012. This strategy enjoins the private and public sectors, through the work of different government departments, their agencies and institutions such as universities, science councils, and museums that play a significant role in research in the palaeosciences, to work in concert toward realising the goals of the strategy. The strategy addresses five goals and their associated interventions, which recognise the need for a holistic approach in the development of the palaeosciences. These goals are centred around the need to build human capital, provide resource support and an enabling legislative environment, to collect, curate and research the country's palaeosciences treasures, and engage the public in all spheres of the field. In implementing this strategy a national vision will be realised for the future of palaeosciences.

The Department has started implementing the strategy by developing terms of reference for the establishment of a national research CoE that might evolve into a national institute for the palaeosciences, to showcase and enhance South Africa's unique position and research capacity in the palaeosciences. Two new research chairs in palaeosciences were awarded in 2011/12, bringing the total to three.

Astronomy is another of the areas identified in the NRDS as a knowledge field in which South Africa should aim to achieve international research excellence because of its geographical position. During the year under review, the Astronomy Desk report was analysed and the Minister accepted the recommendations of the desk for implementation. This led to a review process of the National Astrophysics and Space Science Programme, together with the Multi-wavelength Astronomy Programme being commissioned to the NRF, and also extended the lifespan of the Astronomy Desk for up to three years. The Desk will assist the Department in –

- establishing a suitable entity to govern and manage the development of astronomy in South Africa;
- assessing a previous report on HCD in astronomy, and identifying in consultation with the NRF those aspects of the report that could be implemented in the short to medium term;
- developing a holistic strategy for the advancement of astronomy and related disciplines in South Africa, which will provide a clear research plan, proposing focal areas of research that could define a research niche for South African astronomy.

Subprogramme: Emerging Research Areas and Infrastructure

The subprogramme 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. Its main objectives are to identify and support the development of new and emerging research areas and technologies for their application in the improvement of quality of life and the enhancement of economic competitiveness, and to ensure the availability of appropriate infrastructure for enhancement of RDI competitiveness.

Towards achieving its objectives of identifying and supporting the development of new and emerging research areas and technologies, the Department has been supporting the development of three

main emerging research areas it had identified in consultation with relevant stakeholders for the past six years. These emerging research areas are nanotechnology, photonics and synthetic biology. For all these areas, the emphasis in their development has been on HCD, creation of research capacity, and acquisition of appropriate infrastructure.

The implementation of the Photonics Strategy continued in 2011/12, with the emphasis on consolidating the research agenda as pivotal for human capital and research capacity development, as well as determining the infrastructure requirements. In this regard, programmes for HCD and the development of photonics research groups from the previously disadvantaged universities were prioritised.

The Department has also embarked on the development of the South African Biodesign Initiative strategy, which will be approved and implemented during the 2012/13 financial year.

In addition, the establishment of the NPTTP was finalised and the first cohort of 21 master's students was registered in January 2012. The NPTTP is a multi-university system offering a structured master's degree in nanoscience, and is intended to grow the number of students pursuing degrees and eventually careers in nanoscience and nanotechnology. Once the NPTTP is fully implemented, the anticipated annual intake will be a minimum of 40 students.

The subprogramme continued to support the existing seven Nanotechnology Flagship Projects, as well as three new projects in the 2011/12 financial year; these flagships were introduced as a major instrument to implement the goals and objectives of the Nanotechnology Strategy, in particular to fast-track human capital and research capacity development and accelerate knowledge outputs in this research area.

In order to accelerate innovation in nanotechnology and to develop human capital for industrial work, the subprogramme supported 73 postgraduate students, and 16 postgraduate students graduated during the period under review. In total, 103 peer-reviewed articles and two book chapters were published, one patent was filed, three patents are currently under development and one prototype was developed during 2011/12.

The subprogramme continued to ensure the availability of appropriate infrastructure. The overall objective is to exploit the reciprocity between infrastructure availability and human and research capacity development to address the challenges of the HCD pipeline, research productivity and competitiveness. In order to train students, having a sustainable HCD pipeline and increased research productivity requires world-class infrastructure and, conversely, the availability of infrastructure needs scientists and researchers to use it optimally and effectively.

A major achievement in the provision of research infrastructure was the commissioning of the first atomic resolution transmission electron microscope in the country and the official launch of the Centre for High Resolution Transmission Electron Microscopy at Nelson Mandela Metropolitan University. The centre is the only one of its kind in the Southern Hemisphere and one of only a few worldwide, and its facilities and equipment are key to the development of cutting-edge nanotechnology R&D. A total of 50 infrastructure grants were awarded to facilitate RDI across the entire value chain during the 2011/12 financial year. Of this, 33 equipment grants were allocated to researchers at higher education institutions (HEIs).

The infrastructure provision includes not only physical research equipment and facilities, but also cyberinfrastructure, namely communication networks (South African National Research Network), high performance computing (Centre for High Performance Computing) and data storage and management (Very Large Database). The continued roll-out in 2011/12 of broadband connectivity to HEIs and research institutions aimed to reduce the digital divide, and it is envisaged that by the end of the 2012/13 financial year all HEIs will be connected, including rural and remote ones, thereby enabling all institutions to participate in large science projects and exploit new ways of teaching and training. The South African National Research Network (SANReN) connectivity to all metro areas in the country was completed in November 2011, thereby connecting all the major public HEIs. In fact, 17 of the 23 HEIs are now connected. To date, a total of 86 research sites and HEIs have been connected to the SANReN backbone. This included the two main scientific projects of national importance, the Southern African Large Telescope and the SKA pathfinder, the MeerKAT.

Subprogramme: Indigenous Knowledge Systems

The subprogramme promotes the role of IKS in national R&D programmes to strengthen their contribution to STI. The focus is on providing an appropriate regulatory and policy environment, an accreditation and certification system for indigenous knowledge holders, and a bioprospecting and product development platform for indigenous knowledge.

In order to strengthen and provide legal certainty for RDI activities, policies on the protection of databases and research ethics, and the development of a Bill for protection, preservation and management of IKS, were completed in the year under review. The finalisation of the Framework for the Accreditation and Certification of IKS knowledge holders and practitioners was another important policy milestone achieved. The policy documents await ministerial approval. The National Recordal System, a hub for the documentation, storage, management and dissemination of indigenous knowledge, has branches in three provinces (KZN, Limpopo and North West). With the completion of the National IKS Management System (NIKMAS) Phase I, its operating system is complete with the following features: a semantic search engine, holders' access to own indigenous knowledge (IK) items, IK item status text message notification service, IK classification support, application for restricted access to the NIKMAS facility, public access to the NIKMAS facility, and a community promotional information capturing tool.

The development of IKS through knowledge generation activities entailed funding research through the NRF. During the year under review, the subprogramme funded research into the commercialisation of African traditional metallurgy technologies, the application of African traditional psychiatry in nursing and counselling, and African traditional medicine (ATM) and food security. The DST also co-sponsored a side event at COP17 on "IKS and climate change" by the African Young Scientists Initiative on Climate Change and Indigenous Knowledge. The key innovation highlights include the funding of bioprospecting activities on ATMs, nutraceuticals and cosmeceuticals. One of the cosmeceutical products has completed clinical trials and is ready for commercialisation.

The bioprospecting activities in IKS were funded under the ATM, nutraceuticals and cosmeceuticals flagships. Funded research work focused on testing claims for curing priority diseases such as HIV/ Aids, tuberculosis and diabetes. Clinical trials on a cosmeceutical prototype have been successfully completed and the prototype is ready for commercialisation. The conceptual framework for the Integrated Bioprospecting Platform was presented at a bioprospecting stakeholder workshop on 24 February 2012. In addition, technology transfer pilot projects on the moringa tree were initiated in Atteridgeville (Gauteng), KwaDukuza (KZN) and Tooseng (Limpopo).

The completion of Phase I for the establishment of NIKMAS as the operating system for the National Recordal System was a key deliverable for the subprogramme. A breakthrough in the development of the accreditation and certification framework for IKS knowledge holders and practitioners culminated in the finalisation of the framework, although EXCO approval was not obtained in the year under review.

In addition, the subprogramme participated in a range of public awareness events, including the Rand Show, the hosting of a workshop on IP rights and ATM in July, and the hosting of the 2011 IKS Expo and Workshop in Mafikeng.

Service delivery achievement

Table 5: Programme 4: Human Capital and Knowledge Systems

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
To build a SET human capital pipeline to ensure increased availability of researchers and innovators for South Africa	Number of postgraduate research students supported	Postgraduate research students supported	6 600 postgraduate students supported by 2014 2 310 honours, 2 574 master's and 1 716 PhD students supported by 31 March 2012	2 359 students were supported (964 through the comprehensive bursary scheme [462 honours, 268 master's, 234 PhDs], 476 through CoEs, 67 through the Palaeontological Scientific Trust, and 852 through the South African Research Chairs Initiative).	A total of 7 083 postgraduate students were supported by DST through the NRF by the end of 2011/12 financial year. 1 692 honours, 3 478 master's and 1 913 PhD bursaries awarded.	NRF received more funds to fund more students.	Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
	Number of people reached through DST-funded initiatives	People participating in science awareness and engagement programmes and initiatives	375 000 people participating in science awareness and engagement programmes and initiatives by 31 March 2012	252 776 people visited National Science Week (NSW) sites in 2010 and it is estimated on the basis of readership and circulation figures of electronic and print media that up to 30m people were reached through the media.	751 217 people participated in science awareness engagements (338 625 participated in NSW and 412 592 in science festivals).	The target was exceeded for two reasons: (a) The annual Rand Show offered the DST an extraordinary opportunity to reach out to more people. (b) Some NSW grant holders were able to leverage additional resources from other sources, which led to an increase in their activities.	Achieved
To promote and enhance research productivity to increase South Africa's world share of knowledge outputs	Total number of researchers supported	Researchers supported	2 500 researchers supported by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	2 886 researchers supported by the DST during the 2011/12 financial year	The NRF received more external funding and was therefore able to fund more researchers	Achieved
To identify and support the development of new and emerging research areas and technologies for their application in the improvement of quality of life and enhancement of economic competitiveness	Number of teaching and training platforms established	Established nanoscience, photonics and synthetic biology teaching platforms	One nanoscience, photonics and synthetic biology teaching and training platform by December 2011	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	A multi-university NNPTTP was established. A total of 21 master's students were registered.		Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
	Number of flagship projects developed and supported	Flagship projects (5 in photonics and 5 in synthetic biology) supported	No target for this financial year	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	At the end of the 2011/12 financial year, a total of 10 flagship projects supported by the DST.	As a result of surplus funds, three developmental grants were awarded to projects whose applicants showed potential. This was done with a view to supporting them to a point where they would be able to apply for full grants during the next cycle.	Achieved
	Research and innovation outputs (prototypes, patents, publications and students) from national nanotechnology innovation centres (NICs)	Research and innovation outputs (prototypes, patents, publications and students) from national NICs	One prototype and 10 publications resulting from research and innovation by 31 March 2012	A prototype in the form of a paint that contains modified nanoclay powder was developed by the CSIR NIC. The new paint has improved strength and offers better protection against ultraviolet light. 102 peer-reviewed publications.	The Department through the Mintek NIC finalised a lateral flow diagnostic prototype for malaria during the period under review. A total number of 103 papers published, one patent filed and 3 patents under development.	Maturity of various emerging research areas development programmes has enabled the production of outputs above the trend of previous years.	Achieved
	Number of postgraduate students supported		10 postgraduate students supported by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	A total of 16 postgraduate students graduated and 96 students were supported.	The efforts by various programmes on leveraging the funds provided, which included securing additional students' bursaries from the NRF, enabled a significant increase in the number of students involved in various programmes, notably the NICs.	

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
To ensure the availability of appropriate infrastructure for enhancement of RDI competitiveness	Number of research equipment grants awarded	Research equipment grants awarded	50 research equipment grants awarded by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	A total of 50 research equipment grants were awarded by the DST during the 2011/12 financial year.		Achieved
	Increased availability of broadband connectivity for RDI	Operational broadband network for all research and academic institutions	27 academic and research sites connected by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	A total number of 86 research and teaching sites were connected to SANReN during the period under review.	Owing to the proximity of some sites to the network backbone and hence the ease of their connecting, 64 more sites than originally planned (27 sites) were connected, resulting in a total of 86 sites connected during the year under review.	Achieved
To promote and develop RDI in indigenous knowledge systems for improved quality of life	Legislation for the protection and preservation of IK	A Bill for the protection and preservation of indigenous knowledge	Cabinet Memorandum approved by Minister by 31 March 2012	While the target was to have the framework by the end of the financial year, a draft Bill was also developed with Legal Services.	Draft Bill was developed.	The process had to be put on hold owing to a lack of finality in the Department of Trade and Industry processes on the Intellectual Property Amendment Bill. However, in December 2011 the National Assembly approved the IP Amendment Bill for Presidential assent, and the process has been resuscitated as a result.	Partly achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
	An approved accreditation and certification system in place	Formal recognition of IK holders and practitioners in IKS	An accreditation and certification legislature framework approved by the Minister by 31 March 2012	Draft framework for policy on accreditation and certification system was completed and approved by the steering committee.	Although the process of finalising the accreditation and certification framework has been completed, the framework has not yet been approved by the Minister. The norms and standards were piloted in two provinces (North West and KZN). The first draft reports based on the two pilots conducted in North West and KZN were completed.	The work of developing an accreditation and certification framework was more complex than initially thought and more time for consultation was required.	Partly achieved
	Number of provinces with functional National Recordal System (NRS) in place	A functional NRS	A pilot NIKMAS and IKS documentation centre function in two provinces (KZN and Limpopo) by 31 March 2012	Functional NRS/ NIKMAS version 1 with digital library, GIS capability, register and remote server at IKS data centre at the University of Zululand and central server in Pretoria were successfully linked and are operational. Indigenous knowledge data updated on the remote server is synchronised on a 24-hour basis.	IKS documentation centres established in KZN, Limpopo and North West. Version 2 of NIKMAS successfully completed. This includes the NRS security requirement document, IK holder catalogue and recordal device.		Achieved
	An integrated bioprospecting platform as the building block for the bioeconomy	A fully functioning bioprospecting and product development platform for the bioeconomy	An integrated bioprospecting platform approved by EXCO by December 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	The draft integrated bioprospecting platform conceptual framework was developed.	This target will only be achieved in December 2012, as planned.	Partly achieved

Table 6: Programme 4: Human Capital and Knowledge Systems (Additional Indicators)

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
To build a SET human capital pipeline to ensure increased availability of researchers and innovators for South Africa	Approved and implemented policy directive of the Minister on bursaries, scholarships and fellowships		Policy directive of the Minister on bursaries, scholarships and fellowships approved by the Minister and implemented by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	The policy has not been approved by the Minister yet. However, it was approved by EXCO on 26 March 2012, and consultation on it with the NRF was completed by 31 March 2012.	The Department had to determine how to link this policy directive to the Minister's agreement so that both these documents and the allocation of funds were aligned. This process took some time.	Partly achieved
	Approved five-year NSW implementation strategy		Approved five-year NSW implementation strategy by 30 November 2011	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	Final draft approved was presented at EXCO on 26 March 2012 and final version incorporating EXCO's inputs was produced. The strategy is en route to be approved by the Director-General and noted by the Minister.	The delay was due to a leadership vacuum in the Programme.	Partly achieved
	Number of science centres awarded development grant funding		23 science centres awarded development grant funding by 30 June 2011	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	29 science centres have been awarded development grants. One grant was awarded to the local network of science centres for the publication of a newsletter.	The target was exceeded owing to an increase in the number of newly established science centres in the country and those qualifying for support.	Achieved
	Approve framework for the promotion of excellence in a network of science centres in South Africa		Approved framework for the promotion of excellence in a network of science centres in South Africa by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	The framework for the promotion of excellence was not approved, but the final draft was submitted to the Acting DDG before 31 March 2012.	There was a delay in approval of this document owing to the absence of the Acting DDG (international trips).	Partly achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
	10-year evaluation report of NSW		10-year review report of NSW by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	During the period under review, the Department conducted a 10-year review of the NSW. The study has been completed.		Achieved
	Approved guiding principles for the integrated science awareness framework		Guiding principles for the integrated science awareness framework approved by the Director-General by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	Guiding principles for the integrated science awareness framework were not approved by EXCO.	As per EXCO's decision of 26 March 2012, the "guiding principles for the integrated science awareness framework" should be discontinued. EXCO provided guidance on the STEMI engagement strategy development.	Not achieved
To promote and enhance research productivity to increase South Africa's world share of knowledge outputs	Number of research chairs awarded		62 new research chairs awarded by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	97% of this target was achieved during the period under review. Sixty new research chairs were awarded to institutions through the NRF.	A new innovation of co-funding chairs with international partners was piloted. 2 new research chairs (bilateral chairs with Switzerland) were held back.	Partly achieved
	Framework for expansion of the CoE programme developed		Approved framework for the expansion of the CoE programme by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	Draft framework has not been approved.	Target not met due to reprioritisation to improve existing programme performance.	Not achieved
	Develop an appropriate resource allocation model for the NRF to support its mandate of HCD		Approved resource allocation model by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	Resource allocation model developed and presented at EXCO, but not yet approved.	The model required revision due to National Treasury's refusal to transfer contract funds from the DST to the NRF.	Partly achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
	Develop regulations for the declaration of research institutions		Approved regulations for declaration of research institutions by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	Draft regulations for the declaration of research institutions were approved by EXCO and the Minister. The submission on gazetting the regulations is en route to the Minister.		Achieved
	Draft of the HCD for RIS Strategy		Approved HCD for RIS Strategy by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year	The content of the draft HCD for RIS Strategy has been approved by the Minister. An additional financial modelling document was required, and is being finalised.		Achieved
	Approved HCD support for astronomy		Revised HCD support for astronomy by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	Programme for astronomy HCD support incorporated into the newly appointed Astronomy Desk.		Achieved
	Approved and gazetted palaeoscience strategy		Approved and gazetted palaeoscience strategy by 31 December 2011	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	South African Strategy for the Palaeosciences gazetted and approved by Cabinet.		Achieved
To promote and develop RDI in IKS for improved quality of life	Develop a road map for the conversion of the IKS centre into a full CoE		An approved road map for the conversion of the IKS centre into a full IKS CoE by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	IKS CoE road map finalised but not approved.	Delay in stakeholder approval of the road map. Road map was approved in first quarter (May 2012) by the Chief Director.	Partly achieved
	Research projects funded		Coordinate the IKS research management system and monitor and evaluate funded projects by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	All existing IKS projects monitored. 69 proposals were received and 7 were selected.		Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
	Number of IKS holders registered		Training of IKS recorders on methodology for registration of data capture and system by 30 September 2011	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	NIKMAS training was provided to representatives of three University of Zululand communities: Nkandla, Umhlabayalingana and Mkwanzazi.		Achieved
	Revised mandate of the IKS Ministerial Advisory Committee (MAC)		Approved new mandate for the IKS MAC by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	New mandate for the IKS MAC was approved through the series of meetings. The Acting DDG: HCKS met with the MAC executive committee. Terms of reference were approved by all.		Achieved
	IKS-based technology transfer projects supported		<p>Final report on IKS-based technology transfer concept document approved by 31 March 2012</p> <p>Final report on technology transfer projects and training workshop produced by 31 March 2012</p>	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	<p>Third draft on the IKS Technology transfer conceptual framework developed and presented to bioprospecting and IKS stakeholders on 24 February 2012.</p> <p>4 technology transfer pilot projects initiated – one training workshop completed; 3 moringa tree community development pilot projects initiated in three provinces, i.e. Atteridgeville (Gauteng), KwaDukuza (KZN) and Tooseng (Limpopo).</p>	<p>Draft framework approved by the IKS Bioprospecting Platform at the stakeholder meeting on 24 February 2012. Delay in incorporation of consultation comments. Final report per contract with CSIR will be in the first quarter of 2012.</p> <p>3 technology transfer projects on Moringa were supported and one training workshop for 3 communities was successfully implemented</p>	Partly achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
	Advocacy and communication strategy		Approved advocacy and communication strategy by 30 December 2011 and approved EXPO report by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	The advocacy strategy was developed and the submission for approval is en route to EXCO. An expo was successfully held in the North West. The report on the expo has been submitted for approval.	Inability to acquire a appropriate service provider to refine/review the strategy Non-compliance by the service provider to deliver expo report	Partly achieved
	Communication strategy for the NRS		Approved and implemented NRS Communication Strategy by the Director-General by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	NRS Communication Strategy completed but not approved.	Late appointment of service provider due to CSIR procurement processes. Non-availability of many stakeholders due to COP17 conference. Draft strategy submitted to the DST by service provider on 28 March 2012.	Partly achieved
	Monitor and evaluate progress on the development of cosmeceutical prototype, nutraceutical prototype and ATM preclinical and prototype development on HIV, TB and diabetes by 31 March 2012		Monitor and evaluate progress on the development of cosmeceuticals, nutraceuticals and ATM preclinical and prototype development studies on HIV, TB and diabetes by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	Commercialisation process initiated on 1 cosmeceutical candidate product – commercialisation proposal initiated. Preclinical studies completed on diabetes lead. Good progress on TB and HIV projects preclinical studies achieved. Nutritional content and cultivation studies completed on amaranthus. Good progress in nutritional analyses on cowpea and cleome achieved.		Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
	Norms and standards for the two communities of practice (ATM and African traditional leadership and governance) developed		Two communities of practice in ATM and African traditional leadership and governance by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	The norms and standards were piloted in two provinces (North West and KZN). The first draft report based on the two pilots conducted in North West and KZN was completed.		Achieved



Programme 5: Socio-Economic Partnerships

This Programme strengthens the growth and development priorities of government through targeted STI-focused interventions implemented through strategic partnerships with other government departments, industry, research institutions and communities. The key interventions are as follows:

- Initiating and facilitating high-potential R&D-led industrial development opportunities.
- Establishing technology support programmes for industry to strengthen local production and competitiveness.
- Testing and investigating new approaches to government service delivery, planning and the development of sustainable human settlements.
- Strengthening science-based policy development and decision-making.
- Building a robust evidence-base for analysis, action, and policy development on the NSI and innovation policy.
- Testing and investigating technology-based opportunities for sustainable livelihoods and wealth creation.

The main objectives of the Programme are to –

- demonstrate strategic technology-based interventions for poverty reduction in order to support the creation of sustainable job and wealth opportunities, and contribute to sustainable human settlements and enhanced service delivery in areas of deprivation;
- grow and strengthen a portfolio of niche high-potential but neglected S&T capabilities, as well as actively facilitate the exploitation of both existing and new capabilities to support sustainable development priorities and the non-energy green economy ambitions of South Africa;
- contribute to improving government decision making on S&T investments and to promote private sector R&D activities in order to increase gross expenditure on R&D as a percentage of GDP;
- grow and strengthen a portfolio of niche high-potential R&D capabilities that support the development of new industries in advanced manufacturing, chemicals, advanced metals and ICT.

Subprogramme: Science and Technology for Economic Impact

The subprogramme advances strategic medium and long-term sustainable economic growth and sector development priorities, as well as government service delivery through two value-adding functions:

- Investing in the long-term knowledge-generation capabilities of the NSI that offer innovation opportunities.
- In partnership with other government departments and economic sectors, spearheading focused efforts that exploit knowledge capabilities for economic benefit.

In support of government's massive infrastructure development programme that will unfold over the next 20 to 30 years, the first batch of students supported by the DST left for Freiburg University in Germany on 29 February 2012 to start with their master's studies in advanced foundry technologies. This will help ensure that cutting-edge skills are developed in order to support the modernisation of the South African foundry sector – a key element of local manufacturing capability. The training is part of a broader partnership with Germany and Poland to transfer knowledge and develop skills in modern foundry technologies. Rzeszów University (Poland) and RWTH Aachen University of Technology (Germany) in partnership with the Cape Peninsula University of Technology have defined a master's programme, and Freiberg University (Germany), in partnership with the University of Johannesburg, has developed a joint master's degree. The training in the Tool, Die and Mouldmaking (TDM) area is done within the long-term cooperation agreement with India which focuses on areas of scarce skills in TDM.

The manufacture of fluorochemicals, which are highly reactive, is highly specialised and requires significant technological capability. South Africa is one of a small group of countries in the world that has a capability in handling fluorochemicals. However, it is the reactive nature of fluorochemicals that make them a prime candidate for developing new and useful chemicals that can be used in sectors from pharmaceuticals to electronics. Through funding support from the DST, South Africa was able to increase its cohort of high-level fluorochemicals expertise with the graduation of seven master's, one PhD and one postdoctoral student in 2011/12.

Similarly, since the inception of the Advanced Metals Initiative (AMI) about six years ago, the DST has provided funding support for 178 students through the AMI. In 2011/12, 33 postgraduate students were supported in minerals beneficiation technology and 39 postgraduate students in titanium research. This capability is essential for supporting any efforts by South Africa to use minerals beneficiation as an employment driver and important growth sector. A successful conference on the AMI was hosted jointly by the DST and the South African Minerals to Metals Research Institute in October 2011. A website for advanced metals is under development and will be launched in 2012. This will serve as a repository for knowledge stakeholders (both external and internal).

Any country that has a weak ICT sector will face tremendous challenges in driving economic and social modernisation and facilitating long-term sustainable growth. ICT increasingly underpins advances and improvement on both the economic and social fronts. South Africa has a small, active research capacity, but it is completely inadequate to take full advantage of the opportunities of the information society. Transformation of the researcher base is also a major requirement. The DST provided support to enable permanent staff at the CSIR's Meraka Institute to acquire appropriate postgraduate qualifications as well as supporting studentships. A total of 30 permanent staff are studying at master's or PhD level. Of these, 14 are black and five female. In addition, the DST supported 49 full-time ICT studentships at master's, PhD and postdoctoral level (with 16 females in the cohort of 49). The HCD programme also includes support for 13 people funded for undergraduate and honours degrees, as well as in-service training.

The Technology Stations and Institutes of Advanced Tooling (IAT) programmes are now well established and are playing an increasingly important role in supporting small and medium enterprises (SMEs). Over the last few years, these programmes began to offer significant opportunities in HCD. In 2011/12, the Technology Stations and IATs hosted 130 interns at different levels. Of the interns 22% were deployed directly in industry and 78% were based at various technology stations and IATs. To support the local tooling industry, the IAT programme funded 11 trainees to undertake training and gain international exposure in the TDM discipline through a six-month skills and capacity development programme in TDM being offered in Auragabad, India.

In order to expand on local knowledge and use land that is unfit for crops, a biocomposites CoC was established. The aim of the CoC is to develop knowledge and technology that can help establish upstream (e.g. fibre cultivation) and downstream (e.g. biocomposite manufacturing) industries that can create economic activity, reduced imports (e.g. bio-friendly packaging materials) and new export products. A number of biocomposite parcel trays have been produced and submitted to one of the automotive firms for product acceptance testing. A joint patent application for biocomposite panels in the aviation industry was submitted.

The NRF completed processes to kick-start a large-scale research programme on global change, society and sustainability. Funding was confirmed for a total of 11 research projects, which include the development of new human capital in areas ranging from integrated assessment modelling to urban development.

The second phase of the South African Risk and Vulnerability Atlas concentrated on improving the information in the Atlas and the addition of new theme pages. The Global Change Grand Challenge implementation plan included the development of risk and vulnerability science centres at five rural-based universities. In 2011/12, the first three pilot centres were put in place (at the University of Limpopo, Fort Hare University and Walter Sisulu University).

Together with five Southern African partners, and supported by German funding, negotiations for the establishment of SASSCAL were taken forward significantly in 2011/12. Final agreement will be reached in the first half of the 2012/13 financial year so that the SASSCAL initiative can start to implement the agreed work programme in 2012.

SADC ministers gave South Africa the responsibility of facilitating the development of a Southern African Science and Technology Framework for climate change. South Africa played a major role in finalising a framework, which is awaiting presentation for final adoption by the SADC ministers. The DST is also playing a major role in facilitating the implementation of the programme of work.

Stronger cooperation within Africa on ICT R&D, at both a bilateral and multilateral level, has been identified as a crucial medium-term priority for South Africa and its key African partners. As part of a long-term plan to strengthen ICT cooperation, partnering with potential African parties has been identified as a priority. In 2011/12, the Programme prioritised a smaller number of countries. The DST kick-started the programme with a focused visit to Algeria to identify cooperation opportunities, and secured an agreement to deepen ICT cooperation between Algeria's Centre de Recherche sur l'Information Scientifique et Technique and the CSIR's Meraka Institute.

Negotiations on R&D cooperation were finalised with several multinational ICT companies, resulting in signed MoUs with Microsoft South Africa, SAP South Africa and Nokia.

Subprogramme: Science and Technology for Social Impact

This subprogramme leads and supports knowledge generation and use in human and social dynamics in development, promotes the use of technology-based approaches for the creation of sustainable livelihoods, government planning and service delivery, and the building of sustainable human settlements, particularly within resource-constrained communities. This is done through a combination of demonstrating and applying new and mature technologies, policy analysis and engagement in policy and decision-making processes.

In agronomy, through DST support, the ARC was able to make substantial progress in bringing food and medicinal plant nursery and demonstration agronomy projects to a scale and level of organisation that allows for the early viability of small-scale farming models to be presented. Three vermiculture (earthworm) farming enterprises were operational, one in Amanzimtoti, one at the University of Zululand and another at the ARC at Roodeplaat. Reports received from the ARC indicated the following 228 non-Persal job opportunities: 11 contract appointments, three entrepreneurs, 11 students, 103 temporary staff who worked the complete duration of the fourth quarter, and 100 staff who worked part of the fourth quarter.

Similarly, the CSIR increased its level of activity in securing high-quality, wild plant stocks for the production of rare and high-value medicinal plants such as Devil's Claw in the Northern Cape. Substantial progress was made with the construction and installation of on-farm value-adding

facilities for several medicinal plant projects, which will enable produce to be carefully and safely dried before transport to CSIR Biosciences in Gauteng. Great strides were made in the production of new essential oils (e.g. yarrow, basil and lemon balm) and in increasing the production of rose geranium essential oil from demonstration enterprise farms in the Eastern Cape and Northern Cape. Reports received from the CSIR indicate 349 job opportunities in total, composed of 289 semi-skilled labourers (58%), 24 skilled labourers (21%), 16 supervisors (44%), nine clerical staff (78%), three managers (0%), and eight professionals (2,3%).

In aquaculture, the DST continued to support an aquaculture portfolio focusing on ecological production systems for freshwater finfish, and salt water shellfish and finfish. During the year under review, three additional salt water finfish aquaculture projects were approved for implementation. One project continues in Nelson Mandela Bay Municipality, this time focusing on yellowtail sea-cage ranching only. Funds for two new project sites involving dusky kob sea cage farming were approved for the port of Richards Bay and the port of Nacala in Mozambique. Stellenbosch University's Division of Aquaculture reported nine people in employment during the last quarter of 2011/12.

In agroprocessing, a major highlight was the launch of the Sasol ChemCity/Nkawkankowa Demonstration Centre for tree nut product processing and tree fruit product processing at Tzaneen by the Minister of Science and Technology in October 2011. In parallel, ChemCity expanded the number of community distribution and retail sales entrepreneurs in a network around the centre. Sasol-ChemCity reported 38 job opportunities, made up of 13 employees, two student trainees, 23 direct entrepreneurs and 12 indirect business support opportunities.

During the year under review, from the sale of raw essential oils for downstream value-added processing, the CSIR Enterprise Creation for Development central processing facility reported that income held in its project beneficiary savings accounts stood at R3,1 million. This represents an increase from R2,1 million from the previous financial year.

The Kleinmond Low-cost Housing demonstrator was successfully completed in the Overstrand Local Municipality in the Western Cape. The aim of the demonstrator was to explore an improved approach to low-cost housing development and the incorporation of new technologies that

enhance the quality of housing and reduce the overall level of dependency of the community on municipal services (such as water, electricity, etc.). The settlement was planned in a holistic manner and provided shelter to 410 families. The Southern African Housing Foundation awarded a special merit award to this project.

The ASWSD initiative reached an important milestone with the hosting of a community engagement programme at the end of March 2012 to celebrate the provision of clean water to 600 households in Cwebe, Mbelu and Ntilini villages in the Amathole District Municipality and a further 1 176 households in Jali/Bakhuba, Khwenxura/Khalalu and Mnxekazi in the OR Tambo District Municipality, both in the Eastern Cape, in the 2010/11 financial year. The focus of the initiative is on the sustainable provision of clean water through the use of a variety of appropriate technological solutions combined with active community participation and engagement. The ASWSD implementation in the Eastern Cape has also created jobs and contributed to skills development, i.e. 70 labour workdays in Amathole District Municipality and 5 200 in OR Tambo District Municipality at a rate of R85 per day.

In order to support the generation, application and dissemination of social scientific knowledge, a total of three science colloquia and eight government cluster policy workshops were held during this financial year. Both the science colloquia and the government cluster policy workshops gave practical expression to components of the science plan for the Human and Social Dynamics in Development Grand Challenge.

The Human and Social Dynamics colloquia that were convened during 2011/12 contributed significantly to enhancing policy-relevant interdisciplinary knowledge sharing, showcasing cutting-edge research conducted at rural-based universities, and stimulating ideas about building on and consolidating research agendas and collaborations. The colloquia underlined the relevance and importance of the social sciences in addressing the country's developmental priorities, and revealed opportunities for research collaborations that will help forge closer, mutually beneficial relations between universities and science councils. There was active participation by master's and PhD students, who presented papers and responded.

Government cluster policy workshops that were convened by the HSRC for the DST achieved the following:

- They created space for policymakers and researchers to have in-depth discussions and debates about both policy gaps and policy constraints, the theoretical underpinnings of various policy stances, and the practical ramifications of various assumptions.
- They provided opportunities to showcase the utility and relevance of research for policymaking and programme development.
- They made researchers more aware of the imperatives and trade-offs confronting policymakers and exposed researchers to the immediate policy and programme demands of policymakers.
- They opened up opportunities for policy innovation and critical thinking in the Public Service.

Subprogramme: Science and Technology Investment

This subprogramme leads and supports the development of indicators and instruments for measuring and monitoring investments in S&T, the performance of the NSI, and ways of strengthening the NSI and innovation policy. This includes the annual national survey on research and experimental development (R&D survey), innovation measurement, the development of S&T indicators, the development of databases and information systems such as RIMS and the national S&T expenditure tables, and the implementation of section 11D of the Income Tax Act to promote private sector R&D investment.

In an effort to enhance understanding and analysis that support improvements in the functioning and performance of the NSI, a number of statistical and analytical reports have been completed. These include the report on the national R&D survey, the R&D Tax Incentive Programme performance report and a report on government funding for science, research and innovation. Also, the RIMS project has reached a critical mass of institutions, with 23 universities and nine science councils participating. The RIMS project rolls out IT infrastructure to enhance the information systems used by universities and science councils in managing their research portfolios. With this infrastructure it will be easier to generate research performance statistics at a national level and effectively monitor the performance of the science system. Thirteen universities and six science councils are at an advanced stage, having fully implemented the Research Output and Genius



modules. The Business Intelligence Warehouse data transfer protocols have been set up and a number of institutions are already using them to transfer data to the central repository at the NRF. Research on new areas of STI indicators and their usage was carried out. A framework methodology for the production of technology balance of payment statistics was completed. Further analysis is being carried out to finalise the selection of indicators for the knowledge-based economy.



Other highlights for the period under review include the preparation, in consultation with other government departments and stakeholders, of a draft strategy for increasing R&D expenditure in South Africa. This is in line with the delivery outcomes adopted by Cabinet in 2010. The strategy identified specific opportunities for enhancing research capacity and increasing R&D investment in order to contribute effectively to economic growth and development. The strategy will be refined and presented to Cabinet once a set of key strategic financing options have been fully developed. Also, with the support of Statistics South Africa, the DST has finalised a statistical quality policy, which will guide the development of minimum quality standards and improvements to the processes followed in undertaking the R&D survey to ensure that it maintains the status of “official statistics”. The quality principles contained in the policy have been used in assessing the 2009/10 R&D survey, and will be applied in improving the quality of other statistical collections of the DST.



In addition, amendments to the R&D Tax Incentive Programme have been finalised and will be effective from 1 October 2012. The new amendments to section 11D of the Income Tax Act will alleviate two key challenges. A preapproval process will alleviate uncertainty about whether a company's R&D is eligible, and a new provision in section 11D(14) will improve information sharing between the DST and South African Revenue Service (SARS) by

allowing the SARS Commissioner to disclose to the Minister of Science and Technology information in relation to R&D that may be required for the purpose of submitting a report to Parliament.

Consultations were held with practitioners and users of S&T indicators to review existing instruments in order to improve their relevance to policy planning and evaluation. A highlight is that these discussions have now reached new groups of stakeholders. A cross-section of users and stakeholders were targeted through three separate but related workshops. First, a workshop facilitated by the United Nations Educational, Scientific and Cultural Organisation on compiling statistics on government funding for scientific and technological activities, which led to improvements in the coverage of data collected; second, a workshop on measurement of innovation in South Africa reviewed the Innovation Survey in order to improve its responsiveness to policy needs; and third, the User Group Meeting for RIMS evaluated progress and challenges that are being used to reposition RIMS to have the required strategic impact.

The subprogramme also provided technical advice and support to the African Science and Technology Indicators Initiative. Participation in this initiative increased in 2011/12 from 19 to 28 countries. It is aimed at setting up capacity for the collection and use of STI indicators to support S&T policies on the continent. Through the Centre for Science, Technology and Innovation Indicators, South Africa has provided training in workshops and directly to specific countries with regard to the collection of data to generate RDI indicators. This capacity benefits from South Africa's participation in the OECD's Working Party of National Experts on Science and Technology Indicators, which facilitates international-level dialogue and exchange of experiences on the development and maintenance of systems of indicators for STI.

Service delivery achievement

Table 7: Programme 5: Socio-Economic Partnerships

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
To demonstrate strategic technology-based interventions for poverty reduction in order to support the creation of sustainable jobs and wealth opportunities, and contribute to sustainable human settlements and enhanced service delivery in areas of deprivation	Number of households benefiting from technology-based interventions	Households benefiting from technology-based interventions	3 000 households benefiting from technology-based interventions by 31 March 2012	1 640 households benefited from the introduction of communal water stations in the Eastern Cape (ASWSD).	410 households benefited from technology-based interventions by 31 March 2012 (Kleinmond housing initiative).	The second phase of the ASWSD initiative, which targets sites in Limpopo and Mpumalanga, was to have contributed the remainder of the household beneficiary target. The first phase of the initiative, implemented in the Eastern Cape, identified that effective stakeholder engagement and mobilisation was a crucial pre-requisite for successful implementation. For a variety of reasons, the community stakeholder process for phase 2 project sites was still under way at the end of the financial year.	Partly achieved
	Job opportunities created and sustained	Number of new job opportunities created	400 additional job opportunities created by 31 March 2012	A total of 467 job opportunities (255 from existing projects and 212 from new projects).	632 jobs opportunities were sustained by the end of the financial year.	Technology-based interventions involve multi-year demonstration projects and thus the focus should not be on new/additional jobs only but also on sustaining existing jobs (permanent and casual/seasonal) and self-employment opportunities (e.g. support to entrepreneurs and small-scale farmers).	Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
To grow and strengthen a portfolio of niche high-potential but neglected S&T capabilities as well as actively facilitate the exploitation of both existing and new capabilities to support sustainable development priorities and the non-energy green economy ambitions of South Africa	Number of master's and PhD students funded or co-funded in designated niche areas annually	High-level human capital developed	200 students funded annually for research degrees (master's and PhDs) by 31 March 2014	84 students funded or co-funded	232 students funded for research degrees by 31 March 2012.	<p>One of the DST mandates is the creation of human capital in order to help alleviate the current skills gap and to expedite the DST's technology development projects. The funding of postgraduate studies is therefore high on the DST agenda. Programme 5's projects, which are aimed at expanding the technological boundaries towards developing new industries of the future, are very dependent on postgraduate students to cover the technical gaps.</p> <p>In contrast to undergraduates who complete a general degree, postgraduate students start to specialise in a technical direction in which they are personally interested or that they find attractive due to specific technical challenges. In addition, lecturers only start attracting postgraduate students as their own profile and research ranking improves. Both of these are time dependent and difficult to forecast.</p>	

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
	Number of master's and PhD students funded or co-funded in designated niche areas annually	High-level human capital developed	200 students funded annually for research degrees (master's and PhDs) by 31 March 2014	84 students funded or co-funded	232 students funded for research degrees by 31 March 2012.	<p>It is therefore very difficult to forecast the exact number of postgraduate students that will be funded in a specific year, even in ongoing programmes. Care (conservative estimates) is therefore required in defining the targets.</p> <p>In most instances, a conservative approach was followed in defining the targets – and this was often acknowledged internally at the start of the financial year. In addition, research institutions co-fund postgraduate studies, leading to an increase in the number of students. The largest deviation in the reported and actual number of students occurred in the AMTS portfolio that was managed by an external agency, where the postgraduate students were distributed across a number of universities.</p>	Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
	Number of patents, prototypes, and technology demonstrators added to the IP portfolio annually from funded or co-funded research programmes	Knowledge and innovation products	One addition to the IP portfolio (patents, patent applications, licences and trademarks) by 31 March 2012	3 technology demonstrators added to IP portfolio.	2 additions to the IP portfolio by 31 March 2012: Passive Underground Mine-water Purification (PUMP) and a diamond fingerprinting technique.	The filing for the PUMP patent was not initially planned for the 2012/13 reporting period but because of the support provided to students by DST through the HCD programme (Inkaba ye Africa), work on this project was accelerated and achieved much quicker results than planned.	Achieved
	Number of publications generated annually in identified niche areas per year		45 published scientific and technical papers by 31 March 2012	23 scientific and technical papers published.	62 published scientific and technical papers by 31 March 2012.	The reason for exceeding the target is that some of the students were over-subscribed in terms of publications. Some publications that were planned for the 2012/13 financial year were actually finalised and submitted for publication much earlier. The fact that these unplanned publications were accepted demonstrates the high quality of work being done by the students being supported by DST through various HCD programmes.	Achieved



Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
Contribute to improving government decision making on S&T as productive investments and to promote the private sector R&D activities in order to increase gross expenditure on R&D as a percentage of GDP	Number of statistical and analytical reports published for the Minister, Cabinet and public information	Decision-support interventions	2010/11 report on the performance of R&D tax incentives published by 30 October 2011	2009/10 tax incentives report published.	As there was a delay in verifying information for the 2010/11 report on the performance of R&D tax incentives, the DST began with the 2011/12 report. By the end of the financial year, this had been finalised, and was awaiting internal approval before it could be presented to Cabinet and Parliament. The 2011/12 report incorporated an annexure providing information for 2010/11.	The achievement of this target was delayed because the data validation took longer than expected.	Partly achieved
			2010/11 report on public funding for science, research and innovation by 31 March 2012.	2009/10 report on publicly funded science and technology activities published.	The 2010/11 report on funding for science, research and innovation was at an advanced stage at the end of the financial year.	Departments still face challenges in classification of S&T expenditure. Definitions were modified which required the DST to provide technical support to most departments, thus delaying the production of a consolidated report. Notwithstanding the delay, the support provided by the DST improved coverage and statistical information.	Partly achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
			One report on the review of Type 3 S&T infrastructure published by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	The first draft of the review report on the S&T capacity of the South African Weather Service is available and has been discussed with the task team. The inputs are being consolidated with the task team members.	The process of appointing a consultant took longer than anticipated, so the review could not be completed in time.	Partly achieved
			Data on technology balance of payments published providing new tabulations and policy implications by 31 March 2012.	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	The framework for the production of a technology balance of payment report was completed by the end of the financial year. It will go through internal approval processes in 2012/13.		Achieved
			Baseline report on new indicators for knowledge-based economy by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	A baseline report on new indicators for the knowledge-based economy was drafted in the year under review, but not finalised.	The report needs further analysis and improvement before it is finalised.	Partly achieved
			2009/10 R&D survey report published by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	The 2009/10 R&D survey report was finalised before the end of the financial year, but not published.	The report needed to undergo a lengthy clearance process in order for the results to be classified as official statistics.	Partly achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
Grow and strengthen a portfolio of niche high-potential R&D capabilities that support the development of new industries in advanced manufacturing, chemicals, advanced metals and ICT	Number of high-level research graduates funded or co-funded (master's and PhD students) supported in niche areas annually	Human capital for competitiveness in advanced manufacturing, chemicals, advanced metals and ICT	136 (cumulative) master's and PhD students supported in designated niche areas by 31 March 2012	99 master's and PhD students supported in designated niche areas by 31 March 2012.	262 master's and PhD students supported in designated niche areas by 31 March 2012.	<p>One of the DST mandates is the creation of human capital in order to help alleviate the current skills gap and to expedite the technology development projects of the Department. The funding of postgraduate studies is therefore high on the DST agenda. Programme 5's projects, which are aimed at expanding the technological boundaries towards developing new industries of the future, are very dependent on postgraduate students to cover the technical gaps.</p> <p>In contrast to undergraduates who complete a general degree, postgraduate students start to specialise in a technical direction in which they are personally interested or that they find attractive due to specific technical challenges. In addition, lecturers only start attracting postgraduate students as their own profile and research ranking increases. Both of these are time dependent and difficult to forecast.</p>	Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
						<p>It is therefore very difficult to forecast the exact number of postgraduate students that will be funded in a specific year, even in ongoing programmes. Care (conservative estimates) is therefore required in defining the targets.</p> <p>Programme 5 can report that the above occurred in defining the number of students in Strategic Objective 4. In most instances, a conservative approach was followed in defining the targets – and this was often acknowledged internally at the start of the financial year. In addition, research institutions co-fund postgraduate studies, leading to an increase in the number of students. The largest deviation in the reported and actual number of students occurred in the AMTS portfolio that was managed by an external agency, where the postgraduate students were distributed across a number of universities.</p>	Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
	Number of patents/ prototypes/ technology demonstrators added annually to the IP portfolio through funded or co-funded research initiatives	IP	13 patents/ prototypes/ technology demonstrators added to the IP portfolio by 31 March 2012	16 added to the IP portfolio	<p>The following have been added to the IP portfolio:</p> <ol style="list-style-type: none"> 1. Development of a costing model for the foundry industry completed. 2. Production of hexa-fluoropropylene oxide patent filed (Patent No. 2012/01951). 3. Improvement and validation of design optimisation software package for conventional aircraft/unmanned aerial system configurations completed. 4. Algorithm to reduce the time it takes to search for and access fingerprints in a database completed. 5. "Switching between video streams" method or algorithm completed. 6. Internet of Things platform. The platform is designed to allow for easy communication between "things", services and humans. 7. Data pack for an unmanned helicopter capable of carrying high payloads (~10 kg) at high altitudes (Pretoria environment) generated. 	The Programme exceeded the target by one. The nature of an IP item makes it impossible to predict an exact outcome, or whether the project will generate a patent or not.	Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
					<p>8. Total fluoride-plasma route for zirconium metal provisional patent.</p> <p>9. Reduced pressure tester equipment (foundry technology) to improve the quality of the melt by degassing and making it possible to test the quality of the melt prior to casting completed.</p> <p>10. Natural fibre composite panel for tertiary aerospace applications patent lodged.</p> <p>11. Insulating roof tile composite made from bio-based materials prototype completed.</p> <p>12. Natural fibre composite parcel tray for automotive applications prototype completed.</p> <p>13. Provisional patent filed for nanostructured support material for gold and all platinum group metals placed onto the novel support.</p> <p>14. Provisional patent filed for method of producing metal matrix nanocomposites by liquid state processing.</p>		Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
					<p>The following are at an advanced stage of completion:</p> <ol style="list-style-type: none"> 1. Verbal interactions to electronic systems. 2. Temporal analysis of time series data, used for pattern recognition and classification. 3. Cognitive radio to enable efficient management of white spaces and dynamic spectrum. 4. The detail design of two titanium pilot plants has commenced – a primary titanium powder pilot plant and a downstream additive manufacturing pilot plant. 5. Fruit packaging crate made from recyclable biocomposite crate prototype expected by the second quarter of 2012/13, after which the value of patenting will be assessed. 		Achieved

Objective	Indicator	Strategic plan output	Target	Baseline (actual output) 2010/11	Actual performance against target		
					Actual progress to date	Reasons for variance	Status
	Number of companies provided with TAPs	Growth in advanced industries through support to companies	24 companies provided with TAPs by 31 March 2012	26 companies provided with TAPs.	<p>The Department continued to support 24 companies through the provision of TAPs.</p> <p>The additional 13 TAP requests developed through the TIA contract are in the process of being assessed by the TLIU.</p> <p>TAP requests for 10 companies have been approved for implementation. First round of visits is currently under way.</p>		Achieved
	Number of SMEs receiving technology support through the Technology Stations Programme	SMEs receiving technology supported through the Technology Stations Programme	1 753 SMEs receiving technology support through the Technology Stations Programme by 31 March 2012	There is no baseline as this is a new target, introduced in the 2011/12 financial year.	A total of 1 918 SMEs received technology support through the Technology Stations Programme by 31 March 2012.	There was overachievement on SME support because technology stations generate their own revenue in their operations and this revenue is reinvested to support more SMEs.	Achieved



Public entities reporting to the Department

Academy of Science of South Africa



Objectives

The objectives of the Academy of Science of South Africa (ASSAf) are to –

- promote common ground in scientific thinking across all disciplines, including the physical, mathematical and life sciences, as well as human, social and economic sciences;
- encourage and promote innovative and independent scientific thinking;
- promote the optimum development of the intellectual capacity of all people;
- provide effective advice and facilitate appropriate action in relation to the collective needs, opportunities and challenges of all South Africans; and
- link South Africa with scientific communities at the highest levels, in particular within the Southern African Development Community, the rest of Africa and internationally.

2011/12 highlights

ASSAf has gained significant maturity in fulfilling its role as a provider of evidence-based advice for matters of national significance. Where events of significant importance arise, academies often provide the means for assessing the matter dispassionately and providing independent recommendations that can be used to resolve the crisis.

In undertaking these tasks, ASSAf relies on its capacity to convene panels of experts who can provide independent advice based on available evidence. This provides a powerful tool for use in policy formulation.

One of the highlights of the year under review was the launch of the South African Young Academy of Science (SAYAS) in September 2011. In a remarkably short time, a group of young

scientists who had been nominated by ASSAf to attend the annual World Economic Forum meetings over the past couple of years laid the foundations for SAYAS and elected 20 founding members. South Africa now joins a handful of countries around the world that are supporting young scientists through a formal academy structure.

The hosting of the second annual Young Scientists' Conference with the theme "Changing Lives through Chemistry" further demonstrated ASSAf's commitment to supporting young scientists. Attendance increased to 140, with participation from 18 universities, as well as many other research organisations.

For the first time since the founding of ASSAf, two major consensus studies were published in one year. These are substantial reports reflecting the deliberations and consensus views of distinguished panels of experts conducted over a period of several years. The first consensus study, "The State of the Humanities in South Africa", was published in August 2011. The report urges urgent action from government to address the crisis in the humanities and has ensured that the humanities are a central focus of government attention. The second consensus study, "Towards a Low Carbon City: Focus on Durban", was launched in August 2011 in Durban as a precursor to the city's hosting of the Conference of the Parties (COP17) climate change meeting later in the year. The report was also showcased at a workshop, "Pathways towards a Low Carbon City", which was hosted by ASSAf at the COP17 meeting and which attracted some key international and local speakers. The report makes 12 strategic recommendations and identifies key interventions to position Durban on a low-carbon pathway.

ASSAf's first policy commentary on the Integrated Resource Plan for Electricity was published during the year under review. This was a new undertaking, posing some challenges as a rapid response was required, but the experience gained was useful and it is anticipated that policy commentaries will form an important focus of ASSAf's activities in the future.

The policy-makers are finding it useful to produce booklets to convey their messages in a succinct way. Two booklets that represented collaboration between a number of African science academies, mostly in Southern Africa, were launched during the year – one on inquiry-based science education for girls and a second on water challenges in Southern Africa. In addition, a policy-makers' booklet on access to energy that was published in 2010 was translated into French and launched in Senegal, thus disseminating the message in Francophone Africa.

ASSAf's standing committees, comprising members and other experts, are functioning well and are providing strategic direction. The health standing committee was established in 2011, adding to the existing committees on scholarly publishing in South Africa; science, technology, engineering and mathematics education; biosafety and biosecurity; and science for poverty alleviation. The ASSAf council also approved the establishment of a humanities standing committee, which will be fully operational in 2012.

ASSAf hosted a number of workshops during the year on topics of considerable importance to South African society. These included one on a strategy to deal with the long-term burden of HIV/Aids, another on the emerging threat of multi-drug-resistant tuberculosis and a third on nuclear energy safety. Each of these resulted in a workshop report, the first two of which were published during the year under review.

The Scholarly Publishing Programme continued to contribute to the visibility and quality of South African scholarly publications. Knowledge production and access are key drivers of innovation and underpin South Africa's goal of becoming a knowledge society. The programme

launched its online scientific writing platform, and continued to quality assure South African journals and upload these onto the open access platform SciELO-SA, the Scientific Electronic Library Online. By the end of the reporting period there were 22 journal titles available in open access form. The latest statistics show that the site is visited on average more than 1 000 times per day, with over half the visits coming from outside Africa. Regular annual forums are also held, of which the National Scholarly Editors' Forum and the newly established National Scholarly Book Publishers' Forum are examples. Each provides a platform aimed at strengthening the quality of South Africa's knowledge output.

Collaboration with science academies in Southern Africa was strengthened through many joint activities initiated by ASSAf. Together with the Mauritius Academy of Science and Technology (MAST), ASSAf held a workshop in Mauritius on genetically modified organisms, an outcome of which will be a policy-makers' booklet. MAST was also the host of a water management workshop at which ASSAf launched a policy-makers' booklet, *Science, Water and Sanitation: Supporting Equitable and Sustainable Development in Southern Africa*, on the state of water in Southern Africa. Collaboration with other Southern African academies, in Mozambique and Zimbabwe in particular, is a strong focus of collaborative activities. ASSAf, through its President, who is also the current President of the Network of African Science Academies (NASAC), continues to play an important role in striving to strengthen science academies in regions beyond Southern Africa, with a focus on NASAC's Africa-wide policy advisory role.

Both ASSAf's periodical publications, the *South African Journal of Science (SAJS)* and *Quest: Science for South Africa*, continue to have an impact. A business strategy for SAJS was completed and one of the key recommendations implemented is an expansion of the "front section" of the journal, which is devoted to news and views, scholarly debate and science and technology policy analysis.

Each year brings some significant achievements for ASSAf, contributing towards its growing reputation within the country and opening new opportunities in the policy advisory space.



Africa Institute of South Africa

Objectives

The objectives of the Africa Institute of South Africa (AISA) are to –

- promote knowledge and understanding of African affairs through leading social scientists acting in concert across all disciplines and through training and education on African affairs;
- collect, process and disseminate information on African affairs, give effective advice and facilitate appropriate action in relation to the collective needs, opportunities and challenges of all South Africans; and
- promote awareness and consciousness of Africa at grassroots level.

2011/12 highlights

In the year under review, AISA moved from the 7th-ranked “think tank” in sub-Saharan Africa to the 6th, according to the University of Pennsylvania’s Global Go-To Think Tanks study. AISA is increasingly proving that it is the leader in Africa in the production and dissemination of knowledge on African affairs.

In accordance with AISA’s research agenda, eight researchers undertook basic research (fieldwork) to collect primary data from seven African countries (Namibia, Rwanda, the Democratic Republic of Congo, Uganda, Zambia, Mozambique and Tanzania) and China. Two research assistants conducted their fieldwork in South Africa.


The COP17 project brought AISA into the limelight as it involved collaboration with a number of partners, including the DST, the Institute for Global Dialogue (IGD), the University of South

Africa (Unisa), the European Commission’s Erasmus Mundus programme and Solar Hybrid South Africa Ltd. The COP17 project responds to the sustainable resource management theme under the Research and Technology unit in AISA’s 2011/12 research agenda.

The number of media appearances on radio or television or in print or electronic media was impressive. In the year under review, the division had 10 external scholars present seminars to fulfil its mandate on information dissemination to the South African community. Topics of discussion were South African foreign policy under the Zuma government and African leadership. Advocate Tshediso Thipanyane’s contribution was published as a policy brief. AISA also hosted delegations from the Sierra Leone Armed Forces and Botswana Defence College, who were briefed on AISA, with a focus on peace and security issues.

AISA published 10 peer-reviewed books. The publications division continues establishing co-publishing partnerships with various institutions such as the Department of Political Science at the University of Pretoria, the Konrad-Adenauer-Stiftung, the University of South Africa and the IGD, sharing publishing costs and published books.

Five books linked to international conferences that AISA organised with external parties were launched in the year under review. These were sponsored by AISA, the DST, Unisa, IGD and Solar Hybrid. The *Nile River Project* and *Bridging the North-Sub-Saharan Divide* were 2010/11 book projects published in the current year. The other three books addressed concerns emanating from climate change and also offered possible solutions to some climate change challenges. These three books were launched at the COP17 conference held in Durban in December 2011.



Also of relevance to information dissemination are three ambassadorial forums on Libya, the Democratic Republic of Congo and Jamaica, which AISA organised with the City of Tshwane, the National Library, Ditsong Museums and the High Commission of Jamaica. AISA is expanding such partnerships to other cities and locations in South Africa. The AISA Young Graduates and Scholars (AYGS) conference hosted in Limpopo with the University of Venda from 21 to 23 March 2012 is an example.

Researchers presented 16 papers at international conferences and nine papers at national conferences. The areas covered were governance and democracy, climate change, agriculture, health, natural resource conservation, security, industrialisation and education. AISA employees presented seminars in Brazil and China, where they visited as invited researchers in October 2011 and as BRICS fellows in November/December 2011. They also submitted policy briefs on the work they did abroad.

AISA hosted the Archie Mafeje Memorial Lecture at Unisa and the Africa Day Symposium and Expo at the Ditsong Cultural Museums. The AYGS conference was hosted in collaboration with the University of Venda and the Guggenheim Foundation.

In 2011/12 AISA was able to attract funding for research-related activities from institutions such as the DST, Standard Bank, Statistics SA, the National Research Foundation, the Department of Trade and Industry, the International Marketing Council (IMC), the Department of Arts and Culture, the European Commission's Erasmus Mundus programme, the United States and French embassies, and Solar Hybrid.

The Library and Documentation Services unit has worked towards building a virtual library to ensure higher visibility of the library and ease of access to materials online. The digitisation project has progressed, with Africa Insight (1970 to 1980) and occasional papers having been digitised by Sabinet, the electronic information platform. These documents form part of the African Journal Archive, a repository providing research on African scholarly work, accessible globally.

AISA continues to collaborate with media houses and event partners. It has redesigned its website to give it a fresh new look and make it more user-friendly, thus increasing traffic to the website to 22 419 visits.



Council for Scientific and Industrial Research

Objectives

The objectives of the Council for Scientific and Industrial Research (CSIR) are to foster, in the national interest and in fields which in its opinion should receive preference, industrial and scientific development, either by itself or in cooperation with principals from the private or public sectors, and thereby to contribute to the improvement of the quality of life of the people of the Republic, and to perform any other functions that may be assigned to the CSIR by or under this Act.

2011/12 highlights

The highlights below were achieved either in collaboration with or with the funding support of the DST.

The Technology Assistance Package (TAP) programme

Several South African foundries reported improved process efficiency and productivity following their participation in the DST's TAP programme. The CSIR was closely involved in the implementation of the programme.

The TAP programme was devised to assist local foundry companies to participate in the competitive supplier development programmes of Eskom and Transnet. The TAP programme took place in two phases. For the first phase, a team made up of experts at the CSIR, the DST, the National Foundry Technology Network and Mintek visited the foundries to identify specific technology needs. The second phase involved the implementation of technology solutions for the needs identified.

Biocomposites Centre of Competence

The Biocomposites CoC was created with core funding provided by the DST and co-investment from the CSIR as a catalyst to unlock the potential of this industry. The potential size of a fully developed biocomposites industry in South Africa is estimated at R300 to R350 million per annum for rural fibre production, and R2 to R2,5 billion per annum for final (manufactured) products.

The CSIR has made significant investments in fibres and biocomposites research and infrastructure at its Port Elizabeth campus. Along with this, the DST has invested approximately R10,8 million in new equipment to complement this research.

Titanium Centre of Competence

The CSIR and several collaborators, under the umbrella of the DST-funded Titanium CoC, are developing a range of R&D technologies that will act as building blocks for the establishment of a viable titanium industry in South Africa.

These technologies include the piloting of a titanium metal production process (turning the mineral into titanium metal powder), turning the titanium powder into metal products using manufacturing techniques such as powder metallurgy and additive manufacturing, and the investment casting of titanium. Further downstream technology development activities in this field include new hybrid materials (using titanium) for the aerospace and defence industries.

CSIR co-creation makes it into *Time* magazine top 50 inventions of 2011

Time magazine listed the Digital Drum – a CSIR and United Nations Children's Fund (UNICEF) co-creation – as one of the 50 top inventions of 2011.

The Digital Drum comprises two computer workstations housed adjacent to one another in an oil drum kiosk. It is designed to give people access to relevant information on various topics, including health and education. The concept was taken from the CSIR's Digital Doorway, a robust standalone computer system aimed at promoting self-learning in computer literacy. The Digital Doorway initiative is funded by the DST.

The UNICEF-CSIR team was given the task to come up with a similar solution in Uganda. Manufacturing a similar design to the Digital Doorway, which has steel housing for the computer workstations, proved a challenge in Uganda as suitable equipment and technologies to manufacture to specifications were not readily available in the country. However, an elegant solution to the problem was found in the form of an oil drum, as oil drums are readily available. The team then worked on a prototype that could be mounted horizontally on the wall, with two computers inside facing away from each other.

Nanomedicine research programme

The CSIR's nanomedicine research programme, funded by the DST, was given the status of a CoE in health innovation by the African Network for Drugs and Diagnostics Innovation (ANDI).

Based at the United Nations Economic Commission for Africa in Ethiopia, ANDI promotes and sustains African-led product R&D innovation through the discovery, development and delivery of affordable new tools. The field of nanomedicine has a great number of applications. The CSIR's

work pertains specifically to the repackaging of already existing medicines for poverty-related diseases such as tuberculosis, using nanotechnology in order to enhance its efficacy.

Accelerated water service delivery

A successful pilot project has brought potable, reliable, safe water to some 9 000 people in rural villages in the Eastern Cape, namely Mbelu, Cwebe and Ntilini in the Amathole District Municipality. The DST initiated the project for accelerating sustainable water service delivery.

Water-borne diseases from unsafe drinking water are a reality in these rural areas, where people often share water from rivers, springs or wells with domestic animals. These communities now benefit from safe drinking water through the application of appropriate technology, which augments municipal water services.

Improved low-income homes through CSIR innovation

More than 400 community members at Kleinmond in the Western Cape have received improved low-income houses. The Minister of Science and Technology and local authorities officially handed these homes to the owners in December 2011. The housing pilot project is funded by the DST, and it incorporates many features of a CSIR low-income demonstration house.

CSIR innovation in design and technology led to the development of an improved, standard-sized, government-subsidised house. The CSIR technologies used in the Kleinmond housing pilot can benefit local government, the construction industry and beneficiaries. The local contractor won a special merit award from the Southern African Housing Foundation. CSIR research continues, including a one-year evaluation of the Kleinmond pilot for the DST, as it shows potential to impact positively on the national government-subsidised housing sector.



Human Sciences Research Council

Objectives

The objectives of the Human Sciences Research Council (HSRC) are 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;
- inform the effective formulation and monitoring of policy and evaluate the implementation of policy;
- stimulate public debate through the effective dissemination of fact-based results of research;
- help build research capacity and infrastructure for the human sciences in the Republic and elsewhere in Africa;
- foster and support research collaboration, networks and institutional linkages within the human sciences research community;
- respond to the needs of vulnerable and marginalised groups in society by researching and analysing developmental problems, thereby contributing to the improvement of the quality of their lives; and
- develop and make publicly available new data sets to underpin research, policy development and public discussion of the key issues of development, and develop new and improved methodologies for use in their development.

2011/12 highlights

Publishing and knowledge dissemination

The number of peer-reviewed publications in internationally accredited scientific journals per HSRC senior researcher has increased from 1,52 in 2009/10 to 1,68 in 2011/12, indicating an average annual growth of 1,48. The HSRC's annual publishing progress is as follows:

- HSRC books and chapters: 24
- Peer-reviewed journal articles: 96
- Policy briefs: 6

Grade 12 results analysed

Following the publication of the grade 12 results for 2011, HSRC research leaders from the Education, Science and Skills Development research programme were invited to comment. Many of these comments pointed to the need to analyse results from different perspectives, and to understand impacting factors. Research on factors informing access and success at university level was also featured.

Continued social science research in Africa

From 5 to 9 December 2011, the HSRC took part in the 13th General Assembly of the Council for the Development of Social Science Research in Africa, held in Morocco. Participation ranged from exhibiting publications and hosting a round table to launching the recently translated French version of *The Meanings of Timbuktu*.

Strategic national health surveys launched

After receiving significant funding, the HSRC was able to start the fieldwork components of two major population-based surveys. The media spread the news about these studies and urged members of selected communities to participate in the surveys.

The team launched the studies in Cape Town on 27 January 2012 and invited all households approached by researchers to assist in answering important questions during interviews. The two studies were also subject to review by the HSRC Research Ethics Committee (REC) prior to their commencement.

South African National HIV, Behaviour and Health Survey

The first study, funded by the Centers for Disease Control and Prevention in the United States of America, the Bill and Melinda Gates Foundation and UNICEF, is the fourth South African National HIV, Behaviour and Health Survey (SABSSM 4). The first national study was conducted in 2002, and repeat studies were undertaken in 2005 and 2008. These studies have provided information on the course of the HIV epidemic in South Africa.

The focus of the SABSSM 4 survey has been expanded to include a wide range of health information, including the health of infants and mothers, child health, and emerging interventions such as male circumcision. It also addresses issues such as psychological health and behavioural risk like alcohol and drug abuse.

South African health and nutrition survey assessment

The second survey, the South African National Health and Nutrition Examination Survey (SANHANES), funded by the South African Department of Health and the United Kingdom's Department for International Development, is the first of its kind conducted in South Africa, and is similar to health and nutrition examination surveys carried out on a regular basis in countries like the United States, Japan, China, Canada and countries in Europe. SANHANES is designed to assess the health and nutritional status of adults and children. The survey is unique in that it combines interviews in households with physical examinations in mobile clinics and blood analyses in laboratories. The results of these studies will support the Department of Health's indicators and inform policy-makers about the health and nutritional status of people in our country.

Science and technology evaluated

The HSRC hosted a delegation from the French Parliamentary Office for the Evaluation of Scientific and Technological Options (OPECST). South Africa was visited as part of their research on innovation in the face of fears and risks, presented to the OPECST in January 2012.

Intercontinental collaboration

On 14 February 2012, the HSRC attended an event hosted by the French ambassador in Cape Town. This event coincided with the opening of Parliament and brought together all stakeholders. The translated French edition of *The Meanings of Timbuktu* was handed over to the ambassador in recognition of the financial support received for the translation from the French Embassy in South Africa.

Zambian study of our research impacts

On 16 February 2012, CEO Dr Olive Shisana hosted two members of the Zambian ruling party. They observed research institutions and how research outputs influence impact and policy. The HSRC was selected to provide views on ways of monitoring and evaluating progress.

Timbuktu science workshop continues Mali engagement

On 6 March 2012, the HSRC participated in a workshop on Timbuktu science hosted by the DST and the NRF. The objectives of the workshop were the following:

- To take stock of achievements and decide on the next steps to ensure progress.
- To improve coordination between various stakeholders.
- To develop mechanisms for consolidating the support.
- To align projects conducted on manuscripts.
- To prepare for the visit to Mali planned for 2012.

Setting the benchmark on research ethics

On 16 March 2012, a delegation from the Botswana Ministry of Health visited the HSRC to study work done by the REC. The visit to the HSRC formed part of a visit to a number of institutions in South Africa. They regarded the visit as a benchmarking exercise aimed at understanding the HSRC's REC business method.



National Advisory Council on Innovation

Objectives

The objectives of the National Advisory Council on Innovation (NACI) are to advise the Minister of Science and Technology, and, through the Minister, the Ministerial Committee and Cabinet, on the role and contribution of science, mathematics, innovation and technology, including indigenous technologies, in promoting and achieving national objectives, namely to improve and sustain the quality of life of all South Africans, develop human resources for science and technology, build the economy, and strengthen the country's competitiveness in the international sphere.

2011/12 highlights

NACI's programme signifies an effort to address a number of complex and cross-cutting challenges facing the NSI. NACI's research and policy advice pointed the way for public policy to provide a more productive climate for innovation.

NACI did not work alone. Its success also depended on the strength of the partnerships it formed with stakeholders in the NSI. By engaging directly with stakeholders through meetings, workshops, conferences and seminars, NACI offered sound advice on innovative approaches that could be used to address the country's socio-economic challenges. NACI welcomed the publication of the report of the Ministerial Review Committee on the STI landscape and its recommendations as an attempt to improve the South African STI policy framework.

Advice

Advice given by NACI is the consensus view of councillors and committee members, following evidence-based research, discussions and consultations on identified topical issues. In the 2011/12 financial year, ministerial advice was generated on the following topics:

- Human capacity for the NSI.
- Genomic sovereignty.
- The role of biotechnology in food security (information letter).
- Scalable social innovations and their impact on societal upliftment.
- Public understanding of biotechnology by the media.
- The Genetically Modified Organisms Act, 1997 (Act No. 15 of 1997).
- Basic research and biotechnology incentives.

Research projects

During the course of the 2011/12 financial year, NACI completed the following projects:

- Research report on skills and education for SET to inform policy advice on HCD for an effective NSI.
- Analysis of progress in the NSI.
- Sustainable funding for basic research in biotechnology.
- Providing incentives along the biotechnology pipeline.

- Development of social indicators to track the impact of broad-based innovations on the quality of life of South Africans.
- Position paper on national research facilities.
- Exploration of community innovation systems, and bridging the innovation divide between the formal and informal sectors.
- Development of SET gender policy.
- Research to update S&T indicators for 2011.
- Comprehensive input into the National Development Plan.
- Feedback on the Ministerial Review Committee report.

Publications

NACI produced the following publications in the 2011/12 financial year:

- Changing perceptions of women in SET.
- The 2010 South African S&T Indicators.

NACI workshops and events

The following workshops and events were organised and attended by NACI during the 2011/12 financial year:

- Round-table discussion on replication of broad-based innovations with social impact (21 June 2011).
- Launch of the annual S&T indicators and co-hosting of the national symposium (22-23 September 2011).
- National Innovation Survey workshop, co-hosted by the DST and the HSRC (8-9 October 2011).
- Extraordinary meeting on business models for SMEs with the potential to address societal challenges and needs (20 October 2011).
- OECD workshop on national indicator data, with a presentation by NACI (25 October 2011).
- SET for Women workshop on SET gender policy development (February 2012).
- Meeting with Tshwane Municipality, Research and Innovation Division (20 March 2012).
- National Biotechnology Advisory Committee workshop on bioprospecting (22 March 2012).
- Meeting with the Industrial Development Corporation (11 April 2012).

National Research Foundation



Objectives

The objectives of the NRF are to promote and support research through funding, human resource development and the provision of the necessary facilities in order to facilitate the creation of knowledge, innovation and development in all fields of science and technology, including indigenous knowledge, and thereby to contribute to the improvement of the quality of life of all the people of the Republic

2011/12 highlights

The Square Kilometer Array (SKA)

The NRF worked with the DST and South African SKA Project Office on Africa's bid to host the SKA. As part of the SKA SA project, the MeerKAT development is in process and will allow SKA SA to create a demand-driven industrial technology cluster. The MeerKAT 64-dish array will be a world-class competitive telescope its own right.

Support for government policies

- The NRDS identified a number of research areas in which South Africa has a geographical and/or knowledge advantage. When NRF grants are mapped against these areas, investment made across these areas amounted to R384 million in 2011/12.
- During 2011/12, R421 million was invested in the Grand Challenges identified in the DST's TYIP.

- In terms of the 12 outcomes of government, the NRF contributes to building a skilled and capable workforce.

International collaboration

The NRF supported international interagency and bilateral research collaboration between South Africa and several other countries. It invested R60 million in this.

The NRF promotes research that is internationally competitive and locally relevant through several initiatives.

Strategic knowledge development

The DST/NRF CoE programme enables collaboration across disciplines on long-term projects that espouse research excellence and capacity development. The NRF invested R50 million in CoEs in 2011/12. The CoE programme has supported 492 postgraduates since its inception in 2004.

Another area of strategic funding is the South African Research Chairs Initiative, which spent R156 million in 2011/12 and supported a total of 587 students in 2011/12.

Research grants

An amount of R985,3 million was spent to support grant-holder research. Some 4 349 grants were made (4 468 in 2010/11). This exceptional performance over two years is due to the R205,4 million additional funding received from the DST during 2010/11.

Research outputs

NRF research support resulted in, inter alia, 4 777 Institute for Scientific Information (ISI) peer-reviewed articles authored by NRF grant holders. The national research facilities also performed excellently by producing 233 journal articles against the annual target of 170.

Developing a highly skilled workforce is one of the major aims of the NRF. This task includes creating public awareness of science and supporting learners, educators, students, emerging and established researchers, big research programmes and research institutions.

Science advancement

The NRF creates science advancement opportunities that demonstrate the value and impact of research. During 2011/12 the NRF reached 592 607 learners, 27 608 educators and 412 592 visitors to science festivals. The national research facilities invested R50,6m (7% of its total investment) on science advancement. Some 967 639 people visited facility-based science awareness platforms.

Student support

Student support was boosted through the R205,4 million additional funding received from the DST during 2010/11. In 2011/12 the Research and Innovation Support and Advancement unit was therefore able to support 1 723 BTech/honours students, 3 564 master's students and 1 979 PhDs. The NRF has developed a system of tracking the throughput of NRF-funded students. This system can provide data from 2007 and shows an increase in throughput over the years. In 2010/11 the throughput was 355 doctoral students, 803 master's students and 1 231 honours students.

The national research facilities also supported students; 1 368 undergraduate students were trained. Staff of the national research facilities supervised 263 postgraduate students.

Support for established researchers

The NRF recognises the importance of established researchers in creating knowledge and mentoring students, and disbursed R1,2 billion (86%) of the total Research and Innovation Support and Advancement expenditure on competitive grants. The NRF supported 2 890 grant holders, of which 754 (26%) were black and 957 (33%) were women.

The NRF provides cutting-edge research, technology and innovation platforms through the national research facilities.

The national research facilities platforms are used by researchers and students nationally and internationally. The national research facilities invested R450,2 million for the provision of research infrastructure. The NRF provided R178 million in equipment grants to researchers and HEIs.

The NRF serves as a node for data provision and is responsible for the RIMS project, which currently involves all national research facilities, 23 universities and nine science councils. RIMS is intended to provide access to information on research inputs and outputs

World-class evaluation and grant-making systems

The NRF uses rigorous international peer review to evaluate and rate the quality of research outputs and to ensure that research proposals of high quality are funded. South African research is benchmarked internationally and 2 471 researchers have an NRF rating. Of the 2 471 rated researchers, 506 (20%) are black and 717 (29%) are women. The number of NRF-rated researchers has increased between 2007/08 and 2011/12.

The evaluation and rating is dependent on the goodwill of the international research community and the NRF has done an excellent job at building and maintaining good relations. The NRF specialises in the administration of research grants.



South African National Space Agency

Objectives

The objectives of SANSAT are 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 outreach programmes and infrastructure development;
- foster international cooperation in space-related activities.

2011/12 highlights

During the 2011/12 financial year, SANSAT recorded significant achievements in striving towards its strategic goals.

Goal 1: World-class and efficient services and societal benefits

- SANSAT Earth Observations delivered the Informal Settlement Atlas as part of the North West Informal Settlement Upgrading Programme. The atlas provides spatial information about informal settlements that can be used to efficiently locate these settlements and quantify provincial housing delivery.
- SANSAT implemented the Data Information Management System for Earth Observation, which is integral to the SAEOS. The system includes the implementation of a new Earth Observation sensor catalogue and the hosting of metadata and thumbnails of multi-sensors, which allows the public to select and order the required imagery. The catalogue provides a user-friendly end-user interface.

- The annual SPOT 5 country mosaic was released to government departments and other public entities. This resource is used by over 60 public entities, from Statistics South Africa to the Presidency.
- SumbandilaSat functioned well and delivered beyond expectations. To celebrate its success, a SumbandilaSat commemorative stamp was launched by the South African Post Office on 1 April 2011. The satellite completed over 9 000 orbits and SANSAT monitored approximately 1 300 passes. The payload produced good quality images, some of which have contributed to the European GMES programme. SANSAT was also able to supply the Namibian government with a processed SumbandilaSat image within 24 hours of an urgent request from Windhoek to image serious flooding in the north of the country. The image showed extensive flooding in and around the major town of Oshakati, revealing, for example, which roads had been rendered impassable and which were still usable.
- SANSAT acquired and archived 34 Tb of earth observation satellite data for numerous societal delivery needs. These included geospatial information for natural resources (water, land, etc.) management, environmental management and sustainability, agriculture and food security, rural development and urban planning, disaster management, and policy formulation and decision-making.
- SANSAT rendered satellite launch support to 18 global satellites, including the US\$2,3 billion National Aeronautics and Space Administration (NASA) Mars Science Laboratory mission, which aimed to land and operate a rover named Curiosity on the surface of Mars. The rover landed on Mars at Gale Crater in August 2012 – the first-ever precision landing on Mars. The mission will assess whether Mars is or ever was an environment able to support microbial life. It will also analyse rock and soil samples on the planet. This is part of NASA's Mars Exploration Program, a long-term effort of robotic exploration of Mars.

Goal 2: Cutting-edge RDI, technology and applications

- SANSA provided 40 Tb of earth observation satellite data for research and knowledge creation.
- SANSA conducted and achieved 14 formal research outputs against a target of five, and produced nine formal research outputs against a target of six for the year. SANSA also produced 29 co-authored ISI journal publications against a target of 24 for the year, demonstrating its quality of scientific output, particularly in refereed journal articles.
- SANSA has four NRF-rated researchers. This affirms SANSA's continuous striving for the highest standards of research and its determination to produce quality and high-impact research output.

Goal 3: Effective development of human capital transformation, science advancement and engagement of the citizenry

- Through collaborative student training, SANSA developed human capital in earth observation techniques such as remote sensing, image processing, data management, electronics and satellite technology, and distributed satellite data to 41 honours, 95 master's and 48 PhD students.
- SANSA formally supervised 10 honours students, 20 master's students and 13 PhD students, and also trained five interns and offered in-service training to two students.
- SANSA promoted and advanced science among the youth and the public by engaging 8 436 learners at SANSA facilities, hosting 324 educators and holding 15 public engagement activities.

Goal 4: Globally competitive national space industry

SANSA made an active contribution to the South African space industry through research, technological advancement, science advancement and local and global partnerships, and provided services that stimulated industry growth. This enabled SANSA Earth Observation to derive 27% of its income from collaborative projects with industry.

Goal 5: Make South Africa a recognised global space citizen

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 13 space agencies during the year under review. Furthermore, SANSA hosted foreign visitors from Thales, Arianespace, Astrium and IntelSat. It also participated in various multinational projects and forums such as the Group on Earth Observations, the Committee on Earth Observation Satellites and the African Leadership Conference on Space and Technology.



Technology Innovation Agency

Objectives

The Technology Innovation Agency (TIA) is mandated to support the state in stimulating and intensifying technological innovation in order to improve economic growth and the quality of life of all South Africans by developing and exploiting technological innovations.

2011/12 highlights

Increase in TIA's offerings

TIA added a new funding instrument to its product offerings with the Youth Technology Innovation Fund, which was set up to assist young innovators in need of funding, mentorship and business support. The fund aims to promote and stimulate the culture of innovation and entrepreneurship among young people (18-30 years of age) by providing access to financial and business support resources. It is offered to researchers from science councils and HEIs, individuals, students and school leavers. The fund offers successful applicants services, such as the use of the South African Bureau of Standards services for product certification; business coaching; use of TIA technology stations and platforms; incubation services at recognised TIA partner organisations for up to two years, and IP protection.

High-impact cattle project

TIA invested R24 million towards the national roll-out of an Nguni cattle assisted reproductive technology (ART) project. The pilot launch was held at Vuvha village in Vhembe, Limpopo. The project, geared towards generating superior cattle breeds, was undertaken in partnership with the Agricultural Research Council and the Limpopo Department of Agriculture. The Nguni cattle ART will improve not only the quantity, but also the quality of the livestock of rural and emerging farmers, and thus facilitate their entrance into the market. The project also addresses two of the government's priorities, namely rural development and job creation.

Investment highlights

In total, TIA approved the funding of 17 projects to the value of R110 942 506 and leveraged a total of R121 873 366 in co-funding. Below are some of the projects that were funded by TIA in the year under review:

1. **Photovoltaic technology intellectual property:** Developing energy technologies is capital-intensive, which is why it is important for TIA to identify and engage potential key partners to co-fund technologies. TIA's thin film photovoltaic investment attracted co-funding of R93 million from the Industrial Development Corporation. TIA successfully concluded term-sheet negotiations for a follow-on funding deal of R20 million with PTIP, a South African renewable energy technology development company. This forms part of a syndicated R120 million deal with the Industrial Development Corporation, in which PTIP will work with an international technology partner to further develop, commercialise and create significant value from publicly funded technology and intellectual property developed in South Africa.
2. **Southern Access Technologies:** Southern Access Technologies, a start-up biotechnology enterprise, is developing a heart-valve deployment device that will allow the insertion of new synthetic heart valves into patients by catheter without open-heart surgery. This technology has the potential to reduce the cost and increase the success rate of heart-valve insertion, thus increasing access to this treatment in Africa. TIA leveraged its funding of Southern Access Technologies to provide R5 million co-investment from external parties.

Commercialisation highlights

Altis Biologics launched and completed the first sales of their osteogenic bone matrix trauma product in September 2011.

Return on investment

Blue Cube Systems paid a dividend of R500 000 to TIA. Blue Cube Systems is a technology company focusing on in-stream instrumentation for the mining and metallurgical industry.



Annual Financial Statements

for the year ended 31 March 2012

Annual Financial Statements for the year ended 31 March 2012

Report of the Accounting Officer	107
Report of the Auditor-General	123
Report of the Audit Committee	126
Appropriation Statement	128
Notes to the Appropriation Statement	148
Statement of Financial Performance	150
Statement of Financial Position	152
Statement of Changes in Net Assets	153
Cash Flow Statement	154
Accounting Policies	155
Notes to the Annual Financial Statements	161
Disclosure Notes to the Annual Financial Statements	173
Annexures	183

Report of the Accounting Officer for the year ended 31 March 2012

Report of the Accounting Officer to the Executive Authority and Parliament of the Republic of South Africa

1. General review of the state of financial affairs

The aim of the Department of Science and Technology (DST) is to develop, coordinate and manage a national system of innovation (NSI) that will bring about maximum human capital, sustainable economic growth and improved quality of life. The Department aims to achieve this mission by pursuing the following strategic objectives:

- To develop the innovation capacity of the NSI and thereby contribute to the socio-economic environment.
- To enhance South Africa's knowledge-generation capacity in order to produce world-class research outputs and turn some advanced findings into innovation products and processes.
- To develop appropriate science, technology and innovation (STI) human capital to meet the needs of society.
- To build world-class STI infrastructure to extend the frontiers of knowledge, train the next generation of researchers and enable technology development and transfers as well as knowledge interchange.
- To position South Africa as a strategic international research, development and innovation partner and destination through the exchange of knowledge, capacity and resources between South Africa and its regional and other international partners, thereby strengthening the NSI.

The information below highlights policy decisions and strategic issues facing the Department as well as significant events that happened in the 2011/12 financial year.

1.1 Policy decisions and strategic issues facing the Department

Since the global economic meltdown of 2008, economic growth in South Africa has improved

slightly, but National Treasury has continued to apply austerity measures in financial management. The DST, like all other national departments, experienced budget cuts. Nevertheless, the financial resources that we were allocated were used to further the strategic priorities of the Department.

The Department aims inter alia to develop the capacity of the NSI, enhance South Africa's knowledge exploitation and generation, build world-class research infrastructure, and position South Africa as a significant international partner for research, development and innovation. These goals have been translated into the strategic priorities of the Department for the medium term. The key focus areas will be on building and strengthening human capital for the NSI, generating and maximising the use of knowledge, and strengthening international cooperation in science, technology and engineering.

Over the past few years, the Department has initiated pilot projects to demonstrate technological solutions in areas as diverse as cultivating medicinal plants, fish production, essential oils, new plant cultivars, sustainable water delivery, and the design of low-cost housing. These projects target marginalised communities and have the potential to improve the circumstances of society as a whole.

1.2 Significant events and major projects undertaken

The following are some of the highlights regarding significant events that took place in the 2011/12 financial year. The details of these events can be read in the performance sections of the specific Programmes.

Traditional Medicine and Intellectual Property Rights Workshop

A Workshop on Traditional Medicine and Intellectual Property Rights (IPR) was successfully hosted by the DST and the National Science and Technology Forum (NSTF) on 14 and 15 July 2011 in Pretoria. This gathering of policy makers, academics and key stakeholders focused on issues that relate to research on traditional medicine and the protection of its intellectual property.

The workshop aimed to identify areas of traditional medicine where IPR protection was of major concern. It also focused on sharing information about deliberations in United Nations forums on issues related to indigenous knowledge systems (IKS). The delegates raised issues relating to national laws and policies on IPR relating to traditional medicines in South African and other countries. The workshop came up with recommendations for protecting traditional medicine knowledge, resources and biodiversity in order to contribute to a fair and equitable sharing of benefits, and the commercialisation of indigenous knowledge/knowledge products. The workshop was attended by 11 members of Parliament, including two chairpersons of portfolio committees.

Centre for High-Resolution Transmission Electron Microscopy

The Centre for High-Resolution Transmission Electron Microscopy was launched on 11 October 2011 at the Nelson Mandela Metropolitan University. This Centre is the only one of its kind in the Southern Hemisphere and one of only a few worldwide, providing infrastructure capability for cutting-edge research and human capital development in nanotechnology and nanosciences. It will facilitate skills development in the area of atomic resolution electron microscopy.

IKS Bioprospecting and Product Development Platform

The IKS Bioprospecting and Product Development Platform was established in 2007 under the Director-General's instruction after the Ministerial and Portfolio Committee's visit to the Medical Research Council in Cape Town. The platform is constituted by government departments, academic institutions, science councils and IKS communities and organisations.

This Platform identifies possible leads which, when successful, are graduated into the product development stage. The three flagships of the IKS Bioprospecting and Product Development Platform are African traditional medicines (ATM), nutraceuticals and cosmeceuticals. In 2011/12 nine leads were researched and developed for medical, cosmeceutical and nutraceutical potential.

Preclinical studies on ATM flagship projects are on diabetes, HIV/Aids and tuberculosis. Two nutraceutical prototypes formulation and quality studies are ready for commercialisation. Two clinical trials on cosmeceuticals were successfully completed and are tagged for commercialisation.

Accreditation and certification of IKS holders and practitioners

The first draft of the framework for the accreditation and certification of IKS holders and practitioners, which will provide a system for the recognition, standardisation and professionalisation of knowledge holders' skills, experience, learning and practices, has been completed. The framework is to be submitted to the Minister of Science and Technology for approval before the commencement of public consultation.

Social impact

Through Programme 5 (Socio-Economic Partnerships), the Department supported the growth and development priorities of government through targeted science and technology (S&T) interventions and the development of strategic partnerships with other government departments, industry, research institutions, and communities. In contributing towards socio-economic development, the Department focused on the demonstration, application and use of existing knowledge and technology interventions in providing solutions, particularly in addressing developmental challenges and service-delivery gaps. One of the achievements is the completion of the Kleinmond low-cost housing project in the Overstrand Local Municipality in the Western Cape. The settlement was planned in a holistic manner and, besides providing shelter to 410 families, it also serves as a development model whereby various alternative technologies perform to improve the quality of life and help to reduce the dependency of the development on municipal services.

Another successful intervention was the completion of an initial intervention for interim access to water in the Eastern Cape. The first leg of the Accelerating Sustainable Water Services Delivery initiative in the Amathole District Municipality has been successfully completed, giving almost 600 households in Cwebe, Mbelu and Ntilini villages access to safe drinkable water.

Knowledge generation

In order to support the generation, application and dissemination of social scientific knowledge, a total of three science colloquiums and eight government cluster policy workshops were held during this financial year. Both the colloquiums and the workshops gave practical expression to components of the science plan for the Human and Social Dynamics in Development Grand Challenge.

Programme 5 funded or co-funded 458 postgraduate students during this financial year to ensure the increased availability of researchers and innovators for South Africa's global competitiveness. The Technology Stations and Institutes of Advanced Tooling (IAT) programmes are now well-established and are playing an increasingly important role in supporting small and medium enterprises. Over the past few years, these programmes began to offer significant opportunities in human capital development. In 2011/12, the Technology Stations and IATs hosted 130 interns at different levels. 22% of the interns were deployed directly in industry and 78% were based at various technology stations and IATs. The IAT programme funded 11 trainees to undertake training and gain international exposure in the discipline of tool, die and mouldmaking (TDM). This is an initiative to support the local tooling industry and a six-month skills and capacity development programme in TDM is being offered in Auragabad, India.

In order to expand on local knowledge and use land that is unfit for crops, a Biocomposites Centre of Competence was established to develop knowledge and technology that can help establish upstream (e.g. fibre cultivation) and downstream (e.g. biocomposite manufacturing) industries that can create economic activity and new export products, and reduce imports (e.g. biofriendly packaging materials). A number of biocomposite parcel trays have been produced and submitted to one of the automotive firms for product acceptance testing. A joint patent application for biocomposite panels in the aviation industry was submitted.

Review of technology platforms

The DST and the Technology Innovation Agency (TIA) seek to rationalise the current portfolio of investments in technology platforms to ensure that they are aligned with the mandate of their managing entity (TIA) and to evaluate their utilisation, strategic intention and utility within the NSI. The need arose from the TIA inheriting a portfolio of platforms that vary significantly in structure and function as a result of independent investment decisions, due diligence processes and geographic locations, as well as the differing mandates of the instruments/entities that were migrated into TIA (i.e. from the biotechnology innovation centres).

The review of technology platforms was completed in the 2011/12 financial year. A guideline document on technology platforms and recommendations for current platforms are currently being drafted based on the outcomes of the review process. These will be presented to the

DST Executive Committee for consideration in the 2012/13 financial year. Technology platforms are defined as conduits to innovation, i.e. they provide a service (in strategic areas) to enable innovation to occur.

Biopharming initiative

The DST/TIA is investing in building South Africa's competitive advantage for the production of biologics using plants as expression systems. The Council for Scientific and Industrial Research (CSIR) Biosciences unit received funding from the DST to build on its current competency with other local state-owned enterprises (Biovac and Onderstepoort Biological Products) and made progress with this in the past financial year.

CSIR Biosciences has produced a method (platform technology) for improving the potency of the influenza vaccine using a conjugation method within the biopharming initiative, i.e. for expression of this improved biologic in plants. An advantage of this method is that it will reduce the number of vaccinations required to one (the current vaccination regime stipulates two vaccines are needed to elicit protection in individuals). A more potent vaccine should eliminate the need for a booster vaccine to be administered. This should reduce the cost of the production of the vaccine and thus make it more affordable. In addition, it may reduce the time frames for production – this is important for response to pandemic influenza (outbreaks).

In terms of technology transfer, CSIR Biosciences is trying to transfer technology from Kentucky BioProducts in the United States of America to South Africa. Biovac and the CSIR are jointly evaluating these new technologies with the aim of in-licensing them for the production of biologics/vaccines. This programme includes a human capital development and training component.

CAPRISA 004

The results of the Centre for the AIDS Programme of Research in South Africa (CAPRISA) 004 trials, which showed that 1% tenofovir gel reduced the risk of HIV infection in women by 39% compared with placebos, were announced in July 2010. The announcement raised questions about the most appropriate steps to be followed particularly with regard to making the gel available to women at risk based on this single trial; planning and implementing additional trials to confirm the results; or waiting for the results of the Vaginal and Oral Interventions to Control the Epidemic

(VOICE) trial, another trial of 1% tenofovir gel using a different dosing strategy. Consequently, three research studies were identified and prioritised to confirm the safety, effectiveness and acceptability of 1% tenofovir gel and also to develop the most efficient pathways for manufacture and licensure of the gel. These studies are funded by DST, together with a number of partners.

FACTS 001

A Phase 3 clinical trial to confirm the safety and effectiveness of tenofovir gel (FACTS 001) as observed in the CAPRISA 004 trial is currently under way in South Africa. The primary purpose of FACTS 001 is to assess the safety and effectiveness of 1% tenofovir gel in the prevention of HIV-1 in young women, and to examine the effects of the microbicide on the incidence of Herpes Simplex Virus 2 infection. If the FACTS 001 study confirms that the gel is safe and effective, the information gathered could contribute to the licensure of the first microbicide product and consequently provide women with a new women-controlled HIV prevention method.

CAPRISA 008

The second clinical trial involving tenofovir gel, CAPRISA 008, is being conducted under the auspices of CAPRISA at the University of KwaZulu-Natal. This study is aimed at assessing the feasibility and effectiveness of providing tenofovir gel in a clinic setting. The CAPRISA 008 clinical trial is expected to commence once the trial protocol is approved by the Medicines Control Council (MCC).

CAPRISA 009

The CAPRISA 009 clinical trial is aimed at providing care, treatment and monitoring for former CAPRISA 004 trial participants who became infected with HIV while participating in the CAPRISA 004 trial. The study will compare treatment outcomes for those who receive combined antiretroviral treatment, which includes tenofovir, with those who receive combined antiretroviral treatment without tenofovir. It will also investigate the potential development of drug resistance towards tenofovir following the use of 1% tenofovir gel. This would help inform the use of tenofovir for prevention and treatment, as well as treatment options for women who acquire HIV while using tenofovir gel.

The information from the above studies is an important component of the data that will be needed for full registration of 1% tenofovir gel by the regulatory authorities. Depending on the results of the above studies, and assuming that the studies are completed on schedule, tenofovir gel could be registered as soon as 2014.

Strategic health innovation initiatives

The DST has established the South African Malaria Initiative, South African HIV/AIDS Research and Innovation Initiative and the South African TB Research and Innovation Initiative. The aim of these initiatives is to enhance South Africa's capability to contribute sustainably towards global efforts for the discovery, development and delivery of drugs, vaccines and diagnostics for TB, malaria and HIV/Aids. It is anticipated that these initiatives will stimulate innovation in TB, malaria and HIV/Aids research through facilitating collaborative projects across academia, science councils, and the private sector.

Ketlaphela project

Ketlaphela is a South African-Swiss venture created to manufacture, formulate and distribute pharmaceuticals locally to reduce the burden of diseases (HIV, tuberculosis, diabetes and others) in Southern Africa. This joint venture will establish the first pharmaceutical plant to manufacture active pharmaceutical ingredients for anti-retroviral medicines in South Africa. The Ketlaphela project will firstly address the burden of communicable diseases such as HIV/Aids, tuberculosis and malaria, and later non-communicable diseases such as diabetes, hypertension and cancer. It is anticipated that Ketlaphela will reduce South Africa's dependence on imports and help to mitigate the country's fast-rising trade deficit in the pharmaceutical sector, as well as providing security of supply of priority drugs.

Non-communicable diseases research and innovation initiative

The Non-Communicable Diseases Research and Innovation initiative was established by the DST in order to address national priorities in understanding the underlying mechanisms behind particular non-communicable diseases, forging an integrated national research agenda, and fostering collaboration across basic, clinical, and health systems research. Cancer, diabetes and cardiovascular diseases have been identified as the three main research priority areas for the country.

Preclinical drug development platform

The DST's Ten-Year Innovation Plan aims to develop a vibrant pharmaceutical industry in South Africa. This includes the production of pharmaceutical drugs, phyto-medicines and other botanically-derived medicines (botanicals). Preclinical testing of such products is a crucial step in their development and registration with regulatory bodies. To this end, the DST is establishing a preclinical drug development testing platform. Such a platform will play a vital role in the development of capacity and capabilities necessary for South Africa to exploit its biodiversity and indigenous knowledge in developing drugs and phyto-medicines.

An amount of R33 million has been paid to the Potchefstroom campus of North West University (NWU). This will be used to upgrade its facilities in the next three years, to become part of a national platform on preclinical testing of drugs and phyto-medicines.

This process will include:

- upgrading the facilities at NWU to a level where it can start to function as a national preclinical testing platform, which will provide cost-effective service and necessary skills transfer to the scientific community on preclinical testing for drugs and phyto-medicines;
- introducing a good laboratory practice (GLP) and good manufacturing practice (GMP) status to the sections where such a level is required;
- training the staff on GLP and GMP requirements and on other aspects related to preclinical drug testing;
- creating an enabling environment to attract both local and international researchers/developers to South Africa to access services of the platform;
- creating an infrastructure that could enable South Africa to play a significant international role in the production of drugs and phyto-medicines.

South Africa is also in the process of revitalising its human vaccines development and production capabilities. A public-private partnership named the Biovac Institute, which was established in 2003 with a mandate to revitalise human vaccine production in South Africa, is hard at work in achieving this. The Biovac Institute needs to test its vaccines in line with the special requirements for the testing of such vaccines. There is currently no preclinical testing facility in South Africa that meets the current GMP requirements for the testing of Biovac vaccines, and the Biovac Institute

is currently spending approximately R5 million per year to test its products outside South Africa. The Biovac Institute will become one of the first clients of the new preclinical testing facility at the NWU and the upgrading of this facility will be done in such a manner that it will cater for the needs of the Biovac Institute.

Sutherlandia clinical trial

The DST is funding a phase IIb clinical trial on Sutherlandia. An amount of R10 million was paid to the University of the Western Cape in the 2010/11 financial year to initiate this study. Sutherlandia herb is endemic to South Africa and has been widely used for decades without side effects. Toxicity studies that have been done at the University of the Western Cape have indicated that it is non-toxic. The range of conditions for which Sutherlandia has been traditionally used (published and unpublished data) include enhancing well-being, immune support, longevity, stress, depression, anxiety, cancer treatment, eye diseases, fever and chicken-pox, as well as severe weight loss from cancer, TB or Aids.

In patients suffering from HIV/Aids, Sutherlandia has been shown in anecdotal studies to improve appetite, weight-gain, sleep, exercise tolerance and overall sense of well-being. Other anecdotal studies have reported an improvement in CD4 counts and a decrease in the viral load with the use of Sutherlandia. If all these observations can be demonstrated in a properly constituted clinical trial, this will be a breakthrough for a South African phyto-medicine.

The project will provide the following benefits:

- Documented proof on the use of Sutherlandia in the management of HIV/Aids, which will enable the MCC to make an informed decision in the subsequent applications to use this phyto-medicine as a complementary medicine for first-line treatment of HIV infected patients.
- Approval of the use of Sutherlandia as a first-line treatment in HIV-infected individuals may considerably delay the progression to Aids and the use of antiretroviral drugs. This could save the state a substantial amount of money on antiretroviral drug use.
- It will also provide a platform for training and skills development for South African scientists in the field of phyto-medicines. Such skills and capacity will be useful in many other phyto-medicine products that have shown promise in different research projects currently being undertaken in this country.

Nuclear Technologies in Medicine and Biosciences Initiative (NTeMBI)

The overall objective of NTeMBI is to become a centre of competence to cover the complete innovation process, from groundbreaking research to the successful introduction of new products and services into the market. All relevant role players are involved in this process, including higher education institutions, research organisations, government departments and agencies, the business community and the private sector. NTeMBI functions as a research, development, innovation and capacity development initiative, providing a framework to consolidate expertise and implement new strategic initiatives relating to research and development on nuclear technologies in medicines and biosciences. The outcome of this process will enable the innovative application of nuclear technologies in medicine and the biosciences.

1.3 Spending trends

The Department's appropriation for the year under review was R4,407 billion compared to R4,258 billion in 2010/11, which accounts for a 3,5% year-on-year increase. Most of the appropriation is allocated to the Programmes that are the core policy implementers of the Department,

i.e. Human Capital and Knowledge Systems (Programme 4) received 44%, Socio-Economic Partnerships (Programme 5) received 29%, and Research, Development and Innovation (Programme 2) received 19%.

The Department's spending performance has been consistently above 90% since its inception. The 2011/12 financial year spending performance for the Department stood at an impeccable 99,9%. This has ensured delivery in important departmental projects, such as an increase in the value of bursary awards to science, engineering and technology students, and the expansion of the South African National Research Network's connectivity to 107 sites covering research institutions and universities, as well as the link with SKA.

1.4 Virements

The virements for the year were made in accordance with the Public Finance Management Act and Treasury Regulations. The Department effected virements amounting to R36,6 million after the Adjusted Estimates process, which represents 0,8% of the adjusted budget. Of the total

Summary budget expenditure analysis

	2011/12 R'000	2011/12 %
Amount voted	4,407,003	100.0
Actual expenditure	4,403,472	99.9
Unspent funds	3,531	0.1
Economic classification		
Current expenditure	346,101	7.8
Transfer payments	4,050,425	91.9
Payments for capital assets	6,946	0.2
Total payments	4,403,472	99.9

virements, R19,1 million was approved by the National Treasury and R17,5 million by the Director-General. In addition, amounts of R19,3 million and R8,1 million were moved between major items and Programmes, respectively.

While transfer payments received the largest share of R12,7 million from R18,9 million released from compensation of employees, Human Capital and Knowledge Systems received the largest share of R7 million from R8,1 million relinquished by International Cooperation and Resources (R4,6 million) and Socio-Economic Partnerships (R3,5 million). Funds moved between major items and Programmes were directed towards funding the following activities, among others: Research Information Management System, bursaries, technology transfer, South African Environmental Observation Network, Engineering Academy and internships.

2. Services rendered by the Department

The Department's core business is to develop research, development and innovation policies in line with the White Paper on Science and Technology. The strategy instruments that assist with the implementation of the Department's mandate as set out in the White Paper are the National Research and Development Strategy and the Ten-Year Innovation Plan. The DST does not provide services to any institution or persons on a recoverable basis.

3. Capacity constraints

Human Capital and Knowledge Systems experienced attrition in its senior management cohort. The Human Resources Unit is working to alleviate the situation. However, the tireless assistance of all employees in this Programme has ensured that significant projects are not compromised.

4. Use of donor funding

The Department received Official Development Assistance (ODA) from Australia, Canada, the European Community, Finland, USAID and Japan. Below is a brief summary of the S&T activities supported by these ODA partners:

4.1 Donor funding received in cash

Australia

Australia has committed to regional support for the development and implementation of an S&T policy training initiative for senior Southern African Development Community (SADC) officials, as well as for the development of an SADC STI Implementation Framework for Climate Change Response. The policy training is progressing well and the first training programme will commence in October 2012. The STI Implementation Framework for Climate Change Response was completed. The total amount committed was R3 124 595.

Canada

The Epidemiological Modelling and Analysis in South Africa initiative includes financial support to the South African Centre of Excellence in Epidemiological Modelling and Analysis of approximately R20 million over five years. The project aims to develop, in partnership with Statistics Canada and the World Health Organisation, innovative quantitative methods to support a more integrated, evidence-based national response to HIV/Aids (and major related diseases such as tuberculosis). The project was initiated in November 2008 and was presented at the annual consultation between South Africa and Canada. The Director-General of the Canadian International Development Agency complemented the programme as a strategic intervention and said that more such initiatives should be considered.

European Union

Approximately R70 million was received by the South African NSI through the participation of South African researchers in the EU Framework Programme, including projects that are managed directly by DST (CAASTNet, ESASTAP, INCONTACT, AeroAfrica EU and IST Africa).

Sector Budget Support Programme

The EU has allocated a total of €30 million to support the DST in its poverty alleviation initiatives over a period of three years. This allocation will see the Department supporting, among other things, the use of scientific innovation to provide sustainable water service delivery in rural areas, and the use of information and communication technologies (ICT) to develop and empower rural communities through employment creation and human capacity development.

Greece

SAAccess assists EU researchers by identifying and highlighting the available opportunities for research collaboration through participation in South Africa's national research and innovation programmes. R300 000 was received from Greece.

Finland

SAFIPA

SAFIPA was aimed at narrowing the digital divide by introducing interventions to help South Africa become an inclusive knowledge society with a strong ICT brand, reflecting research excellence and demonstrating improvements in quality of life and economic competitiveness. The Finnish contribution to this programme was R30 million over three years, disbursed at R10 million per annum. The project was successfully closed during the financial year.

BIOFISA

BIOFISA is a three-year programme that is jointly funded by the Finnish government and the DST to build biosciences research capacity in Southern Africa. The programme is managed by SANBIO, and the programme office is based at the Council for Scientific and Industrial Research. SANBIO, which is also supported by NEPAD, manages the funded projects in all biosciences nodes in Southern Africa. The programme receives R30 million over three years, disbursed at R10 million per annum.

United States of America

Ongoing support was provided by the United States Agency for International Development (USAID) for two regional capacity development initiatives. The Potato Culture project in Malawi is progressing well. Additional funding was provided by USAID for the procurement of a generator for the laboratory, as the unreliable electricity in the area was affecting the project negatively.

The SADC Risk and Vulnerability Atlas Capacity Development project will be completed early in the next financial year.

A new call was posted by USAID and the DST was successful with three additional proposals. These proposals include another round of funding for the SADC Risk and Vulnerability Atlas Capacity Development, based on the good results achieved during the first phase, and two projects with Mozambique, one on aquaculture and another on joint research around the impact of pollution in the Oliphant's River on the health of communities living around the river.

4.2 Donor funding received in kind

Canada

The Canadian government has committed R6,892 million over three years (R2,498 million per annum) for South Africa's participation in the Grand Challenge Canada (GCC) call on point-of-care diagnostics to improve healthcare and life expectancy among South Africans.

France

France has committed another R14,850 million over three years (R4,95 million per annum) for the extension of the French South African Institute of Technology (F'SATI) Scientific Director contract.

Japan

In respect of productivity training to increase the employability level of S&T graduates, the technical assistant placed at the DST at R1,7 million, was transferred to the Department of Higher Education and Training (DHET), as the pilot of the initiative was completed under the DST leadership and the roll out to other higher education institutions is the DHET's responsibility.

Volunteers were placed in Limpopo, the Eastern Cape and North West to support science centres with developing teaching material for science and mathematics education and to develop exhibitions to systematise the newly developed exhibitions to ensure knowledge gain by science centres.

Hitachi Scholarships for two South African electrical engineers are valued at approximately R900 000. The total investment from Japan through ODA to DST initiatives in the 2011/12 financial year amounts to approximately R17 million through in-kind and grant contributions.

5. Public entities

The public entities that were funded through the DST's vote in 2011/12 are as follows:

5.1 Human Sciences Research Council (R206,1 million in 2011/12 and R194,2 million in 2010/11)

The Human Sciences Research Council (HSRC) was established in terms of the Human Sciences Research Act, 1968. It supports development in South Africa and Africa by coordinating and conducting applied social science research projects. Its research structures and activities are aligned to South Africa's national development priorities, notably, poverty reduction through economic development, skills enhancement, job creation, the elimination of discrimination and inequalities, and effective service delivery.

The DST is specifically required to contribute to outcomes that are linked to inclusive economic growth, the creation of decent work and sustainable livelihoods. The research agenda of the HSRC is strongly aligned with outcomes and deliverables entrusted to the Minister and the DST, and some of the targets assigned to them will be achieved with the help of the HSRC.

The HSRC remains committed to achieving its vision of serving as a knowledge hub for research-based solutions to inform human and social development. As such it also supports the DST in attaining the goals of the Human and Social Dynamics in Development Grand Challenge, which forms part of the Ten-Year Innovation Strategy.

The core business of the HSRC is to conduct large-scale, policy-relevant, social science projects for public-sector users, non-governmental organisations and international development agencies. The HSRC does this in partnership with researchers globally, but specifically in Africa. Their commitment to cutting-edge research supports development nationally, in the SADC and in Africa.

5.2 National Research Foundation (R1,099 billion in 2011/12 and R749,1 million in 2010/11)

The National Research Foundation (NRF) was established by the National Research Foundation Act, 1998. The NRF supports and promotes research through funding human resource

development and the provision of the necessary research facilities for the creation of knowledge, innovation and development in all fields of S&T, including indigenous knowledge. In addition to the agency function it performs for the DST, the NRF acts as a service provider for the Departments of Water Affairs and Environmental Affairs in the area of marine research, the Department of Trade and Industry in respect of the Technology and Human Resources for Industry Programme, and the Department of Labour in respect of the Scarce Skills Development Fund.

5.3 Africa Institute of South Africa (R32,4 million in 2011/12 and R30,5 million in 2010/11)

The Africa Institute of South Africa (AISA) is a statutory body established in terms of the Africa Institute of South Africa Act, 2001. The key role of AISA is to conduct research and support policy development, embark on training programmes, and participate in and maintain networks for peace, development and prosperity in Africa. Its primary focus is on political, socio-economic, international and development issues in contemporary Africa. It contributes to the goals of the NSI through research programmes which impact on knowledge production and human resource development in African studies – a scarce resource in South Africa.

5.4 Council for Scientific and Industrial Research (R687,1 million in 2011/12 and R685,7 million in 2010/11)

The Council for Scientific and Industrial Research (CSIR) is governed by the Scientific Research Council Act, 1988. The objectives of the CSIR are to foster industrial and scientific developments in the national interest, through directed and particularly multidisciplinary research and technological innovation, either by itself or in cooperation with principals from the private or public sectors, to improve the quality of life of the country's people.

The CSIR is committed to supporting innovation in South Africa to improve national competitiveness in the global economy. S&T services and solutions are provided in support of various stakeholders, and opportunities for new technologies to be further developed and exploited in the private and public sectors for commercial and social benefit are identified.

The CSIR's work has relevance to high-priority national goals such as speeding up growth and transforming the economy to create decent work and sustainable livelihoods, building economic and social infrastructure, strengthening the skills and human resource base, and advancing sustainable resource management and use. The DST, primarily through the CSIR, also has a key role to play in the 2010 Industrial Policy Action Plan.

5.5 Technology Innovation Agency (R433,8 million in 2011/12 and R410,6 million 2010/11)

The Technology Innovation Agency (TIA) was established in terms of the Technology Innovation Agency Act, 2008. TIA's objective is to support the state in stimulating and intensifying technology innovation in order to improve economic growth and the quality of life of all South Africans by developing and exploiting technology innovations.

TIA also aims to promote the development and exploitation, in the public interest, of discoveries, inventions, innovations and improvements. TIA therefore supports and enables technological innovation in order to deliver socio-economic benefits for South Africa. This entails bringing local research and development (R&D) closer to market by providing technology transfer and commercialisation support. This is in line with the objectives of the Subprogramme: Innovation Instruments and Planning, which drives strategic interventions that are aimed at enabling South Africa to translate a greater proportion of its scientific knowledge outputs into commercial technology products and services. To date, this has included the establishment of a conducive policy environment as well as the establishment of organisational structures, such as TIA, that are aimed to support in technology development and its progression into national and international markets.

5.6 Academy of Science of South Africa (R13,9 million in 2011/12 and R10,5 million in 2010/11)

The Academy of Science of South Africa (ASSAf) was formally established in 2001 in terms of the Academy of Science of South Africa Act, 2001. ASSAf's objectives are to promote common

ground for scientific thinking across all disciplines, to encourage and promote innovative and independent scientific thinking, to promote the optimum development of the intellectual capacity of all people, and to link South Africa with scientific communities at the highest levels, and the African continent in particular. In addition, it investigates matters of public interest concerning science and manages the *South African Journal of Science*.

5.7 South African National Space Agency (R106,7 million in 2011/12)

The South African National Space Agency (SANSA) was established in December 2010 in terms of the South African National Space Agency Act, 2008. SANSA is a Schedule 3A public entity under the Public Finance Management Act.

SANSA's object is 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, outreach programmes and infrastructure development; and
- foster international cooperation in space-related activities.

The SANSA Act also determines the functions of SANSA, which are to:

- implement any space programme in line with the policy determined in terms of the Space Affairs Act;
- advise the Minister on the development of national space S&T strategies and programmes;
- implement any national space S&T strategy; and
- acquire, assimilate and disseminate space satellite imagery for any organ of state.

6. Organisations to which transfer payments have been made

6.1 Programme 1: Administration

Organisation/theme	R'000	Reason for transfer payment
Institution and Programme support	1,000	Assistance for research into science activities
Total	1,000	

6.2 Programme 2: Research, Development and Innovation

Organisation/theme	R'000	Reason for transfer payment
HIV/Aids prevention and treatment technologies	19,298	Research into technologies to combat and prevent HIV/Aids
Square Kilometre Array	11,282	R&D into SKA priorities
Technology Top 100	5,294	To promote technological advancement for SMMEs
Hydrogen Strategy	82,259	Research in hydrogen and energy sector
Health Innovation	38,452	Research into health initiatives
Biotechnology Strategy	35,430	Implementation of the Biotechnology Strategy
Biofuels	5,300	Research into the biofuels arena
Energy Security Grand Challenge	48,628	Research into the energy sector
Innovation Projects	24,864	Research into innovation
Total	270,807	

6.3 Programme 3: International Cooperation and Resources

Organisation/theme	R'000	Reason for transfer payment
Global Science: Bilateral Cooperation	13,000	Growing international partnerships with the aim of leveraging resources for R&D and human capital
Global Science: International Resources	26,632	Growing international partnerships with the aim of leveraging resources for R&D and human capital
Global Science: Multilateral Cooperation	11,300	Growing international partnerships with the aim of leveraging resources for R&D and human capital
Total	50,932	

6.4 Programme 4: Human Capital and Knowledge Systems

Organisation/theme	R'000	Reason for transfer payment
Human Resource Development	158,650	Implementation of human resource development initiatives
Emerging Research Areas	55,551	R&D in emerging research areas
Indigenous Knowledge Systems (IKS)	8,726	Implementation of IKS Strategy
Science and Youth	59,364	Research and initiatives towards youth involvement in the science arena
Science Themes	64,111	R&D into science initiatives
Women in Science	326	Continuation of women in science activities
Centre for High Performance Computing	81,970	R&D into science initiatives
R&D Infrastructure	239,126	Infrastructure development
South African National Research Network	104,710	Connectivity of research institutions
National Nanotechnology Centres	42,400	R&D into nanotechnology initiatives
Total	814,934	

6.5 Programme 5: Socio-Economic Partnerships

Organisation/theme	R'000	Reason for transfer payment
Advanced Manufacturing Technology Strategy	48,786	Implementation of the Advanced Manufacturing Technology Strategy
Global Change S&T	33,581	Implementation of Global Change Grand Challenge – Planning support and 10-year research plan
Human and Social Development Dynamics	17,234	Policy and institution building (10-year plan and centres of excellence)
Local Manufacturing Capacity	22,545	Cold-Chain Technologies Project (Fresh Produce Exporters' Forum and Agricultural Research Council); COFISA-DST partnership; advocacy in provinces
Local Systems of Innovation	9,120	Cold-Chain Technologies Project (FPEF and ARC); COFISA-DST partnership; advocacy in provinces
Natural Resources and Public Assets	61,947	Maintain and grow genebanks (ARC), South African Biosystematics Initiative, South African Biodiversity Information Facility, Biobank
Quality of Life Nuclear Technologies	660	Promote uptake of nuclear technologies
Resource-Based Industries	39,061	R&D of resource-based industries initiatives
S&T Indicators	8,494	Development of S&T indicators
Technology for Poverty Alleviation	18,328	Poverty alleviation initiatives
Technology for Sustainable Livelihoods	25,903	Poverty alleviation initiatives
Information Communication Technology (ICT)	18,352	Implementation of the ICT strategy
South African Research Chairs Initiative for Human Resources	19,414	Development of human sciences
Research Information Management Systems	10,606	Information access for decision making
Total	334,031	

7. Public-private partnerships

The Department has not entered into any public-private partnership agreements.

8. Corporate governance arrangements

The corporate governance frameworks/procedures below form the main pillars of the Department's corporate governance arrangements, which are based on legislation as well as best practice:

8.1 Risk Management

The Department views enterprise risk management as imperative for successful delivery on its mandate and its obligation to deliver value to stakeholders. The Department further recognises that identifying, understanding and managing risk in an enterprise-wide context will ensure accountability and sustainability, and that the management of enterprise risk will compel the Department to address negative events in a proactive and timely manner, while exploiting the possible opportunities posed by certain future uncertainties.

The Department executes enterprise risk management with the full support of the Director-General, deputy directors-general, Chief Operations Officer, Chief Financial Officer, Executive Committee, and all subsequent levels of management to manage any uncertainties or risks that may affect the achievement of its objectives. This is facilitated through continuous enterprise risk management processes (e.g. awareness sessions, risk assessments, follow-ups), as well as the definition of clear risk management roles and responsibilities.

The Department views the value-add of the oversight role of the Risk Management Committee (RMC) as vital for ensuring the quality, integrity and reliability of its risk management processes and risk responses. The following table indicates the members of the RMC and number of meetings attended:

Name of member	Status	Number of meetings attended
M Zakwe	Independent (Chairperson)	6 out of 6
Z Fihlani	Independent	6 out of 6
L Kaplan	Independent	6 out of 6
B Gutshwa	Independent	6 out of 6
M Mohohlo	AC Chairperson	6 out of 6
BT Mavuso	Ex-officio member	6 out of 6
M Malapane	Ex-officio member	6 out of 6
B Muthwa	Ex-officio member	4 out of 6

8.2 Materiality and Significance Framework

Although no legislation requires that a department should have a Materiality and Significance Framework in place, the Department has made it a point to have the framework in place, as this is good business practice.

8.3 Management processes to minimise conflicts of interest

The Department ensures that the following management processes are implemented to minimise conflicts of interest:

- All senior managers (SMS members) are required to complete a Disclosure of Information Form on appointment and at the beginning of each financial year.
- All members of the Departmental Bid Adjudication and Bid Evaluation Committees are required to complete a Declaration of Interest Form prior to the adjudication and evaluation of each tender/bid.

8.4 Internal audit function and Audit Committee

In accordance with the requirements of the PFMA, and best practice, the Department has a fully resourced internal audit function and an Audit Committee comprising four external members and one ex-officio member, the Director-General. The Audit Committee was fully effective in its oversight function of risk management, control and governance in the Department, and four meetings were convened for the year.

Audit Committee members' term of office and the number of meetings attended:

Name of member	Date appointed	Date resigned	Number of meetings attended
Mr M Mohohlo (Chairperson)	Appointed 1 August 2008 - 30 July 2009 Appointed as Chairperson 1 November 2010 – 31 July 2012	n/a	4 out of 4
Dr BO Tema	Appointed 1 May 2009 - 30 April 2012	n/a	4 out of 4
Mr H Maritz	Appointed 1 October 2010 - 30 September 2012	n/a	4 out of 4
Ms K Gaesale	Appointed 1 October 2010 - 30 September 2012	n/a	2 out of 4
Dr P Mjwara	Ex-officio member	n/a	3 out of 4

9. Discontinued activities/activities to be discontinued

No activities were discontinued for the year under review.

10. New/proposed activities

The Department has incubated the National Intellectual Property Management Office as a subprogramme in Programme 2 (Research, Development and Innovation). The office has been established as the implementing agency of the Intellectual Property Rights from Publicly Financed Research and Development Act, 2008. The aim is for the office to become a full-fledged, stand-alone agency.

11. Asset management

Asset management policies and procedures are in place. According to the DST policy, asset verification is supposed to be conducted twice a year, but owing to capacity constraints, the verification was carried out only once. However, the interim audit shows that thorough asset verification was undertaken. Through collaboration between Asset Management and Security, stringent measures have been put in place to ensure that no one leaves the Department's premises with official assets unless they have authorisation.

12. Inventories

The costing method used for inventory valuation by the Department is the weighted cost method. Inventory purchased during the financial year is disclosed at cost in the notes. For replenishment purposes the Department, through Supply Chain Management (SCM) uses the logistical information system (LOGIS), which employs the analytical technique for SCM provisioning. This system assists the Department to maintain and manage inventory at the lowest levels. Furthermore, the DST inventory is not used for reselling and low levels of inventory are therefore ideal for the Department's operations, since no cash is locked up in illiquid assets. Incidences of obsolescence are rare because inventory is not held for long periods and losses are not material.

13. Events after the reporting date

The SKA Organisation has agreed to construct the two biggest components of the SKA in Africa, comprising 70% of the facility - the lion's share of the SKA Project. This has been achieved due to the AU endorsement and support from partner countries Botswana, Ghana, Kenya, Madagascar, Mauritius, Namibia and Zambia. It is hoped that the partner countries will continue their commitment to the project.

14. Information on predetermined objectives

The Auditor-General found absolutely no matters of significance with respect to the Department's administration. Although the Auditor-General's office identified housekeeping matters in its management letter, the Department addressed all the issues raised by the Auditor-General, and the controls required to prevent recurrences were implemented.

15. Standing Committee on Public Accounts (SCOPA) resolutions

No SCOPA resolutions were made in respect of the Department.

16. Prior modifications to audit reports

The Auditor-General found no matters of significance regarding the DST's administration.

17. Exemptions and deviations received from the National Treasury

No exemptions or deviations were raised by the National Treasury.

18. Interim financial statements

The Department has complied with the National Treasury's requirements in terms of the preparation of the interim financial statements. All the quarterly statements were prepared and

submitted on time. I believe the statements are a necessary measure in improving the quality of the Department's financial statements. I look forward to the day when the financial statements will be produced automatically.

19. Other

I would like to express my sincere appreciation to all the Department's employees and the Audit Committee for their tireless dedication in making sure that the Department's mandate is carried out.

20. Approval

The Annual Financial Statements set out on pages 128 to 195 have been approved by the Accounting Officer.



Dr PM Mjwara

Accounting Officer

Date: 31 July 2012

Report of the Auditor-General for the year ended 31 March 2012

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

Introduction

1. I have audited the financial statements of the Department of Science and Technology set out on pages 128 to 195, which comprise the appropriation statement, the statement of financial position as at 31 March 2012, the statement of financial performance, statement of changes in net assets and the cash flow statement for the year then ended, and the notes, comprising a summary of significant accounting policies and other explanatory information.

Accounting officer's responsibility for the financial statements

2. The accounting officer is responsible for the preparation and fair presentation of the financial statements in accordance with The Departmental Financial Reporting Framework 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 the 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 entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.
5. 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 2012, and its financial performance and cash flows for the year then ended in accordance with The Departmental Financial Reporting Framework prescribed by the National Treasury and the requirements of the Public Finance Management Act of South Africa, 1999 (Act No. 1 of 1999) (PFMA).

Additional matter

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

Financial reporting framework

8. The financial reporting framework prescribed by the National Treasury and applied by the Department is a compliance framework. The wording of my opinion on a compliance framework should reflect that the financial statements have been prepared in accordance with this framework. Section 20(2)(a) of the PAA, however, requires me to express an opinion on the fair presentation of the financial statements. The wording of my opinion therefore reflects this requirement.

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 relevant to performance against predetermined objectives, compliance with laws and regulations and internal control, but not for the purpose of expressing an opinion.

Predetermined objectives

10. I performed procedures to obtain evidence about the usefulness and reliability of the information in the annual performance report as set out on pages 128 to 195 of the annual report.
11. The reported performance against predetermined objectives was evaluated against the overall criteria of usefulness and reliability. The usefulness of information in the annual performance report relates to whether it is presented in accordance with the National Treasury annual reporting principles and whether the reported performance is consistent with the planned objectives. The usefulness of information further relates to whether indicators and targets are measurable (i.e. well defined, verifiable, specific, measurable and time bound) and relevant as required by the *National Treasury Framework for managing programme performance information*.

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

12. The material findings are as follows:

Usefulness of information

Consistency

13. Treasury Regulation 5.2.4 requires that the strategic plan and annual performance plan should form the basis for the annual report, therefore requiring the consistency of objectives, indicators and targets between planning and reporting documents. 42% of the reported targets and indicators are not consistent with the indicators and targets as per the approved strategic plan and annual performance plan. This may be due to the poor planning process of the programmes, departmental entities and the department as a whole which could result in non-compliance and limit the usefulness of the performance information of the entity.

Measurability

Performance targets are not measurable

14. The National Treasury Framework for managing programme performance information (FMPPI) requires that performance targets be measurable and Performance Policy and Procedure Manual (PPPM); Volume 2; paragraph 2.4 provides the responsible officials with development guidelines to be followed when setting performance targets. The required performance could not be measured for a total of 25% of the targets relevant to programme two and four selected for audit. This may be due to the fact that management was aware of the requirements of the FMPPI but did not receive the necessary training to enable application of the principles and lack of implementation of proper performance planning and management practices to provide for the development of performance targets.

Additional matters

15. I draw attention to the following matters below. These matters do not have an impact on the predetermined objectives audit findings reported above.

Achievement of planned targets

16. Of the 81 targets planned, only 54 targets were achieved during the year under review. This represents 33% of total planned targets that were not achieved during the year under review. This was due to the fact that indicators and targets were not suitably developed during the strategic planning process and could indicate poor performance on predetermined objectives.

Material adjustments to the annual performance report

17. Material adjustments in the annual performance report were identified during the audit, of which some were corrected by management and those that were not corrected are included in the material findings for predetermined objectives.

Compliance with laws and regulations

18. I performed procedures to obtain evidence that the Department has complied with applicable laws and regulations regarding financial matters, financial management and other related matters.

I did not identify any instances of material non-compliance with specific matters in key applicable laws and regulations as set out in the *General Notice* issued in terms of the PAA.

Internal control

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

Leadership

20. Implementation of internal controls with regards to performance information can be improved. There should be an alignment between the controls and the operational plans.

Performance management

21. For performance information not all the indicators could be verified as they were not consistent, measurable, specific and well defined.

Auditor-General

Pretoria

31 July 2012



Report of the Audit Committee for the year ended 31 March 2012

1. Overview

We are pleased to present our final report for the financial year ended 31 March 2012.

2. Audit Committee members and attendance

The Audit Committee consists of the members listed below. It meets as frequently as mandated by its approved Charter and as often as it deems necessary. During the period under review, four meetings were convened as per its Charter.

Attendance of the Audit Committee meetings was as follows:

Name of member	Date appointed	Number of meetings attended
Mr Mike Mohohlo (External Chairperson)	Appointed 1 August 2008 Appointed as Chairperson: 1 November 2010	4 out of 4
Dr Bothale 0 Tema (External Member)	Appointed 1 May 2009	4 out of 4
Mr Hendrikus Maritz (External Member)	Appointed 1 October 2010	4 out of 4
Ms Khumoetsile Gaesale (External Member)	Appointed 1 October 2010	2 out of 4
Dr Phil Mjwara (Accounting Officer)	Ex-officio member	3 out of 4

3. Audit Committee responsibility

The Audit Committee reports that it has complied with all its responsibilities in terms of section 38(1)(a) (ii) read with sections 76 (4) (d) and 77 of the Public Finance Management Act (PFMA) as well as with Treasury Regulation 3.1. It has adopted appropriate formal terms of reference as the Audit Committee Charter, has regulated its affairs and discharged its responsibilities in compliance therewith.

4. The effectiveness of internal control

In accordance with the PFMA, the Internal Audit Activity (IM) provides the Audit Committee and management with assurance that the Department's internal controls are appropriate and effective. This is achieved by means of the Department's risk management process, as well as the identification of corrective actions and suggested enhancements to the controls and processes. The Audit Committee is satisfied that the IM operates efficiently and effectively.

5. Governance

5.1 Risk Management

A formal risk assessment was undertaken by the Department for the year ended 31 March 2012. IM used the results of this assessment to prepare its annual operating audit plan. 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 a risk management strategy, which includes a fraud prevention plan. The committee is satisfied that the fraud and risk management system is adequate and effective.

6. Submission of in-year management and monthly/quarterly reports in terms of the PFMA and the Division of Revenue Act

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.

7. Evaluation of financial statements

7.1 The Audit Committee:

- (a) reviewed and discussed, with the Auditor-General South Africa and the Accounting Officer, the audited annual financial statements to be included in the annual report;
- (b) reviewed the Auditor-General of South Africa's management letter and management's response to it;
- (c) reviewed significant adjustments resulting from the audit;
- (d) notes that there have been no changes in the accounting policies and practices;
- (e) reviewed the Department's compliance with legal and regulatory provisions; and
- (f) is satisfied with the submission and quality of interim financial statements prepared by the Department.

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

8. Annual Performance Review

The Audit Committee has considered the report on predetermined objectives to be submitted to the Auditor-General of South Africa for review. It is unable to express an opinion as to whether the Department will achieve its performance objectives.

9. Appreciation

The Audit Committee expresses its appreciation to the Accounting Officer, the senior management team and the Auditor-General of South Africa for their contributions during the year under review.



Mr M Mohohlo

Chairperson of the Audit Committee

Date: 31 July 2012

Appropriation Statement for the year ended 31 March 2012

Appropriation per Programme

Appropriation Statement	2011/12							2010/11	
	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	192,729	-	(1,899)	190,830	189,740	1,090	99.4%	180,684	179,480
Transfers and subsidies	1,000	-	73	1,073	1,036	37	96.6%	1,426	1,426
Payment for capital assets	1,972	-	2,020	3,992	4,780	(788)	119.7%	8,021	7,940
Payment for financial assets	-	-	-	-	-	-	-	-	12
	195,701	-	194	195,895	195,556	339	-	190,131	188,858
2. Research, Development and Innovation									
Current payment	50,828	-	(7,424)	43,404	43,109	295	99.3%	45,309	37,232
Transfers and subsidies	803,562	-	7,780	811,342	811,139	203	100.0%	779,851	763,848
Payment for capital assets	220	-	476	696	696	-	100.0%	1,688	1,688
Payment for financial assets	-	-	-	-	-	-	-	-	6
	854,610	-	832	855,442	854,944	498	-	826,848	802,774
3. International Cooperation and Resources									
Current payment	53,808	-	(5,363)	48,445	48,222	223	99.5%	58,137	51,118
Transfers and subsidies	82,872	-	(73)	83,603	83,552	51	99.9%	79,787	79,786
Payment for capital assets	514	-	-	514	502	12	97.7%	554	480
Payment for financial assets	-	-	-	-	-	-	-	-	-
	137,194	-	(4,632)	132,562	132,276	286	-	138,478	131,384

Appropriation Statement	2011/12							2010/11	
	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
4. Human Capital and Knowledge Systems									
Current payment	26,221	-	3,181	29,402	28,332	1,070	96.4%	36,824	29,633
Transfers and subsidies	1,924,095	-	3,700	1,927,795	1,927,689	106	100.0%	1,726,892	1,724,332
Payment for capital assets	111	-	202	313	313	-	100.0%	248	179
Payment for financial assets	-	-	-	-	-	-	-	-	-
	1,950,427	-	7,083	1,957,510	1,956,334	1,176	-	1,763,964	1,754,144
5. Socio-Economic Partnerships									
Current payment	41,717	-	(4,332)	37,385	36,515	870	97.7%	40,287	34,234
Transfers and subsidies	1,226,913	-	456	1,227,369	1,227,008	361	100.0%	1,167,839	1,140,192
Payment for capital assets	441	-	216	657	656	1	99.8%	436	316
Payment for financial assets	-	-	183	183	183	-	-	-	-
	1,269,071	-	(3,477)	1,265,594	1,264,362	1,232	-	1,208,562	1,174,742
Subtotal	4,407,003	-	-	4,407,003	4,403,472	3,531	99.9%	4,127,983	4,051,902
Statutory appropriation									
Current payment	-	-	-	-	-	-	-	-	-
Transfers and subsidies	-	-	-	-	-	-	-	-	-
Payment for capital assets	-	-	-	-	-	-	-	-	-
Total	4,407,003	-	-	4,407,003	4,403,472	3,531	99.9%	4,127,983	4,051,902

Appropriation Statement (Continued)

	2011/12		2010/11	
	Final Appropriation	Actual Expenditure	Final Appropriation	Actual Expenditure
Total (brought forward)	4,407,003	4,403,472	4,127,983	4,051,902
Reconciliation with Statement of Financial Performance				
ADD				
Departmental receipts	1,365		468	
Direct Exchequer receipts	-		-	
Aid assistance	128,870		129,864	
Actual amounts per Statement of Financial Performance (Total Revenue)	4,537,238		4,258,315	
ADD				
Aid assistance		122,321		100,945
Direct Exchequer payments		-		-
Prior year unauthorised expenditure approved without funding		-		-
Actual amounts per Statement of Financial Performance (Total Expenditure)		4,525,793		4,152,847

Appropriation per Economic Classification

	2011/12							2010/11	
	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	227,636	-	(18,957)	208,679	207,164	1,515	99.3%	207,627	190,629
Goods and services	137,667	-	2,648	140,315	138,283	2,032	98.6%	153,307	140,736
Interest and rent on land	-	-	472	472	470	2	99.6%	333	333
Transfers and subsidies									
Provinces and municipalities	-	-	-	-	-	-	-	-	-
Departmental agencies and accounts	2,633,548	-	(361)	2,633,187	2,599,251	33,936	98.7%	2,273,455	2,233,154
Universities and universities of technology	-	-	6,952	6,952	151,093	(144,141)	2,173.4%	32,880	173,199
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
Public corporations and private enterprises	924,764	-	5,145	929,909	1,245,807	(315,898)	134.0%	1,007,445	1,246,280
Non-profit institutions	480,130	-	700	480,830	53,645	427,185	11.2%	441,542	55,971
Households	-	-	304	304	630	(326)	207.2%	528	978
Gifts and donations	-	-	-	-	-	-	-	-	-

Appropriation per Economic Classification (Continued)

	2011/12							2010/11	
	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	3,258	-	2,914	6,172	6,946	(774)	112.5%	10,866	10,603
Heritage assets	-	-	-	-	-	-	-	-	-
Specialised military assets	-	-	-	-	-	-	-	-	-
Biological assets	-	-	-	-	-	-	-	-	-
Land and subsoil assets	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
Payments for financial assets	-	-	183	183	183	-	100.0%	-	19
Total	4,407,003	-	-	4,407,003	4,403,472	3,531	99.9%	4,127,983	4,051,902

Detail per subprogramme

Detail per subprogramme	2011/12							2010/11	
	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	3,494	-	(41)	3,453	3,453	-	100.0%	3,312	3,303
Transfers and subsidies	-	-	-	-	-	-	-	-	-
Payment for capital assets	-	-	-	-	-	-	-	-	-
Payment for financial assets	-	-	-	-	-	-	-	-	-
1.2 Management									
Current payment	70,141	-	(8,648)	61,493	60,704	789	98.7%	61,730	61,730
Transfers and subsidies	1,000	-	47	1,047	1,010	37	96.5%	1,095	1,095
Payment for capital assets	944	-	1,045	1,989	1,989	-	100.0%	1,981	1,981
Payment for financial assets	-	-	-	-	-	-	-	-	6
1.3 Corporate Services									
Current payment	107,229	-	9,968	117,197	116,896	301	99.7%	107,512	107,229
Transfers and subsidies	-	-	26	26	26	-	100.0%	78	78
Payment for capital assets	879	-	1,077	1,956	2,744	(788)	140.3%	5,891	5,891
Payment for financial assets	-	-	-	-	-	-	-	-	6
1.4 Governance									
Current payment	7,873	-	(2,062)	5,811	5,811	-	100.0%	6,016	5,104
Transfers and subsidies	-	-	-	-	-	-	-	253	253
Payment for capital assets	149	-	(102)	47	47	-	100.0%	149	68
Payment for financial assets	-	-	-	-	-	-	-	-	-

Appropriation Statement (Continued)

Detail per subprogramme (Continued)

Detail per subprogramme	2011/12							2010/11	
	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
1.5 Office Accommodation									
Current payment	3,992	-	(1,116)	2,876	2,876	-	100.0%	2,114	2,114
Transfers and subsidies	-	-	-	-	-	-	-	-	-
Payment for capital assets	-	-	-	-	-	-	-	-	-
Payment for financial assets	-	-	-	-	-	-	-	-	-
Total	195,701	-	194	195,895	195,556	339	99.8%	190,131	188,858

Programme I per economic classification

Programme I per economic classification	2011/12							2010/11	
	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	113,393	-	(10,179)	103,214	102,916	298	99.7%	94,875	94,254
Goods and services	79,336	-	7,998	87,334	86,543	791	99.1%	85,680	85,016
Interest and rent on land	-	-	282	282	281	1	99.6%	211	211

Programme 1 per economic classification	2011/12							2010/11	
	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
Transfers and subsidies									
Provinces and municipalities	-	-	-	-	-	-	-	-	-
Departmental agencies and accounts	-	-	-	-	-	-	-	-	-
Universities and universities of technology	-	-	-	-	264	(264)	-	-	80
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
Public corporations and private enterprises	-	-	-	-	-	-	-	-	284
Non-profit institutions	1,000	-	-	1,000	698	302	69.8%	1,000	636
Households	-	-	73	73	74	-	101.4%	425	425
Gifts and donations	-	-	-	-	-	-	-	-	-
Payment for capital assets									
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	1,972	-	2,020	3,992	4,780	(788)	119.7%	7,940	7,940
Biological assets	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
Land and subsoil assets	-	-	-	-	-	-	-	-	-
Payment for financial assets	-	-	-	-	-	-	-	-	12
Total	195,701	-	194	195,895	195,556	339	99.8%	190,131	188,858

Detail per subprogramme

Detail per subprogramme	2011/12							2010/11	
	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	11,406	-	1,265	12,671	12,671	-	100.0%	11,873	11,873
Transfers and subsidies	118,001	-	-	118,001	118,001	-	100.0%	92,505	76,547
Payment for capital assets	27	-	81	108	108	-	100.0%	181	181
Payment for financial assets	-	-	-	-	-	-	-	-	6
2.2 Hydrogen and Energy									
Current payment	10,236	-	(800)	9,436	9,400	36	99.6%	8,231	6,773
Transfers and subsidies	130,259	-	5,928	136,187	136,183	4	100.0%	123,975	123,956
Payment for capital assets	83	-	(25)	58	58	-	100.0%	115	115
Payment for financial assets	-	-	-	-	-	-	-	-	-
2.3 Biotechnology and Health									
Current payment	14,557	-	(4,857)	9,700	9,681	19	99.8%	13,053	11,834
Transfers and subsidies	98,280	-	(5,100)	93,180	92,981	199	99.8%	141,962	141,962
Payment for capital assets	83	-	(1)	82	82	-	100.0%	178	178
Payment for financial assets	-	-	-	-	-	-	-	-	-
2.4 Innovation Planning and Instruments									
Current payment	14,629	-	(3,032)	11,597	11,357	240	97.9%	12,152	6,752
Transfers and subsidies	457,022	-	6,952	463,974	463,974	-	100.0%	421,409	421,383
Payment for capital assets	27	-	421	448	448	-	100.0%	1,214	1,214
Payment for financial assets	-	-	-	-	-	-	-	-	-
Total	854,610	-	832	855,442	854,944	498	99.9%	826,848	802,774

Programme 2 per economic classification

Programme 2 per economic classification	2011/12							2010/11	
	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	31,676	-	(6,157)	25,519	25,227	292	98.9%	25,701	21,156
Compensation of employees	19,152	-	(1,315)	17,837	17,835	2	100.0%	19,556	16,036
Goods and services	-	-	48	48	48	-	100.0%	40	40
Interest and rent on land									
Transfers and subsidies									
Provinces and municipalities	-	-	-	-	-	-	-	-	-
Departmental agencies and accounts	636,827	-	(5,100)	631,727	640,282	(8,555)	101.4%	489,577	503,649
Universities and universities of technology	-	-	6,952	6,952	105,064	(98,112)	1,511.3%	27,900	124,774
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
Public corporations and private enterprises	-	-	5,928	5,928	60,096	(54,168)	1,013.8%	17,773	124,754
Non-profit institutions	166,735	-	-	166,735	5,697	161,038	3.4%	244,601	10,659
Households	-	-	-	-	-	-	-	12	12
Gifts and donations	-	-	-	-	-	-	-	-	-

Programme 2 per economic classification (Continued)

Programme 2 per economic classification	2011/12							2010/11	
	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
Payment for capital assets									
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	220	-	476	696	695	1	99.9%	1,688	1,688
Heritage assets	-	-	-	-	-	-	-	-	-
Specialised military assets	-	-	-	-	-	-	-	-	-
Biological assets	-	-	-	-	-	-	-	-	-
Land and subsoil assets	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
Payment for financial assets	-	-	-	-	-	-	-	-	6
Total	854,610	-	832	855,442	854,944	498	99.9%	826,848	802,774

Detail per subprogramme

Detail per subprogramme	2011/12							2010/11	
	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	16,060	-	(729)	15,331	15,157	174	98.9%	15,420	14,434
Transfers and subsidies	43,740	-	-	43,740	43,740	-	100.0%	43,678	43,678
Payment for capital assets	155	-	80	235	235	-	100.0%	182	124
Payment for financial assets	-	-	-	-	-	-	-	-	-
3.2 International Resources									
Current payment	20,878	-	(4,961)	15,917	15,868	49	99.7%	20,799	14,766
Transfers and subsidies	26,132	-	529	26,661	26,610	51	99.8%	24,906	24,905
Payment for capital assets	202	-	(70)	132	132	-	100.0%	1,980	182
Payment for financial assets	-	-	-	-	-	-	-	-	-
3.3 Overseas Bilateral Cooperation									
Current payment	16,870	-	327	17,197	17,197	-	100.0%	21,918	21,918
Transfers and subsidies	13,000	-	202	13,202	13,202	-	100.0%	11,203	11,203
Payment for capital assets	157	-	(10)	147	135	12	91.8%	174	174
Payment for financial assets	-	-	-	-	-	-	-	-	-
Total	137,194	-	(4,632)	132,562	132,272	286	99.8%	138,478	131,384

Programme 3 per economic classification

Programme 3 per economic classification	2011/12							2010/11	
	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	30,531	-	1,349	31,880	31,836	44	99.9%	34,145	31,154
Goods and services	23,277	-	(6,774)	16,503	16,324	179	98.9%	23,953	19,924
Interest and rent on land	-	-	62	62	62	-	100.0%	40	40
Transfers and subsidies									
Provinces and municipalities	-	-	-	-	-	-	-	-	-
Departmental agencies and accounts	32,440	-	-	32,440	52,278	(19,838)	161.2%	36,271	50,868
Universities and universities of technology	-	-	-	-	5,612	(5,612)	-	3,580	6,417
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
Public corporations and private enterprises	-	-	-	-	22,545	(22,545)	-	6,702	18,235
Non-profit institutions	50,432	-	500	50,932	2,886	48,046	5.7%	33,219	4,251
Households	-	-	231	231	231	-	100.0%	15	15
Gifts and donations	-	-	-	-	-	-	-	-	-

Programme 3 per economic classification	2011/12							2010/11	
	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
Payment for capital assets									
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	514	-	-	514	502	12	97.7%	553	480
Heritage assets	-	-	-	-	-	-	-	-	-
Specialised military assets	-	-	-	-	-	-	-	-	-
Biological assets	-	-	-	-	-	-	-	-	-
Land and subsoil assets	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
Payment for financial assets	-	-	-	-	-	-	-	-	-
Total	137,194	-	(4,632)	132,562	132,276	286	99.8%	138,478	131,384

Detail per subprogramme

Detail per subprogramme	2011/12							2010/11	
	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
4.1 Human Capital and Science Platforms									
Current payment	12,732	-	287	13,019	12,768	251	98.1%	16,090	13,437
Transfers and subsidies	1,393,112	-	2,200	1,395,312	1,395,211	101	100.0%	1,232,592	1,230,167
Payment for capital assets	-	-	49	49	49	0	100.0%	132	118
Payment for financial assets	-	-	-	-	-	-	-	-	-
4.2 Indigenous Knowledge Systems									
Current payment	8,295	-	947	9,242	8,623	619	93.3%	10,335	8,233
Transfers and subsidies	8,726	-	-	8,726	8,726	-	100.0%	17,107	16,972
Payment for capital assets	111	-	(14)	97	97	-	100.0%	109	54
Payment for financial assets	-	-	-	-	-	-	-	-	-
4.3 Emerging Research Areas and Infrastructure									
Current payment	5,194	-	1,947	7,141	6,941	200	97.2%	10,399	7,963
Transfers and subsidies	522,257	-	1,500	523,757	523,752	5	100.0%	477,193	477,193
Payment for capital assets	-	-	167	167	167	-	100.0%	7	7
Payment for financial assets	-	-	-	-	-	-	-	-	-
Total	1,950,427	-	7,083	1,957,510	1,956,334	1,176	99.9%	1,763,964	1,754,144

Programme 4 per economic classification

Programme 4 per economic classification	2011/12							2010/11	
	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	19,743	-	900	20,643	20,565	78	99.6%	23,346	19,369
Goods and services	6,478	-	2,239	8,717	7,725	992	88.6%	13,420	10,251
Interest and rent on land	-	-	42	42	41	1	97.6%	13	13
Transfers and subsidies									
Provinces and municipalities	-	-	-	-	-	-	-	-	-
Departmental agencies and accounts	1,557,422	-	3,500	1,560,922	1,509,605	51,317	96.7%	1,376,654	1,341,912
Universities and universities of technology	-	-	-	-	27,965	(27,965)	-	1,400	34,688
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
Public corporations and private enterprises	104,710	-	-	104,710	352,659	(247,949)	336.8%	186,116	315,037
Non-profit institutions	261,963	-	200	262,163	37,261	224,902	14.2%	162,722	32,401
Households	-	-	-	-	200	(200)	-	44	294
Gifts and donations	-	-	-	-	-	-	-	-	-

Programme 4 per economic classification (Continued)

Programme 4 per economic classification	2011/12							2010/11	
	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
Payment for capital assets									
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	111	-	202	313	313	-	100.0%	249	179
Heritage assets	-	-	-	-	-	-	-	-	-
Specialised military assets	-	-	-	-	-	-	-	-	-
Biological assets	-	-	-	-	-	-	-	-	-
Land and subsoil assets	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
Payment for financial assets	-	-	-	-	-	-	-	-	-
Total	1,950,427	-	7,083	1,957,510	1,956,334	1,176	99.9%	1,763,964	1,754,144

Detail per subprogramme

Detail per subprogramme	2011/12							2010/11	
	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
5.1 S&T for Economic Impact									
Current payment	23,419	-	(3,500)	19,919	18,624	1,295	93.5%	18,689	15,960
Transfers and subsidies	922,037	-	(816)	921,221	920,910	311	100.0%	895,860	872,088
Payment for capital assets	220	-	185	405	404	1	99.8%	234	224
Payment for financial assets	-	-	-	-	-	-	-	-	-
5.2 S&T for Social Impact									
Current payment	8,872	-	(1,370)	7,502	6,363	1,139	84.8%	10,654	7,929
Transfers and subsidies	287,776	-	(728)	287,048	286,998	50	100.0%	250,177	246,302
Payment for capital assets	150	-	(130)	20	20	-	100.0%	147	43
Payment for financial assets	-	-	183	183	183	-	100.0%	-	-
5.3 S&T Investment									
Current payment	9,426	-	538	9,964	11,528	(1,564)	115.7%	10,944	10,345
Transfers and subsidies	17,100	-	2,000	19,100	19,100	-	100.0%	21,802	21,802
Payment for capital assets	71	-	161	232	232	-	100.0%	55	49
Payment for financial assets	-	-	-	-	-	-	-	-	-
Total	1,269,071	-	(3,477)	1,265,594	1,264,362	1,232	99.9%	1,208,562	1,174,742

Programme 5 per economic classification

Programme 5 per economic classification	2011/12							2010/11	
	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	32,293	-	(4,870)	27,423	26,620	803	97.1%	29,560	24,696
Goods and services	9,424	-	500	9,924	9,856	68	99.3%	10,698	9,509
Interest and rent on land	-	-	38	38	38	-	100.0%	29	29
Transfers and subsidies									
Provinces and municipalities	-	-	-	-	-	-	-	-	-
Departmental agencies and accounts	406,859	-	1,239	408,098	397,086	11,012	97.3%	370,953	336,725
Universities and universities of technology	-	-	-	-	12,188	(12,188)	-	-	7,240
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
Public corporations and private enterprises	820,054	-	(783)	819,271	810,507	8,764	98.9%	796,854	787,970
Non-profit institutions	-	-	-	-	7,103	(7,103)	-	-	8,024
Households	-	-	-	-	125	(125)	-	32	232
Gifts and donations	-	-	-	-	-	-	-	-	-

Programme 5 per economic classification	2011/12							2010/11	
	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
Payment for capital assets									
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	441	-	216	657	656	1	99.8%	436	316
Heritage assets	-	-	-	-	-	-	-	-	-
Specialised military assets	-	-	-	-	-	-	-	-	-
Biological assets	-	-	-	-	-	-	-	-	-
Land and subsoil assets	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
Payment for financial assets	-	-	183	183	183	-	100.0%	-	1
Total	1,269,071	-	(3,477)	1,265,594	1,264,362	1,232	99.9%	1,208,562	1,174,742

Notes to the Appropriation Statement for the year ended 31 March 2012

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 I (C, D, E, 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 I (Annual Appropriation) to the Annual Financial Statements.

3. Detail on financial transactions in assets and liabilities

Detail of these transactions per programme can be viewed in the note to payments for financial in assets to the Annual Financial Statements.

4. Explanations of material variances from amounts voted (after virement):

	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Variance as a % of final appropriation %
4.1 Per Programme				
Human Capital and Knowledge Systems				
Compensation of employees	20,643	20,565	78	0.4%
Goods and services	8,717	7,725	992	11.4%
The underspending in Programme 4: Human Capital and Knowledge Systems is due to staff turnover, resultant administrative costs and delays in procurement of goods and services.				
Socio-Economic Partnerships				
Compensation of employees	27,423	26,620	803	3.0%
Goods and services	9,924	9,856	68	1.0%
The underspending in Programme 5: Socio-Economic Partnerships is due to staff turnover, resultant administrative costs and delays in procurement of goods and services.				

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	208,679	207,164	1,515	0.7%
Goods and services	140,315	139,283	1,032	0.7%
Interest and rent on land	472	470	2	0.4%
Unauthorised expenditure approved	-	-	-	-
Transfers and subsidies				
Departmental agencies and accounts	2,633,187	2,580,701	52,486	2.0%
Universities and universities of technology	6,952	151,093	(144,141)	(2,073.0%)
Public corporations and private enterprises	929,909	1,239,807	(309,898)	(33.0%)
Non-profit institutions	480,830	78,195	402,635	84.0%
Households	304	629	(325)	(107.0%)
Payments for capital assets				
Machinery and equipment	6,172	6,946	(774)	12.5%
Payments for financial assets	183	183	-	-

Statement of Financial Performance for the year ended 31 March 2012

Performance	Note	2011/12 R'000	2010/11 R'000
Revenue			
Annual appropriation	1	4,407,003	4,127,983
Departmental revenue	2	1,365	468
Aid assistance	3	128,870	129,864
Total Revenue		4,537,238	4,258,315
Expenditure			
<i>Current expenditure</i>			
Compensation of employees	4	207,164	190,629
Goods and services	5	138,283	140,736
Interest and rent on land	6	470	333
Aid assistance	3	5,718	4,451
Total current expenditure		351,635	336,149
<i>Transfers and subsidies</i>			
Transfers and subsidies	8	4,050,426	3,709,582
Aid assistance	3	116,580	96,431
Total transfers and subsidies		4,167,006	3,806,013
<i>Expenditure for capital assets</i>			
Tangible capital assets	9	6,969	10,666
Total expenditure for capital assets		6,969	10,666

Performance	Note	2011/12 R'000	2010/11 R'000
<i>Payment for financial assets</i>	7	183	19
Total Expenditure		4,525,793	4,152,847
Surplus for the year		11,445	105,468
<i>Reconciliation of net surplus for the year</i>			
Voted funds		3,531	76,081
Departmental revenue	14	1,365	468
Aid assistance	3	6,549	28,919
Surplus for the year		11,445	105,468

Statement of Financial Position at 31 March 2012

Position	Note	2011/12 R'000	2010/11 R'000
Assets			
<i>Current assets</i>		10,054	104,849
Cash and cash equivalents	10	9,237	103,977
Prepayments and advances	11	200	387
Receivables	12	617	485
Total Assets		10,054	104,849
Liabilities			
<i>Current liabilities</i>		9,947	104,799
Voted funds to be surrendered to the Revenue Fund	13	3,554	75,854
Departmental revenue to be surrendered to the Revenue Fund	14	7	6
Payables	15	28	20
Aid assistance repayable	3	6,358	28,919
Total Liabilities		9,947	104,799
Net Assets		107	50
<i>Represented by:</i>			
Recoverable revenue		107	50
Total		107	50

Statement of Changes in Net Assets for the year ended 31 March 2012

	Note	2011/12 R'000	2010/11 R'000
Net Assets			
Recoverable revenue			
Opening balance		50	64
Transfers:		57	(14)
Debts revised		2	3
Debts recovered (included in departmental receipts)		(7)	(17)
Debts raised		62	-
Closing balance		107	50
Total		107	50

Cash Flow Statement for the year ended 31 March 2012

Cash Flow	Note	2011/12 R'000	2010/11 R'000
Cash Flows from Operating Activities			
<i>Receipts</i>		4,536,981	4,258,088
Annual appropriated funds received	1.1	4,407,003	4,127,756
Departmental revenue received	2	1,108	468
Aid assistance received	3	128,870	129,864
Net decrease in working capital		(105)	(212)
Surrendered to Revenue Fund		(77,195)	(78,382)
Surrendered to RDP Fund/Donor		(29,110)	(5,311)
Current payments		(351,635)	(336,149)
Payments for financial assets		(183)	(19)
Transfers and subsidies paid		(4,167,006)	(3,806,013)
<i>Net cash flow available from operating activities</i>	16	(88,085)	32,002
Cash Flows from Investing Activities			
Payments for capital assets	9	(6,969)	(10,666)
Proceeds from sale of capital assets	2.3	257	-
<i>Net cash flows from investing activities</i>		(6,712)	(10,666)
Cash Flows from Financing Activities			
Increase/(decrease) in net assets		57	(14)
<i>Net cash flows from financing activities</i>		57	(14)
Net increase/(decrease) in cash and cash equivalents		(94,740)	21,322
Cash and cash equivalents at the beginning of the period		103,977	82,655
<i>Cash and cash equivalents at end of period</i>	17	9,237	103,977

Accounting Policies for the year ended 31 March 2012

The Financial Statements have been prepared in accordance with the following policies, which have been applied consistently in all material aspects, unless otherwise indicated. However, 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, 1999, and the Treasury Regulations issued in terms of the Act and the Division of Revenue Act, 2010.

1. Presentation of the Financial Statements

1.1 Basis of preparation

The Financial Statements have been prepared on a modified cash basis of accounting, except where stated otherwise. The modified cash basis constitutes the cash basis of accounting supplemented with additional disclosure items. Under the cash basis of accounting transactions, other events are recognised when cash is received or paid.

1.2 Presentation currency

All amounts have been presented in South African Rand (R), which is also the functional currency of the Department.

1.3 Rounding

Unless otherwise stated all financial figures have been rounded to the nearest one thousand Rand (R'000).

1.4 Comparative figures

Prior period comparative information has been presented in the current year's financial statements. Where necessary, figures included in the prior period financial statements have been reclassified to ensure that the format in which the information is presented is consistent with the format of the current year's financial statements.

1.5 Comparative figures - Appropriation Statement

A comparison between actual amounts and final appropriation per major classification of expenditure is included in the Appropriation Statement.

2. Revenue

2.1 Appropriated funds

Appropriated funds are recognised in the financial records on the date the appropriation becomes effective. Adjustments to the appropriated funds made in terms of the adjustments budget process are recognised in the financial records on the date the adjustments become effective.

Total appropriated funds are presented in the Statement of Financial Performance.

Unexpended appropriated funds are surrendered to the National Revenue Fund. Amounts owing to the National Revenue Fund at the end of the financial year are recognised in the Statement of Financial Position.

2.2 Departmental revenue

All departmental revenue is recognised in the Statement of Financial Performance when received and is subsequently paid into the National Revenue Fund when received, unless otherwise stated.

Any amount owing to the National Revenue Fund at the end of the financial year is recognised as payable in the Statement of Financial Position.

No accrual is made for receivables from the last receipt date to the end of the reporting period. These amounts are, however, disclosed in the disclosure note to the Annual Financial Statements.

2.2.1 Sales of goods and services other than capital assets

The proceeds received from the sale of goods and/or the provision of services is recognised in the Statement of Financial Performance when the cash is received.

2.2.2 Interest, dividends and rent on land

Interest, dividends and rent on land are recognised in the Statement of Financial Performance when the cash is received.

2.2.3 Sale of capital assets

The proceeds received on sale of capital assets are recognised in the Statement of Financial Performance when the cash is received.

2.2.4 Financial transactions in assets and liabilities

Repayments of loans and advances previously extended to employees and public corporations for policy purposes are recognised as revenue in the Statement of Financial Performance on receipt of the funds.

Cheques issued in previous accounting periods that expire before being banked are recognised as revenue in the Statement of Financial Performance when the cheque becomes stale. When the cheque is reissued the payment is made from Revenue.

2.3 Direct Exchequer receipts/payments

All direct exchequer receipts are recognised in the Statement of Financial Performance when cash is received and subsequently paid into the National Revenue Fund, unless otherwise stated.

2.4 Aid assistance

Aid assistance is recognised as revenue when received.

All in-kind aid assistance is disclosed at fair value on the date of receipt in the annexures to the Annual Financial Statements.

The cash payments made during the year relating to aid assistance projects are recognised as expenditure in the Statement of Financial Performance when final authorisation for payments is effected on the system (by no later than 31 March of each year).

The value of the assistance expensed prior to the receipt of the funds is recognised as a receivable in the Statement of Financial Position.

Inappropriately expensed amounts using aid assistance and any unutilised amounts are recognised as payables in the Statement of Financial Position.

3. Expenditure

3.1 Compensation of employees

3.1.1 Short-term employee benefits

The costs of short-term employee benefits are expensed in the Statement of Financial Performance when final authorisation for payment is effected on the system (by no later than 31 March of each year).

Short-term employee benefits that give rise to a present legal or constructive obligation are disclosed in the disclosure notes to the Financial Statements. These amounts are not recognised in the Statement of Financial Performance or Position.

Employee costs are capitalised to the cost of a capital project when an employee spends more than 50% of his/her time on the project.

3.1.2 Post-retirement benefits

The Department provides retirement benefits (pension benefits) for certain of its employees through a defined benefit plan for government employees. These benefits are funded by both employer and employee contributions.

Employer contributions (i.e. social contributions) to the fund are expensed when the final authorisation for payment to the fund is effected on the system (by no later than 31 March of each year).

No provision is made for retirement benefits in the Financial Statements of the Department. Any potential liabilities are disclosed in the financial statements of the National Revenue Fund and not in the financial statements of the employer department.

Social contributions (such as medical benefits) made by the Department for certain of its employees are classified as transfers to households in the Statement of Financial Performance.

3.1.3 Termination benefits

Termination benefits (such as severance packages) are recognised as an expense in the Statement of Financial Performance as a transfer (to households) when the final authorisation for payment is effected on the system (by no later than 31 March of each year).

3.1.4 Other long-term employee benefits

Other long-term employee benefits (such as capped leave) are recognised as an expense in the Statement of Financial Performance as a transfer (to households) when the final authorisation for payment is effected on the system (by no later than 31 March of each year).

Long-term employee benefits that give rise to a present legal or constructive obligation are disclosed in the disclosure notes to the Financial Statements. These amounts are not recognised in the Statement of Financial Performance or Position.

3.2 Goods and services

Payments made for goods and/or services are recognised as an expense in the Statement of Financial Performance when the final authorisation for payment is effected on the system (by no later than 31 March of each year).

The expense is classified as capital if the goods and services were used for a capital project or when an asset of R5 000 or more is purchased. All other expenditures are classified as current.

3.3 Interest and rent on land

Interest and rental payments are recognised as an expense in the Statement of Financial Performance when the final authorisation for payment is effected on the system (by no later than 31 March of each year). This item excludes rental for use of building or other fixed structures.

3.4 Financial transactions in assets and liabilities

Debts are written off when identified as irrecoverable. Debts written off are limited to the amount of savings and/or underspending of appropriated funds. The write-off occurs at year-end or when funds are available. No provision is made for irrecoverable amounts, but amounts are disclosed as a disclosure note.

All other losses are recognised when authorisation has been granted for the recognition thereof.

3.5 Transfers and subsidies

Transfers and subsidies are recognised as an expense when the final authorisation for payment is effected on the system (by no later than 31 March of each year).

3.6 Unauthorised expenditure

When confirmed, unauthorised expenditure is recognised as an asset in the Statement of Financial Position until such time as the expenditure is either approved by the relevant authority, recovered from the responsible person or written off as irrecoverable in the Statement of Financial Performance.

Unauthorised expenditure approved with funding is derecognised from the Statement of Financial Position when the unauthorised expenditure is approved and the related funds are received.

Where the amount is approved without funding, it is recognised as expenditure in the Statement of Financial Performance on the date of approval.

3.7 Fruitless and wasteful expenditure

Fruitless and wasteful expenditure is recognised as expenditure in the Statement of Financial Performance according to the nature of the payment and not as separate line item on the face of the statement. If the expenditure is recoverable it is treated as an asset until recovered from the responsible person or written off as irrecoverable in the Statement of Financial Performance.

3.8 Irregular expenditure

Irregular expenditure is recognised as expenditure in the Statement of Financial Performance. If the expenditure is not condoned by the relevant authority it is treated as an asset until it is recovered or written off as irrecoverable.

4. Assets

4.1 Cash and cash equivalents

Cash and cash equivalents are carried in the Statement of Financial Position at cost.

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.

4.2 Other financial assets

Other financial assets are carried in the Statement of Financial Position at cost.

4.3 Prepayments and advances

Amounts prepaid or advanced are recognised in the Statement of Financial Position when the payments are made and where goods and services have not been received by the year-end.

Pre-payments and advances outstanding at the end of the year are carried in the Statement of Financial Position at cost.

4.4 Receivables

Receivables included in the Statement of Financial Position arise from cash payments made that are recoverable from another party or from the sale of goods/rendering of services.

Receivables outstanding at year-end are carried in the Statement of Financial Position at cost. Amounts that are potentially irrecoverable are included in the disclosure notes.

4.5 Loans

Loans 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.

4.6 Inventory

Inventories that qualify for recognition must be initially reflected at cost. When inventories are acquired at no cost, or no nominal consideration, their cost will be their fair value at the date of acquisition.

All inventory items at year-end are reflected using the weighted average cost formula.

4.7 Capital assets

4.7.1 Movable assets

Initial recognition

A capital asset is recorded, on receipt of the item, at cost. Cost of an asset is defined as the total cost of acquisition. Where the cost cannot be determined accurately, the movable capital asset is stated at fair value. Where fair value cannot be determined, the capital asset is included in the asset register at R1.

All assets acquired prior to 1 April 2002 are included in the asset register at R1.

Subsequent recognition

Subsequent expenditure of a capital nature is recorded in the Statement of Financial Performance as “expenditure for capital asset” and is capitalised in the asset register of the Department on completion of the project.

Repairs and maintenance is expensed as current “goods and services” in the Statement of Financial Performance.

4.7.2 Immovable assets

Initial recognition

A capital asset is recorded, on receipt of the item, at cost. Cost of an asset is defined as the total cost of acquisition. Where the cost cannot be determined accurately, the immovable capital asset is stated at R I unless the fair value for the asset has been reliably estimated.

Subsequent recognition

Work-in-progress of a capital nature is recorded in the Statement of Financial Performance as “expenditure for capital asset”. On completion, the total cost of the project is included in the asset register of the department that legally owns the asset or the National Department of Public Works.

Repairs and maintenance is expensed as current “goods and services” in the Statement of Financial Performance.

5. Liabilities

5.1 Payables

Recognised payables mainly comprise amounts owing to other governmental entities. These payables are recognised at cost in the Statement of Financial Position.

5.2 Contingent liabilities

Contingent liabilities are included in the disclosure notes to the Financial Statements when it is possible that economic benefits will flow from the Department, or when an outflow of economic benefits or service potential is probable but cannot be measured reliably.

5.3 Commitments

Commitments are not recognised in the Statement of Financial Position as a liability or as expenditure in the Statement of Financial Performance, but are included in the disclosure notes.

5.4 Accruals

Accruals are not recognised in the Statement of Financial Position as a liability or as expenditure in the Statement of Financial Performance, but are included in the disclosure notes.

5.5 Employee benefits

Short-term employee benefits that give rise to a present legal or constructive obligation are disclosed in the disclosure notes to the Financial Statements. These amounts are not recognised in the Statement of Financial Performance or the Statement of Financial Position.

5.6 Lease commitments

Finance leases

Finance leases are not recognised as assets and liabilities in the Statement of Financial Position. Finance lease payments are recognised as an expense in the Statement of Financial Performance and are apportioned between the capital and interest portions. The finance lease liability is disclosed in the disclosure notes to the Financial Statements.

Operating leases

Operating lease payments are recognised as an expense in the Statement of Financial Performance. The operating lease commitments are disclosed in the disclosure notes to the Financial Statements.

5.7 Provisions

Provisions are disclosed when there is a present legal obligation 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 will be required to settle the obligation and so that a reliable estimate of the obligation can be made.

6. Receivables for departmental revenue

Receivables for departmental revenue are disclosed in the disclosure notes to the Financial Statements.

7. Net assets

Capitalisation reserve

The capitalisation reserve comprises financial assets and/or liabilities originating in a prior reporting period but which are recognised in the Statement of Financial Position for the first time in the current reporting period. Amounts are recognised in the capitalisation reserve when identified in the current period and are transferred to the National Revenue Fund when the underlining asset is disposed of and the related funds are received.

The Department did not have a capitalised reserve in the current reporting period.

Recoverable revenue

Amounts are recognised as recoverable revenue when a payment made in a previous financial year becomes recoverable from a debtor in the current financial year. Amounts are either transferred to the National Revenue Fund when recovered or transferred to the Statement of Financial Performance when written-off.

8. Related party transactions

Specific information with regard to related party transactions is included in the disclosure notes.

9. Key management personnel

Compensation paid to key management personnel, including their family members where relevant, is included in the disclosure notes.

10. Public Private Partnerships

The Department did not have any public-private partnerships in the current reporting period.

Notes to the Annual Financial Statements for the year ended 31 March 2012

1. Annual Appropriation

1.1 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	2011/2012 Actual funds received R'000	Funds not requested/ not received R'000	Appropriation received 2010/11 R'000
Administration	195,895	195,505	390	190,131
Research, Development and Innovation	855,442	855,442	-	826,848
International Cooperation and Resources	132,562	132,952	(390)	138,478
Human Capital and Knowledge Systems	1,957,510	1,957,510	-	1,763,964
Socio-Economic Partnerships	1,265,594	1,265,594	-	1,208,335
Total	4,407,003	4,407,003	-	4,127,756

2. Departmental Revenue

	Note	2011/12 R'000	2010/11 R'000
Sales of goods and services other than capital assets	2.1	56	35
Interest, dividends and rent on land	2.2	7	8
Sale of capital assets	2.3	257	-
Transactions in financial assets and liabilities	2.4	1,045	425
Departmental revenue collected		1,365	468

	Note	2011/12 R'000	2010/11 R'000
2.1 Sales of goods and services other than capital assets			
Other sales	2	56	35
Total		56	35
2.2 Interest, dividends and rent on land			
Interest	2	7	8
Total		7	8
2.3 Sale of capital assets			
Machinery and equipment	2	257	-
Total		257	-
2.4 Transactions in financial assets and liabilities			
Receivables	2	7	17
Other receipts, including recoverable revenue		1,038	408
Total		1,045	425
3. Aid Assistance			
3.1 Aid assistance received in cash from RDP			
Foreign			
Opening balance		28,919	5,311
Revenue		128,870	129,864
Expenditure		(122,321)	(100,945)
Current		(5,718)	(4,451)
Capital		(23)	(63)
Transfers		(116,580)	(96,431)
Surrender to RDP		(29,110)	(5,311)
Closing balance		6,358	28,919

	Note	2011/12 R'000	2010/11 R'000
3.2 Analysis of balance			
Aid assistance repayable		6,358	28,919
RDP		6,358	28,919
Closing balance		6,358	28,919
 4. Compensation of Employees			
4.1 Salaries and wages			
Basic salary		131,368	116,440
Performance award		6,551	9,846
Service-based		170	149
Compensative/circumstantial		2,260	2,319
Periodic payments		162	395
Other non-pensionable allowances		45,855	42,696
Total		186,366	171,845
 4.2 Social contributions			
Employer contributions			
Pension		16,013	14,623
Medical		4,758	4,139
Bargaining council		27	22
Total		20,798	18,784
Total compensation of employees		207,164	190,629
Average number of employees		386	373

	Note	2011/12 R'000	2010/11 R'000
5. Goods and Services			
Administrative fees		532	3,078
Advertising		14,036	14,198
Assets less than R5,000	5.1	394	407
Bursaries (employees)		1,366	1,156
Catering		1,194	1,356
Communication		6,183	8,028
Computer services	5.2	5,867	5,265
Consultants, contractors and agency/outsourced services	5.3	33,940	34,891
Entertainment		810	463
Audit cost – external	5.4	2,715	3,010
Inventory	5.5	7,276	7,173
Operating leases		1,428	2,159
Owned and leasehold property expenditure	5.6	5,191	3,250
Rental and Hiring		90	-
Travel and subsistence	5.7	35,345	38,681
Venues and facilities		13,179	9,735
Training and staff development		4,199	2,792
Other operating expenditure	5.8	4,538	5,094
Total		138,283	140,736
5.1 Assets less than R5,000			
Tangible assets	5	394	407
Machinery and equipment		394	407
Total		394	407

	Note	2011/12 R'000	2010/11 R'000
5.2 Computer services			
SITA computer services	5	3,759	3,639
External computer service providers		2,108	1,626
Total		5,867	5,265
5.3 Consultants, contractors and agency/outsourced services			
Business and advisory services	5	3,779	9,686
Legal costs		723	1,937
Contractors		4,903	6,445
Agency and support/outsourced services		24,535	16,823
Total		33,940	34,891
5.4 Audit cost – External			
Regularity audits	5	2,715	3,010
Total		2,715	3,010
5.5 Inventory			
Fuel, oil and gas	5	-	9
Other consumables		131	556
Materials and supplies		1,320	11
Stationery and printing		5,825	6,597
Total		7,276	7,173

	Note	2011/12 R'000	2010/11 R'000
5.6 Property payments			
Municipal services	5	494	145
Property management fees		2,331	-
Property maintenance and repairs		-	1,545
Other		2,366	1,560
Total		5,191	3,250
5.7 Travel and subsistence			
Local	5	20,230	20,861
Foreign		15,115	17,820
Total		35,345	38,681
5.8 Other operating expenditure			
Professional bodies, membership and subscription fees	5	1,943	2,546
Resettlement costs		433	228
Gifts		801	-
Other		1,361	2,320
Total		4,538	5,094
6. Interest and Rent on Land			
Interest paid		470	333
		470	333

	Note	2011/12 R'000	2010/11 R'000
7. Payments for Financial Assets			
Other material losses written off	7.1	183	19
Total		183	19
7.1 Other material losses written off			
Nature of losses	7		
Damages to hired vehicles		183	4
Damages to private vehicles		-	2
Other losses		-	13
Total		183	19
8. Transfers and Subsidies			
Departmental agencies and accounts	Annex 1C	2,599,251	2,233,154
Universities and universities of technology	Annex 1D	151,093	173,199
Public corporations and private enterprises	Annex 1E	1,245,807	1,246,280
Non-profit institutions	Annex 1G	53,645	55,971
Households	Annex 1H	304	528
Gifts, donations and sponsorships made	Annex 1K	326	450
Total		4,050,426	3,709,582

	Note	2011/12 R'000	2010/11 R'000
9. Expenditure for Capital Assets			
Tangible assets			
Machinery and equipment	9.1	6,969	10,666
Total		6,969	10,666

9.1 Analysis of funds utilised to acquire capital assets – 2011/12

	Voted funds R'000	Aid assistance R'000	Total R'000
Tangible assets			
Machinery and equipment	6,946	23	6,969
Total	6,946	23	6,969

The amount of R23 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 are accounted for under a different fund of the Department. This amount is, however, not included in the Departmental Asset Register and the additions in Disclosure Note 25.1.

9.2 Analysis of funds utilised to acquire capital assets – 2010/11

	Voted funds R'000	Aid assistance R'000	Total R'000
Machinery and equipment	10,603	63	10,666
Total assets acquired	10,603	63	10,666

	Note	2011/12 R'000	2010/11 R'000
10. Cash and Cash Equivalents			
Consolidated Paymaster-General Account		9,204	103,944
Cash on hand		33	33
Total		9,237	103,977

11. Prepayments and Advances

Travel and subsistence		47	57
Advances paid to other entities		153	330
Total		200	387

12. Receivables

	Note	2011/12				2010/11
		R'000 Less than one year	R'000 One to three years	R'000 Older than three years	R'000 Total	R'000 Total
Claims recoverable	12.1	84	18	1	103	(7)
Recoverable expenditure	12.2	131	72	163	366	422
Staff debt	12.3	97	4	47	148	70
Total		312	94	211	617	485

	Note	2011/12 R'000	2010/11 R'000
12.1 Claims recoverable			
National departments	12	81	(49)
Households and non-profit institutions		22	42
Total		103	(7)
12.2 Recoverable expenditure (disallowance accounts)			
Income tax debt	12	7	4
Persal salaries and stoppages		-	-
Damages to vehicles		325	418
Value-Added Tax (VAT) in respect of the Donor Fund Project "Innovation for Poverty Alleviation"		34	-
Total		366	422
12.3 Staff debt			
Bursary debt	12	95	12
Salary overpayment		10	8
Telephone debt		-	1
Performance bonus – Overpayment		-	1
Previous employees – Resettlement debt		41	38
Foreign special privilege debt		-	5
Current employees – Resettlement debt		-	5
Overtime overpayment		2	-
Total		148	70

	Note	2011/12 R'000	2010/11 R'000
13. Voted funds to be surrendered to the Revenue Fund			
Opening balance		75,854	77,838
Transfer from statement of financial performance		3,531	76,081
Voted funds not requested/not received	1.1	-	(227)
Paid during the year		(75,831)	(77,838)
Closing balance		3,554	75,854
14. Departmental Revenue to be Surrendered to the Revenue Fund			
Opening balance		6	82
Transfer from Statement of Financial Performance		1,365	468
Paid during the year		(1,364)	(544)
Closing balance		7	6
15. Payables – Current			
Clearing accounts	15.1	28	20
Total		28	20
15.1 Clearing accounts			
Persal salaries and stoppages	15	3	-
Income tax		25	20
Total		28	20

	Note	2011/12 R'000	2010/11 R'000
16. Net Cash Flow Available from Operating Activities			
Net surplus as per Statement of Financial Performance		11,445	105,468
Add back non-cash/cash movements not deemed operating activities		(99,530)	(73,466)
(Increase)/Decrease in receivables – current		(132)	42
(Increase)/Decrease in prepayments and advances		187	(266)
Increase/(Decrease) in payables – current		8	12
Proceeds from sale of capital assets		(257)	-
Expenditure on capital assets		6,969	10,666
Surrenders to Revenue Fund	13 & 14	(77,195)	(78,382)
Surrenders to Donor Fund		(29,110)	(5,311)
Voted funds not requested/not received		-	(227)
Net cash flow generated by operating activities		(88,085)	32,002
17. Reconciliation of Cash and Cash Equivalents for Cash Flow Purposes			
Consolidated Paymaster-General Account		9,204	103,944
Cash on hand		33	33
Total		9,237	103,977

Disclosure Notes to the Annual Financial Statements for the year ended 31 March 2012

		Note	2011/12 R'000	2010/11 R'000
18. Contingent Liabilities				
Liable to	Nature			
Housing loan guarantees	Employees	Annex 3A	-	60
Claims against the department		Annex 3B	3,000	-
Total			3,000	60
19. Commitments				
Current expenditure				
Approved and contracted			20,288	10,222
Approved but not yet contracted			94	301
			20,382	10,523
Capital expenditure				
Approved and contracted			1,137	1,078
			1,137	1,078
Total commitments			21,519	11,601

Listed by economic classification	30 days	30+ days	2011/12 R'000 Total	2010/11 R'000 Total
20. Accruals				
Goods and services	6,222	588	1,210	263
Interest on rent and land	35	-	35	55
Machinery and equipment	628	-	628	68
Total	1,285	588	1,873	386

Listed by programme	Note	2011/12 R'000	2010/11 R'000
Programme 1: Administration		1,136	130
Programme 2: Research, Development and Innovation		554	9
Programme 3: International Cooperation and Resources		70	-
Programme 4: Human Capital and Knowledge Systems		84	-
Programme 5: Socio-Economic Partnerships		29	247
Total		1,873	386
Confirmed balances with other departments	Annex 5	1,101	67
Total		1,101	67

	Note	2011/12 R'000	2010/11 R'000
21. Employee Benefits			
Leave entitlement*		6,622	5,901
Service bonus (Thirteenth cheque)		4,401	4,083
Performance awards		3,415	3,114
Capped leave commitments		2,512	2,709
Total		16,950	15,807

*A negative amount of R335,570.60 was offset against leave entitlement. The amount was as a result of pro-rata calculation of leave taken by employees as at 31 March 2012. In terms of the pro-rata calculation employees are entitled to 5.49 days leave from 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 be automatically rectified during the leave period.

22. Lease Commitments

22.1 Operating leases expenditure

	Land R'000	Buildings and other fixed structures R'000	Machinery and equipment R'000	Total R'000
2011/12				
Not later than 1 year	-	900	-	900
Later than 1 year and not later than 5 years	-	-	-	-
Total lease commitments	-	900	-	900
2010/11	R'000	R'000	R'000	R'000
Not later than 1 year	-	632	-	632
Later than 1 year and not later than 5 years	-	161	-	161
Total lease commitments	-	793	-	793

22.2 Finance leases expenditure

	Specialised military equipment R'000	Land R'000	Buildings and other fixed structures R'000	Machinery and equipment R'000	Total R'000
2011/12					
Not later than 1 year	-	-	-	1,175	1,175
Later than 1 year and not later than 5 years	-	-	-	578	578
Later than five years	-	-	-	-	-
Total lease commitments	-	-	-	1,753	1,753
Less: Finance costs				332	332
Total present value of lease liabilities	-	-	-	1,421	1,421
2010/11	R'000	R'000	R'000	R'000	R'000
Not later than 1 year	-	-	-	926	926
Later than 1 year and not later than 5 years	-	-	-	1,753	1,753
Later than five years	-	-	-	-	-
Total lease commitments	-	-	-	2,679	2,679
Less: Finance costs				878	878
Total present value of lease liabilities	-	-	-	1,801	1,801

23. Irregular Expenditure

	Note	2011/12 R'000	2010/11 R'000
23.1 Reconciliation of irregular expenditure			
Opening balance		-	-
Add: Irregular expenditure – relating to prior year		-	-
Add: Irregular expenditure – relating to current year		1,507	1,366
Less: Amounts recoverable (not condoned)		-	-
Less: Amounts not recoverable (not condoned)		(1,502)	(1,366)
Irregular expenditure awaiting condonation		-	-

23.2 Details of irregular expenditure – current year

Incident	Disciplinary steps taken/criminal proceedings	
Non-compliance with procurement processes	Investigating	1,147
Non-compliance with travel and subsistence policy	Investigating	325
Non-compliance with procurement processes	Investigating	35
Total		1,507

23.3 Details of irregular expenditure not recoverable (not condoned)

Incident	
Goods and services were procured without following procurement processes.	1,147
Officials from various African countries attended the 7th SKA Working Group meeting in Botswana that was arranged by the Department, without Minister's approval.	325
Goods and services were procured without following procurement processes.	35
Total	1,507

24. Fruitless and Wasteful Expenditure

	Note	2011/12 R'000	2010/11 R'000
24.1 Reconciliation of fruitless and wasteful expenditure			
Opening balance		110	-
Fruitless and wasteful expenditure – relating to prior year		(55)	-
Fruitless and wasteful expenditure – relating to current year		60	110
Less: Amounts resolved		(55)	-
Fruitless and wasteful expenditure awaiting condonement		60	110
24.2 Analysis of awaiting condonation per economic classification			
Current		60	110
Total		60	110
24.3 Analysis of current year's fruitless and wasteful expenditure			
Incident	Disciplinary steps taken/criminal proceedings		
Two external officials booked to attend SKA Working Group meeting in Botswana, arranged by the Department, failed to arrive.	Investigating	60	
Total		60	

25. Related Party Transactions

The following entities are under the ownership control of the Department in terms of Chapter 1 of the Public Finance Management Act, 1999, and 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's transactions with these entities are limited to transfer and subsidy payments. Annexures IC and IE to the Annual Financial Statements 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.

26. Key Management Personnel

	No. of individuals	2011/12 R'000	2010/11 R'000
Political office bearers (provide detail below)	2	3,468	3,303
Officials:			
Level 15 to 16	11	8,355	8,421
Level 14 (incl. CFO if at a lower level)	1	965	940
Total		12,788	12,664

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 2012

	Opening balance R'000	Current year adjustments to prior year balances R'000	Additions R'000	Disposals R'000	Closing balance R'000
Machinery and equipment	48,458	-	6,946	(1,217)	54,187
Transport assets	5,181	-	1,427	(911)	5,697
Computer equipment	20,475	-	3,687	-	24,162
Furniture and office equipment	11,478	-	1,734	(306)	12,906
Other machinery and equipment	11,324	-	98	-	11,422
Total movable tangible capital assets	48,458	-	6,946	(1,217)	54,187

27.1 Additions

Additions to movable tangible capital assets per asset register for the year ended 31 March 2012

	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	6,946	-	-	-	6,946
Transport assets	1,427	-	-	-	1,427
Computer equipment	3,687	-	-	-	3,687
Furniture and office equipment	1,734	-	-	-	1,734
Other machinery and equipment	98	-	-	-	98
Total additions to movable tangible capital assets	6,946	-	-	-	6,946

27.2 Disposals

Disposals of movable tangible capital assets per asset register for the year ended 31 March 2012

	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	(1,214)	(3)	(1,217)	(276)
Transport assets	(911)	-	(911)	(257)
Computer equipment	-	-	-	-
Furniture and office equipment	(303)	(3)	(306)	(19)
Other machinery and equipment	-	-	-	-
Total disposal of movable tangible capital assets	(1,214)	(3)	(1,217)	(276)

27.3 Movement for 2010/11

Movement in movable tangible capital assets per asset register for the year ended 31 March 2011

	Opening balance R'000	Current year adjustments to prior year balances R'000	Additions R'000	Disposals R'000	Closing balance R'000
Machinery and equipment	38,538	-	10,603	(683)	48,458
Transport assets	3,983	-	1,466	(268)	5,181
Computer equipment	16,058	-	4,832	(415)	20,475
Furniture and office equipment	10,728	-	750	-	11,478
Other machinery and equipment	7,769	-	3,555	-	11,324
Total movable tangible capital assets	38,538	-	10,603	(683)	48,458

27.4 Minor assets

Minor assets of the Department for the year ended 31 March 2012

	Intangible assets R'000	Heritage assets R'000	Machinery and equipment R'000	Biological assets R'000	Total R'000
Opening balance	-	-	1,412	-	1,412
Current year adjustments to prior year balances	-	-	-	-	-
Additions	-	-	394	-	394
Disposals	-	-	-	-	-
Total minor assets	-	-	1,806	-	1,806
Number of R I minor assets	-	-	89	-	89
Number of minor assets at cost	-	-	271	-	271
Total	-	-	360	-	360

27.5 Minor assets

Minor assets of the Department for the year ended 31 March 2011

	Intangible assets R'000	Heritage assets R'000	Machinery and equipment R'000	Biological assets R'000	Total R'000
Opening balance	-	-	523	-	523
Current year adjustments to prior year balances	-	-	490	-	490
Additions	-	-	407	-	407
Disposals	-	-	(8)	-	(8)
Total minor assets	-	-	1,412	-	1,412
Number of R I minor assets	-	-	19	-	19
Number of minor assets at cost	-	-	167	-	167
Total	-	-	186	-	186

Annexures to the Annual Financial Statements for the year ended 31 March 2012

28. World Cup Expenditure

Tickets acquired

Distribution of tickets

Senior management
Other
Guest speakers/monitors

Total

	Quantity	2011/12 R'000	2010/11 R'000
Senior management	-	-	17
Other	-	-	-
Guest speakers/monitors	-	-	8
Total	-	-	25

Purchase of World Cup apparel

SA branded beanies for staff
Bafana Bafana official jersey for frontline staff

Total

Total World Cup expenditure

	Quantity	2011/12 R'000	2010/11 R'000
SA branded beanies for staff	-	-	34
Bafana Bafana official jersey for frontline staff	-	-	16
Total	-	-	50
Total World Cup expenditure		-	75

Annexure IC

Statement of Transfers to Departmental Agencies and Accounts

Department/Agency/Account	Transfer Allocation			Transfer		2010/11
	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	32,440	-	-	32,440	32,440	100.0%
Agricultural Research Council	68,527	-	-	68,527	68,527	100.0%
Council for Geoscience	78	-	-	78	78	100.0%
Human Sciences Research Council	223,285	-	-	223,285	223,285	100.0%
National Research Foundation	1,719,261	-	(361)	1,718,900	1,654,964	96.0%
South African Medical Research Council	6,332	-	-	6,332	6,332	100.0%
South African National Biodiversity Institute	2,700	-	-	2,700	2,700	100.0%
South African National Energy Development Institute	4,800	-	-	4,800	4,800	100.0%
South African National Space Agency	106,790	-	-	106,790	106,790	100.0%
Technology Innovation Agency	499,335	-	-	499,335	499,335	100.0%
Total	2,663,548	-	(361)	2,663,187	2,599,251	-

Annexure ID

Statement of Transfers to Universities and Universities of Technology

University/University of Technology	Transfer Allocation				Transfer		2010/11	
	Adjusted Appropriation Act	Rollovers	Adjustments	Total available	Actual transfer	Amount not transferred	% of Available funds transferred	Appropriation Act
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000
Cape Peninsula University of Technology	-	-	-	-	52	(52)	-	2,680
Durban University of Technology	-	-	-	-	553	(553)	-	-
Nelson Mandela Metropolitan University	-	-	-	-	2,217	(2,217)	-	2,750
North-West University	-	-	-	-	21,481	(21,481)	-	-
Vaal University of Technology	-	-	-	-	1,200	(1,200)	-	150
Tshwane University of Technology	-	-	-	-	554	(554)	-	30
University of Cape Town	-	-	-	-	21,230	(21,230)	-	11,814
University of Fort Hare	-	-	-	-	750	(750)	-	1,000
University of Free State	-	-	-	-	309	(309)	-	-
University of Johannesburg	-	-	-	-	653	(653)	-	2,440
University of KwaZulu-Natal	-	-	-	-	7,019	(7,019)	-	-
University of Limpopo	-	-	-	-	-	-	-	50
University of Pretoria	-	-	-	-	7,202	(7,202)	-	8,444
Rhodes University	-	-	-	-	37	(37)	-	-
University of South Africa	-	-	-	-	304	(304)	-	-
University of Stellenbosch	-	-	-	-	26,890	(26,890)	-	-
University of Venda	-	-	-	-	1,000	(1,000)	-	-
University of the Western Cape	6,952	-	-	6,952	44,172	(37,220)	(635.0%)	-
University of the Witwatersrand	-	-	-	-	15,470	(15,470)	-	3,522
University of Zululand	-	-	-	-	-	-	-	-
Total	6,952	-	-	6,952	151,093	(144,141)	-	32,880

Annexure IE

Statement of Transfers/ Subsidies to Public Corporations and Private Enterprises

Name of Public Corporation/ Private Enterprise	Transfer Allocation				Expenditure				2010/11
	Adjusted Appropriation Act R'000	Rollovers R'000	Adjust- ments 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									
<i>Transfers</i>									
Council for Minerals Technology (MINTEK)	-	-	-	-	51,065	-	37,400	13,665	38,837
Council for Scientific and Industrial Research	237,595	-	(783)	236,812	419,453	(177.0%)	255,838	163,615	267,041
South African Bureau of Standards	-	-	-	-	907	-	-	907	-
Nuclear Energy Corporation of South Africa	-	-	5,928	5,928	16,810	(284.0%)	-	16,810	10,783
Subtotal	237,595	-	5,145	242,740	488,235	-	293,238	194,997	316,661
<i>Subsidies</i>									
Council for Scientific and Industrial Research	687,169	-	-	687,169	687,169	100.0%	-	687,169	685,784
Subtotal	687,169	-	-	687,169	687,169	-	-	687,169	685,784
Total	924,764	-	5,145	929,909	1,175,404	-	293,238	882,167	1,002,445

Name of Public Corporation/ Private Enterprise	Transfer Allocation				Expenditure				2010/11
	Adjusted Appropriation Act	Rollovers	Adjust- ments	Total available	Actual transfer	% of Available funds transferred	Capital	Current	Appropriation Act
	R'000					R'000			
Private enterprises: Transfers									
Bansha Investment (Pty) Ltd	-	-	-	-	21	-	-	21	-
Da Vinci Institute for Technology	-	-	-	-	10,272	-	-	10,272	-
East London Industrial Development	-	-	-	-	1,000	-	-	1,000	-
National Science and Technology Forum	-	-	-	-	8,000	-	-	8,000	-
Pelchem (Pty) Ltd	-	-	-	-	26,230	-	13,851	12,379	-
Research Research Africa (Pty) Ltd	-	-	-	-	154	-	-	154	-
South African National Energy Regulator	-	-	-	-	100	-	-	100	-
South African National Energy Research Institute (Pty) Ltd	-	-	-	-	6,000	-	-	6,000	5000
System Application Products	-	-	-	-	100	-	-	100	-
Telkom SA Ltd	-	-	-	-	2,328	-	-	2,328	-
Wits Commercial Enterprise (Pty) Ltd	-	-	-	-	1,072	-	-	1,072	-
Wits Health Consortium (Pty) Ltd	-	-	-	-	15,126	-	-	15,126	-
Subtotal	-	-	-	-	70,403	-	13,851	56,552	5000
Total	924,764	-	5,145	929,909	1,245,807	-	307,089	938,718	1,007,445

Annexure IG

Statement of Transfers to Non-Profit Institutions

	Transfer Allocation			Expenditure		2010/11	
	Adjusted Appropriation Act			Total available	Actual transfer	% of Available funds transferred	Appropriation Act
Non-Profit Institutions	R'000	Rollovers R'000	Adjustments R'000	R'000	R'000	%	R'000
Transfers							
Academy of Science of South Africa	1,568	-	200	1,768	1,768	100.0%	8,095
Agricultural Research Council	-	-	-	-	-	-	3,021
Aurum Institute for Health Research	500	-	-	500	500	100.0%	5,500
Bakgatla Sports,Arts and Culture	500	-	-	500	500	100.0%	-
Black Science,Technology and Engineering Professionals	5,500	-	-	5,500	5,500	100.0%	8,029
Centre for AIDS Programme of Research in South Africa Ltd	2,800	-	-	2,800	2,800	100.0%	-
Department of Environmental Affairs	-	-	-	-	-	-	4,000
Fresh Produce Exporters' Forum	5,000	-	-	5,000	5,000	100.0%	30,000
Future Leaders	-	-	-	-	-	-	3,396
Indigenous Knowledge of South Africa Trust	300	-	-	300	300	100.0%	-
Institute of Natural Resources	17	-	-	17	17	100.0%	-
Interactive Science Foundation	5,000	-	-	5,000	5,000	100.0%	-
International Council for Genetic Engineering and Biotechnology	-	-	-	-	-	-	75,419
M Gulumian	13	-	-	13	13	100.0%	-
Mapunguwe Institute for Strategic Relations	1,000	-	-	1,000	1,000	100.0%	-
Natal Museum	-	-	-	-	-	-	3,022
National Health Laboratory Service	3,000	-	-	3,000	3,000	100.0%	75,842
National Youth Service Programme	-	-	-	-	-	-	65,314
Pinedene School	98	-	-	98	98	100.0%	-
Pretoria High School for Girls	-	-	-	-	-	-	1,060
SAHA International	-	-	-	-	-	-	15,800

	Adjusted Appropriation Act R'000	Transfer Allocation		Total available R'000	Expenditure		2010/11 Appropriation Act R'000
		Rollovers R'000	Adjustments R'000		Actual transfer R'000	% of Available funds transferred %	
Non-Profit Institutions							
Transfers							
Secretariat of the African Decade of Persons with Disabilities (SADPD)	58	-	-	58	58	100.0%	1,158
South African Association of Science and Technology Centres	-	-	-	-	-	-	25,730
South African Astronomical Observatory	-	-	-	-	-	-	3,018
South African Chemical Institute	-	-	-	-	-	-	3,080
South African Institute of Mining and Metallurgy	-	-	-	-	-	-	5,956
South African Institute of Physics	1,665	-	-	1,665	1,665	100.0%	15,832
South African Mathematics Foundation	3,938	-	-	3,938	3,938	100.0%	38,500
South African Weather Service	2,500	-	-	2,500	2,500	100.0%	-
Southern African Association of Science and Technology Centres	1,000	-	-	1,000	1,000	100.0%	-
Southern African Research and Innovation Management Association	1,536	-	-	1,536	1,536	100.0%	14,566
The National Institute of High Learning	8,100	-	-	8,100	-	-	6,150
The South African Institute of Mining and Metallurgy	1,103	-	-	1,103	1,103	100.0%	-
The South African Institute of Tribology	200	-	-	200	200	100.0%	-
Water Research Commission	197	-	-	197	197	100.0%	-
WIPO Voluntary Fund	-	-	-	-	-	-	5,100
World Meteorological Organisation	1,500	-	500	2,000	2,000	100.0%	13,400
Unallocated funds in Non-Profit transferred to other transfer items.	427,185	-	-	427,185	-	-	-
Subtotal	466,178	-	700	466,878	39,693	-	430,988
Subsidies							
Academy of Science of South Africa	13,952	-	-	13,952	13,952	-	10,554
Subtotal	13,952	-	-	13,952	13,952	-	10,554
Total	480,130	-	700	480,130	53,645	-	441,542

Annexure IH

Statement of Transfers to Households

Households	Adjusted Appropriation Act R'000	Rollovers R'000	Transfer Allocation		Actual transfer R'000	Expenditure	2010/11 Appropriation Act R'000
			Adjustments R'000	Total available R'000		% of Available funds transferred %	
Transfers							
Leave gratuity: Dlamini TC	-	-	-	-	-	-	69
Leave gratuity: Friedental J	-	-	-	-	-	-	3
Leave gratuity: Kgampe TL	-	-	-	-	-	-	6
Leave gratuity: Kgarume G	-	-	-	-	-	-	252
Leave gratuity: Lebona LM	-	-	-	-	-	-	5
Leave gratuity: Letaba TP	-	-	-	-	-	-	32
Leave gratuity: Madiba J	-	-	-	-	-	-	29
Leave gratuity: Mafahla MP	-	-	-	-	-	-	12
Leave gratuity: Mahlangu AT	-	-	4	4	4	100.0%	-
Leave gratuity: Mahlangu JM	-	-	1	1	1	100.0%	-
Leave gratuity: Maisela A	-	-	-	-	-	-	63
Leave gratuity: Malewa MR	-	-	-	-	-	-	12
Leave gratuity: Mashigo TP	-	-	6	6	6	100.0%	-
Leave gratuity: Mathibela MM	-	-	-	-	-	-	5
Leave gratuity: Matjila D	-	-	-	-	-	-	21
Leave gratuity: Mkhondo NS	-	-	14	14	14	100.0%	-
Leave gratuity: Phogojana TIL	-	-	15	15	15	100.0%	-
Leave gratuity: Qhobela M	-	-	47	47	47	100.0%	-
Leave gratuity: Rabalao RT	-	-	-	-	-	-	15
Leave gratuity: Scheffer CJ	-	-	202	202	202	100.0%	-
Leave gratuity: Segodi D	-	-	-	-	-	-	4
Leave gratuity: Setumo SS	-	-	15	15	15	100.0%	-
Total	-	-	304	304	304	-	528

Annexure IJ

Statement of Local and Foreign Aid Assistance Received

Name of Donor	Purpose	Opening Balance R'000	Revenue R'000	Expenditure R'000	Closing Balance R'000
Received in cash					
Australia	Science Centre Managers Training Programme	95	95	190	-
Australia	Southern African Development Community project	-	3,125	794	2,331
Canada	Epidemiological Model for HIV/AIDS Programme	-	4,251	4,251	-
European Union	Innovation for Poverty Alleviation Programme	552	80,241	79,227	1,566
European Union	Coordination and Advancement of Sub-Saharan Africa – EU Science and Technology Network (CAAST-Net)	36	585	111	510
European Union	Strengthening the European – South African Science and Advancement Programme (ESASTAP2)	1,966	775	2,741	-
European Union	Transnational cooperation among NCOs for International Cooperation (INCONTACT Programme)	343	942	1,285	-
European Union	Pilot the Implementation of the DST Localisation Programme	26,000	26,000	52,000	-
European Union	European Code of Conduct for Nanosciences and Nanotechnologies (N&N) research (NANOCODE Programme)	82	324	248	158
European Union	PAERIP	-	3,233	1,676	1,557
Finland	The Finnish-Southern African Partnership Programme to Strengthen the NEPAD/ SANBIO NETWORK (BioFISA)	-	7,608	7,608	-
Finland	The Knowledge Partnership on Information and Communications Technology (SAFIPA)	-	768	768	-
Greece	The European Union to South Africa's Research and Innovation Programme (SACCESS)	-	300	64	236
United States Agency for International Development	Malawi Pathogen-free Potato and Risk and Vulnerability Atlas	(155)	623	468	-
Subtotal		28,919	128,870	151,431	6,358

Annexure IJ (Continued)

Name of Donor	Purpose	Opening Balance R'000	Revenue R'000	Expenditure R'000	Closing Balance R'000
Received in kind					
Canada	South African participation in GCC call on point care diagnostics	-	2,498	2,498	-
Government of France	The extension of F'SATIE Scientific Director contract	4,950	4,950	6,714	3,186
Japan	An observational study to mitigate seismic risks in mines	(5,287)	3,200	-	(2,087)
Japan	Climate Simulation and Projections for Adaptation Impact in Southern African Region	1,678	10,000	11,678	-
Japan	Productivity training	(123)	123	-	-
Japan	Science Centre Senior Volunteers in Eastern Cape – To support science centres with developing teaching material for science and mathematics education and development exhibitions	-	600	600	-
Japan	Science Centre Senior Volunteers in Kwa-Zulu Natal – To support science centres with developing teaching material for science and mathematics education and development exhibitions	-	600	600	-
Japan	Science Centre Senior Volunteers in Limpopo – To support science centres with developing teaching material for science and mathematics education and development exhibitions	-	1,200	1,200	-
Japan	Science Centre Senior Volunteers in North West – To support science centres with developing teaching material for science and mathematics education and development exhibitions	-	150	150	-
Japan	The Hitachi Scholarship for South African engineers	900	900	1800	-
Subtotal		2,118	24,221	25,240	1,099
Total		31,037	153,091	176,671	7,457

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	2011/12 R'000	2010/11 R'000
Paid in cash		
South African Women in Science Awards	326	450
Subtotal	326	450
Paid in kind		
MeerKat - South African Square Kilometre Array Schools Competition Awards	-	52
Subtotal	-	52
Total	326	502

Annexure 3A

Statement of Financial Guarantees issued as at 31 March 2012 – Local

Guarantor institution	Guarantee in respect of	Original guaranteed capital amount R'000	Opening balance 1 April 2011 R'000	Guarantees draw downs during the year R'000	Guarantees repayments/ cancelled/ reduced/ released during the year R'000	Revaluations R'000	Closing balance 31 March 2012 R'000	Guaranteed interest for year ended 31 March 2012 R'000	Realised losses not recoverable, i.e. claims paid out R'000
ABSA Bank	Housing	97	21	-	(21)	-	-	-	-
Nedbank	Housing	67	39	-	(39)	-	-	-	-
Total		164	60	-	(60)	-	-	-	-

Annexure 3B

Statement of Contingent Liabilities as at 31 March 2012

Nature of Liability	Opening balance 1 April 2011 R'000	Liabilities incurred during the year R'000	Liabilities paid/ cancelled/ reduced during the year R'000	Liabilities recoverable) R'000	Closing balance 31 March 2012 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	
	31/03/2012 R'000	31/03/2011 R'000	31/03/2012 R'000	31/03/2011 R'000	31/03/2012 R'000	31/03/2011 R'000
Department						
Department of Correctional Services	4	-	-	-	4	-
Department of Health: North West Province	4	-	-	-	4	-
Department of Public Service and Administration	30	-	-	-	30	-
Office of the Premier: Western Cape Province	1	-	-	-	1	-
Subtotal	39	-	-	-	39	-
Other government entities						
Government Employee Pension Fund	-	-	1	1	1	1
Subtotal	-	-	1	1	1	1
Total	39	-	1	1	40	1

Annexure 5

Intergovernment Payables

	Confirmed balance outstanding		Unconfirmed balance outstanding		Total	
	31/03/2012	31/03/2011	31/03/2012	31/03/2011	31/03/2012	31/03/2011
Government Entity	R'000	R'000	R'000	R'000	R'000	R'000
Departments						
Current						
Department of International Relations and Cooperation	1,071	-	-	-	1,071	-
The Presidency	22	67	-	-	22	67
South African Police Service	8	-	-	-	8	-
Total	1,101	67	-	-	1,101	67

Annexure 6

Inventory

Inventory	Quantity R'000	2011/12 R'000	Quantity R'000	2010/11 R'000
Opening balance	9,773	448	14,628	381
Add/(Less): Adjustments to prior year balance	-	-	-	-
Add: Additions/Purchases - Cash	38,882	3,487	85,232	4,514
Add: Additions - Non-cash	194	8	-	-
(Less): Disposals	129	16	-	-
(Less): Issues	(33,997)	(3,592)	(83,133)	(4,432)
Add/(Less): Adjustments	6,488	12	(6,954)	(15)
Closing balance	21,469	379	9,773	448

Total cash additions in the goods and services note include the purchase of consumables that are not recorded in the inventory management system of the Department. Hence the additions for the year in the inventory annexure will not tie up with the total cash additions in the goods and services note (Note 5.5).



“ Human Resources aims to be a strategic partner that helps the Department to achieve its strategic and operational activities by providing best employment practices and promoting a career-development environment in which all employees can reach their potential and contribute to a culture of service excellence. ”

Human Resources for the year ended 31 March 2012

1.1 Personnel costs by programme, 2011/2012

Programme	Total expenditure R'000	Personnel expenditure R'000	Training expenditure R'000	Professional and special services R'000	Personnel cost as a percentage of total expenditure %	Average personnel cost per employee R'000
Corporate Services	195,556	102,916	5,332	4,575	52.63%	502
Research, Development and Innovation	854,944	25,227	-	17	2.95%	721
International Cooperation and Resources	99,813	31,836	-	73	31.90%	549
Human Capital and Knowledge Systems	635,965	20,565	-	3	3.23%	571
Socio-Economic Partnerships	371,024	26,621	-	6	7.18%	532
Total	2,157,302	207,165	5,332	4,674	9.60%	539

1.2 Personnel costs by salary bands, 2011/2012

Salary bands	Personnel expenditure R'000	% of total personnel cost %	Average personnel cost per employee R'000
Lower skilled (Levels 1-2)	-	-	-
Skilled (Levels 3-5)	1,690	0.82%	154
Highly skilled production (Levels 6-8)	26,001	12.55%	280
Highly skilled supervision (Levels 9-12)	94,614	45.67%	514
Senior management (Levels 13-16)	84,860	40.96%	884
Total	207,165	100.00%	539

1.3 Salaries, overtime, home owners allowance and medical assistance by programme, 2011/2012

Programme	Salaries		Overtime		Home Owners Allowance		Medical Assistance	
	Amount R'000	Salaries as a % of personnel cost %	Amount R'000	Overtime as a % of personnel cost %	Amount R'000	HOA as a % of personnel cost %	Amount R'000	Medical assistance as a % of personnel cost %
Corporate Services	102,916	49.68%	307	0.30%	1,704	1.66%	2,833	2.75%
Research, Development and Innovation	25,227	12.18%	25	0.10%	426	1.69%	329	1.30%
International Cooperation and Resources	31,836	15.37%	4	0.01%	341	1.07%	614	1.93%
Human Capital and Knowledge Systems	20,565	9.93%	45	0.22%	738	3.59%	425	2.07%
Socio-Economic Partnerships	26,621	12.85%	7	0.03%	505	1.90%	558	2.10%

1.4 Salaries, overtime, home owners allowance and medical assistance by salary bands, 2011/2012

Salary bands	Salaries as a % of personnel cost %		Overtime as a % of personnel cost %		HOA as a % of personnel cost %		Medical assistance as a % of personnel cost %	
	Amount R'000		Amount R'000		Amount R'000		Amount R'000	
Lower skilled (Levels 1-2)	-	-	-	-	-	-	-	-
Skilled (Levels 3-5)	1,690	0.82%	12	0.01%	174	0.06%	114	0.06%
Highly skilled production (Levels 6-8)	26,001	12.55%	157	0.08%	2,048	0.29%	603	0.29%
Highly skilled supervision (Levels 9-12)	93,883	45.67%	219	0.11%	1,493	0.72%	2,917	1.41%
Senior management (Levels 13-16)	85,591	40.96%	-	-	-	-	1,125	0.54%
Total	207,165	100.00%	388	0.19%	3,714	1.80%	4,759	2.31%

2 Employment and vacancies

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

2.1 Employment and vacancies by programme, 31 March 2012

Programme	Number of posts	Number of posts filled	Vacancy Rate	Number of posts filled additional to the establishment
Corporate Services	213	205	3.76%	5
Research, Development and Innovation	45	35	22.22%	2
International Cooperation and Resources	61	58	4.92%	-
Human Capital and Knowledge Systems	43	36	16.28%	-
Socio-Economic Partnerships	59	50	15.25%	-
Total	421	384	8.79%	7

2.2 Employment and vacancies by salary bands, 31 March 2012

Salary bands	Number of posts	Number of posts filled	Vacancy Rate	Number of posts filled additional to the establishment
Lower skilled (Levels 1-2)	-	-	-	-
Skilled (Levels 3-5)	11	11	0%	1
Highly skilled production (Levels 6-8)	101	93	7.92%	4
Highly skilled supervision (Levels 9-12)	197	184	6.60%	2
Senior management (Levels 13-16)	112	96	14.29%	-

3.1 Job evaluation, 1 April 2011 to 31 March 2012

Salary bands	Number of posts	Number of jobs evaluated	% of posts evaluated by salary bands	Posts upgraded		Posts downgraded	
				Number	% of posts evaluated	Number	% of posts evaluated
Lower skilled (Levels 1-2)	-	-	-	-	-	-	-
Skilled (Levels 3-5)	11	5	45.45%	-	-	-	-
Highly skilled production (Levels 6-8)	101	5	4.95%	-	-	-	-
Highly skilled supervision (Levels 9-12)	197	10	5.08%	1	0.51%	-	-
Senior Management Service Band A	77	1	1.30%	-	-	-	-
Senior Management Service Band B	25	-	-	-	-	-	-
Senior Management Service Band C	9	-	-	-	-	-	-
Senior Management Service Band D	1	-	-	-	-	-	-
Total	421	21	4.99%	1	0.24%	-	-

3.2 Profile of employees whose salary positions were upgraded due to their posts being upgraded, 1 April 2011 to 31 March 2012

Beneficiaries	African	Asian	Coloured	White	Total
Female	-	-	-	-	-
Male	1	-	-	-	1
Total	1	-	-	-	1

4 Employment changes

4.1 Annual turnover rates by salary band for the period 1 April 2011 to 31 March 2012

Salary bands	Number of employees per band as on 1 April 2011	Appointments and transfers into the Department	Terminations and transfers out of the Department	Turnover rate
Lower skilled (Levels 1-2)	-	-	-	-
Skilled (Levels 3-5)	9	-	-	-
Highly skilled production (Levels 6-8)	94	5	4	4.26%
Highly skilled supervision (Levels 9-12)	182	22	17	9.34%
Senior Management Service Band A	60	7	5	8.33%
Senior Management Service Band B	26	1	2	7.69%
Senior Management Service Band C	6	2	1	16.67%
Senior Management Service Band D	1	-	-	-
Total	378	37	29	7.67%

4.2 Reasons why staff are leaving the Department

Termination type	Number	% of total
Death	1	3.45%
Resignation	8	27.59%
Expiry of contract	-	-
Dismissal – operational changes	-	-
Dismissal – misconduct	-	-
Dismissal – inefficiency	1	3.45%
Discharged due to ill-health	-	-
Retirement	2	6.90%
Transfers to other Public Service Departments	17	58.62%
Other	-	-
Total	29	-
Total number of employees who left as a % of the total employment		7.67%

4.3 Promotions by salary band

Salary bands	Employees 1 April 2011	Promotions to another salary level	Salary bands promotions as a % of employees by salary level	Progressions to another notch within a salary level	Notch progressions as a % of employees by salary band
Lower skilled (Levels 1-2)	-	-	-	-	-
Skilled (Levels 3-5)	9	-	-	9	100.00%
Highly skilled production (Levels 6-8)	94	-	-	90	95.74%
Highly skilled supervision (Levels 9-12)	182	5	2.75%	169	92.86%
Senior management (Levels 13-16)	93	6	6.45%	82	88.17%
Total	378	11	2.91%	350	92.59%

5. Employment equity

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

5.1 Total number of employees (including employees with disabilities) in each of the following occupational categories as at 31 March 2012

Occupational categories	Male				Female			
	African	Coloured	Indian	White	African	Coloured	Indian	White
Management (Levels 13-16)	32	4	8	8	22	2	6	10
Middle management (Levels 9-12)	66	4	1	5	89	5	5	7
Administrative (Levels 6-8)	19	2	-	1	59	3	1	6
Clerical (Levels 3-5)	5	1	-	-	5	-	-	-
Elementary occupations (Levels 1-2)	-	-	-	-	-	-	-	-
Total	122	11	9	14	175	10	12	23
Employees with disabilities	2	-	-	1	3	-	-	2

5.2 Total number of employees (including employees with disabilities) in each of the following occupational bands as at 31 March 2012

Occupational bands	Male				Female				Total
	African	Coloured	Indian	White	African	Coloured	Indian	White	
Top Management (Levels 15-16)	2	-	2	2	1	-	1	-	8
Senior Management (Levels 13-14)	32	4	6	7	22	2	5	10	88
Professionally qualified and experienced specialists and mid-management (Levels 9-12)	66	4	1	5	90	5	5	8	184
Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents (Levels 6-8)	19	2	-	1	60	3	1	7	93
Semi-skilled and discretionary decision making (Levels 3-5)	5	1	-	-	5	-	-	-	11
Unskilled and defined decision making (Levels 1-2)	-	-	-	-	-	-	-	-	-
Total	124	11	9	15	178	10	12	25	384

5.3 Recruitment for the period 1 April 2011 to 31 March 2012

Occupational bands	Male				Female				Total
	African	Coloured	Indian	White	African	Coloured	Indian	White	
Top Management (Levels 15-16)	-	-	-	-	1	-	-	-	1
Senior Management (Levels 13-14)	1	1	2	1	2	-	-	2	9
Professionally qualified and experienced specialists and mid-management (Levels 9-12)	9	-	-	-	11	-	-	2	22
Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents (Levels 6-8)	1	-	-	-	3	1	-	-	5
Semi-skilled and discretionary decision making (Levels 3-5)	-	-	-	-	-	-	-	-	-
Unskilled and defined decision making (Levels 1-2)	-	-	-	-	-	-	-	-	-
Total	11	1	2	1	17	1	-	4	37

5.4 Promotions for the period 1 April 2011 to 31 March 2012

Occupational bands	Male				Female				Total
	African	Coloured	Indian	White	African	Coloured	Indian	White	
Top Management (Levels 15-16)	1	-	1	-	-	-	-	-	2
Senior Management (Levels 13-14)	3	-	-	-	-	1	-	-	4
Professionally qualified and experienced specialists and mid-management (Levels 9-12)	1	-	-	-	3	-	1	-	5
Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents (Levels 6-8)	-	-	-	-	-	-	-	-	-
Semi-skilled and discretionary decision making (Levels 3-5)	-	-	-	-	-	-	-	-	-
Unskilled and defined decision making (Levels 1-2)	-	-	-	-	-	-	-	-	-
Total	5	-	1	-	3	1	1	-	11

5.5 Terminations for the period 1 April 2011 to 31 March 2012

Occupational bands	Male				Female				Total
	African	Coloured	Indian	White	African	Coloured	Indian	White	
Top Management (Levels 15-16)	1	-	-	-	-	-	-	-	1
Senior Management (Levels 13-14)	4	-	-	1	2	-	-	-	7
Professionally qualified and experienced specialists and mid-management (Levels 9-12)	9	1	-	-	10	-	-	-	16
Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents (Levels 6-8)	3	-	-	-	2	4	-	-	5
Semi-skilled and discretionary decision making (Levels 3-5)	-	-	-	-	-	-	-	-	-
Unskilled and defined decision making (Levels 1-2)	-	-	-	-	-	-	-	-	-
Total	17	1	-	1	14	4	-	-	29

6 Performance rewards

6.1 Performance rewards by race, gender, and disability

	Beneficiary profile			Cost	
	Number of beneficiaries	Total number of employees in group	% of total within group	Cost ('000)	Average cost per employee ('000)
African					
Male	104	125	83.20%	2,126	20
Female	163	178	91.57%	2,858	18
Asian					
Male	5	9	55.56%	200	40
Female	7	12	58.33%	189	27
Coloured					
Male	8	11	72.73%	165	21
Female	10	10	100.00%	264	26
White					
Male	10	15	66.67%	264	26
Female	14	25	56.00%	351	25
Employees with a disability	5	8	-	129	26
Total	326	393	82.95%	6,546	20

Performance agreements submitted: 31 May 2011			
Number of employees	Number submitted	Number not submitted	Reasons for non-compliance
91	83	8	Non-compliance

6.2 Performance rewards by salary bands for personnel below senior management service

Salary bands	Beneficiary profile			Cost		Total cost as a % of the total personnel expenditure
	Number of beneficiaries	Number of employees	% of total within salary bands	Total cost (R'000)	Average cost per employee	
Lower skilled (Levels 1-2)	-	-	-	-	-	-
Skilled (Levels 3-5)	11	11	100.00%	60	5	0.03%
Highly skilled production (Levels 6-8)	90	93	96.77%	1,000	11	0.48%
Highly skilled supervision (Levels 9-12)	169	185	91.35%	3,025	18	1.46%
Total	270	289	93.43%	4,085	15	1.97%

6.3 Performance related rewards (cash bonus), by salary band, for senior management service

Salary bands	Beneficiary profile			Cost		Total cost as a % of the total personnel expenditure
	Number of beneficiaries	Number of employees	% of total within salary bands	Total cost (R'000)	Average cost per employee	
Band A	33	70	47.14%	1,220	37	0.59%
Band B	19	18	105.56%	1,000	53	0.48%
Band C	3	7	42.86%	120	40	0.06%
Band D	1	1	100.00%	121	121	0.06%
Total	56	96	58.33%	2,461	44	1.19%

7. 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 (Table 7.1) and disability leave (Table 7.2). In both cases, the estimated cost of the leave is also provided.

7.1 Sick leave, 1 April 2011 to 31 March 2012

Salary bands	Total days taken	% days with medical certification	Number of employees using sick leave	% of total employees using sick leave	Average days per employee	Estimated cost (R'000)
Lower skilled (Levels 1-2)	-	-	-	-	-	-
Skilled (Levels 3-5)	26	1.39%	5	62.50%	5.20	9
Highly skilled production (Levels 6-8)	496	26.45%	68	74.73%	7.29	291
Highly skilled supervision (Levels 9-12)	1,104	58.88%	159	108.90%	6.94	1,417
Senior management (Levels 13-16)	249	13.28%	46	58.23%	5.41	924
Total	1,875	20.00%	278	85.80%	6.74	2,641

7.2 Disability leave (temporary and permanent), 1 April 2011 to 31 March 2012

Salary bands	Total days taken	% days with medical certification	Number of employees using disability leave	% of total employees using disability leave	Average days per employee	Estimated cost (R'000)
Lower skilled (Levels 1-2)	-	-	-	-	-	-
Skilled (Levels 3-5)	-	-	-	-	-	-
Highly skilled production (Levels 6-8)	104	100.00%	4	0.55%	26	75
Highly skilled supervision (Levels 9-12)	48	100.00%	3	0.55%	16	39
Senior management (Levels 13-16)	29	100.00%	2	-	14.5	87
Total	181	100.00%	9	1.10%	20.1	201

Table 7.3 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.

7.3 Annual leave, 1 January 2011 to 31 December 2011

Salary bands	Number of days	Average days per employee
Lower skilled (Levels 1-2)	-	-
Skilled (Levels 3-5)	175	19.44
Highly skilled production (Levels 6-8)	1,445	18.29
Highly skilled supervision (Levels 9-12)	4,027	19.27
Senior management (Levels 13-16)	1,512	18.44
Total	7,159	18.50

7.4 Capped leave, 1 April 2011 to 31 March 2012

Salary bands	Total days of capped leave taken	Average number of days taken per employee	Average capped leave per employee as at 31 March 2012
Lower skilled (Levels 1-2)	-	-	-
Skilled (Levels 3-5)	-	-	17
Highly skilled production (Levels 6-8)	-	-	31
Highly skilled supervision (Levels 9-12)	-	-	25
Senior management (Levels 13-16)	-	-	29
Total	-	-	27

7.5 Leave payouts for the period 1 April 2011 to 31 March 2012

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

Reason	Total amount (R'000)	Number of employees	Average payment per employee ('000)
Leave payout for 2010/11 due to non-utilisation of leave for the previous cycle	111	7	16
Capped leave payouts on termination of service for 2009/10	163	1	163
Current leave payout on termination of service for 2011/12	99	3	33
Total	373	11	34

8. Labour relations

The following collective agreements were entered into with trade unions within the Department.

8.1 Collective agreements, 1 April 2011 to 31 March 2012

	Total
Total collective agreements	-

8.2 Misconduct and disciplinary hearings finalised, 1 April 2011 to 31 March 2012

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

Outcomes of disciplinary hearings	Number	% of total
Correctional counselling	-	-
Verbal warning	3	60.00%
Written warning	1	20.00%
Final written warning	-	-
Suspended without pay	-	-
Fine	-	-
Demotion	-	-
Dismissal	-	-
Not guilty	1	20.00%
Case withdrawn	-	-
Total	5	100.00%

8.3 Types of misconduct addressed at disciplinary hearings

Type of misconduct	Number	% of total
Failure to submit receipts	1	20.00%
Contravention of procurement process	1	20.00%
Unlawful disclosure of information	1	20.00%
Failure to give guidance on procurement process	1	20.00%
Insubordination	1	20.00%
Total	5	100.00%

8.4 Grievances lodged for the period 1 April 2011 to 31 March 2012

	Number	% of total
Number of grievances resolved	4	80.00%
Number of grievances not resolved	1	20.00%
Total number of grievances lodged	5	100.00%

8.5 Disputes lodged with Councils for the period 1 April 2011 to 31 March 2012

	Number	% of total
Number of disputes upheld	-	-
Number of disputes dismissed	1	100.00%
Total number of disputes lodged	1	100.00%

8.6 Strike actions for the period 1 April 2011 to 31 March 2012

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

8.7 Precautionary suspensions for the period 1 April 2011 to 31 March 2012

Number of people suspended	1
Number of people whose suspension exceeded 30 days	0
Average number of days suspended	58
Cost (R'000) of suspensions	R182

9. Training and development 2011/12

9.1 Training needs identified 1 April 2011 to 31 March 2012

Occupational categories	Gender	Number of employees as at 1 April 2011	Training needs identified at start of reporting period			Total
			Internships	Skills programmes and other short courses	Other forms of training	
Legislators, senior officials and managers (Level 13-16)	Female	41	-	46	-	46
	Male	55	-	38	-	38
Professionals (Level 9-12)	Female	108	-	110	-	110
	Male	77	-	98	-	98
Technicians and associate professionals (Level 6-8)	Female	71	-	45	-	45
	Male	21	-	35	-	35
Clerks (Level 3-5)	Female	5	9	28	-	28
	Male	6	10	9	-	9
Elementary occupations (Level 1-2)	Female	0	-	10	-	10
	Male	0	-	-	-	-
Subtotal	Female	225	-	239	-	239
	Male	160	-	180	-	180

9.2 Training provided 1 April 2011 to 31 March 2012

Training provided within the reporting period						
Occupational categories	Gender	Number of employees as at 1 April 2011	Internships	Skills programmes and other short courses	Other forms of training	Total
Legislators, senior officials and managers (Level 13-16)	Female	41	-	46	-	46
	Male	55	-	38	-	38
Professionals (Level 9-12)	Female	108	-	110	-	110
	Male	77	-	98	-	98
Technicians and associate professionals (Level 6-8)	Female	71	-	45	-	45
	Male	21	-	35	-	35
Clerks (Level 3-5)	Female	5	9	28	-	28
	Male	6	10	9	-	9
Elementary occupations (Level 1-2)	Female	-	-	10	-	10
	Male	-	-	-	-	-
Subtotal	Female	225	-	239	-	239
	Male	160	-	180	-	180

8 HIV, Aids and health promotion programmes

8.1 Details of health promotion and HIV and 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 I of the Public Service Regulations, 2001? If so, provide her/his name and position.	✓		Acting Chief Director: Human Resource, Ms Patricia Tomotomo
2. Does the department have a dedicated unit or has it designated specific staff members to promote the health and well-being of your 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: Five employees. The budget for the HIV and Aids programme is located within the Special Programmes Unit budget of R1.578 million.
3. Has the department introduced an Employee Assistance or Health Promotion Programme for your employees? If so, indicate the key elements/services of this Programme.	✓		The Department has put in place the Employee Health and Wellness Programme which focuses on Wellness Management, Health Management and Occupational Health and Safety. The Department has also appointed a service provider to provide Employee Wellness Programme services.
4. Has the department established (a) committee(s) as contemplated in Part VI E.5 (e) of Chapter I 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.	✓		<div>Health, Wellness and Safety Support Committee which also consist of the following Operational Teams (First Aiders, Wellness Champions and Fire Fighters).</div> <div><div><div>1. Loretta Pillay</div><div>2. George Seokane</div><div>3. Siphiwe Mngomezulu-Mthombeni</div><div>4. Sengai Setumo</div><div>5. Azwifarwi Phuravhathu</div><div>6. Nomvula Lekubu</div><div>7. Yandisa Ndaba</div><div>8. Truelove Mnguni</div><div>9. Bongani Khosa</div><div>10. Tshepo Molema</div><div>11. Tumisang Sebitloane</div><div>12. Xoliswa Nqabeni</div></div><div><div>First Aiders</div><div>1. Kgaugelo Sithole</div><div>2. Dorothy Majoko</div><div>3. Moema Maponya</div><div>4. Mamohlala Mafokoane</div><div>5. Dikeledi Marupula</div><div>6. Charles Bopape</div><div>Fire Fighters</div><div>1. Lydia Phasha</div><div>2. Swasthi Soomaroo</div><div>3. Sheila van Stryp</div><div>4. Thea Riekert</div><div>5. Mogale Mohlaela</div><div>Wellness Champions</div><div>1. Vivienne Gondwe</div><div>2. Mirranda Mohapi</div></div></div>

Question	Yes	No	Details, if yes
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.	✓		During World Aids Day, awareness was raised regarding stigma and discrimination against employees who are HIV positive or perceived to be HIV positive. A flyer was also developed and distributed to employees on the support provided to employees who are HIV positive.
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.	✓		The Department conducted four HIV Counselling and Testing (HCT) drives and in total 430 tests were done. An average of 37.6% employees were tested for HIV. The Department also appointed a service provider to provide offsite HCT to employees nationally. This initiative will increase access for employees and immediate family members in terms of testing their HIV status.
7. Does the department encourage its employees to undergo Voluntary Counselling and Testing? If so, list the results that you have achieved.	✓		The Department undertook a process of reviewing the HIV and Aids policy to incorporate aspects of TB.
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 current measure/indicator focuses on the "percentage reduction of health risks". However in order to assess this measure, the Department undertook a process of developing an organisational wellness metrics to measure the impact of the health programme. To finalise the wellness metrics, a proposal to conduct a Health Risk Management pilot programme will be undertaken. The result of the pilot will inform the finalisation of the wellness metrics. Currently the indicators measure the levels of participation in the health risks screenings which focus on Blood Pressure, Glucose, Body Mass Index and Cholesterol and HIV. The trends are analysed quarterly.

DST corporate information for the year ended 31 March 2012

The Department of Science and Technology

Private Bag X727, Pretoria, 0001

Director-General

Dr Phil Mjwara

Tel.: 012 843 6816

Deputy Director-General: Corporate Services

Ms Nombuyiselo Mokoena

Tel.: 012 843 6632

Deputy Director-General: Research, Development and Innovation

Dr Valanathan Munsami

Tel.: 012 843 6822

Deputy Director-General: Human Capital Development

Dr Thomas Auf Der Heyde

Tel.: 012 843 6825

Acting Deputy Director-General: International Corporation and Resources

Mr Mmboneni Muofhe

Tel.: 012 843 6773

Deputy Director-General: Socio-Economic Partnerships

Mr Imraan Patel

Tel.: 012 843 6834

Chief Financial Officer

Ms Malekgoloane Malapane

Tel.: 012 843 6717

Communication

Mr Tommy Makhode

Tel.: 012 843 6793

Human Resources

Ms Lerato Gumbi

Tel.: 012 843 6706

Chief Operations Officer

Mr Thulani Mavuso

Tel.: 012 843 6398

Information Technology Officer (Vacant)





Department of Science and Technology
ANNUAL REPORT 2011/12

Building 53, Meiring Naudé Road, Scientia Campus, South Gate Entrance, Brummeria, Pretoria, South Africa
Tel : +27 (12) 843 6300 | Fax: +27 (12) 349 1030 | www.dst.gov.za