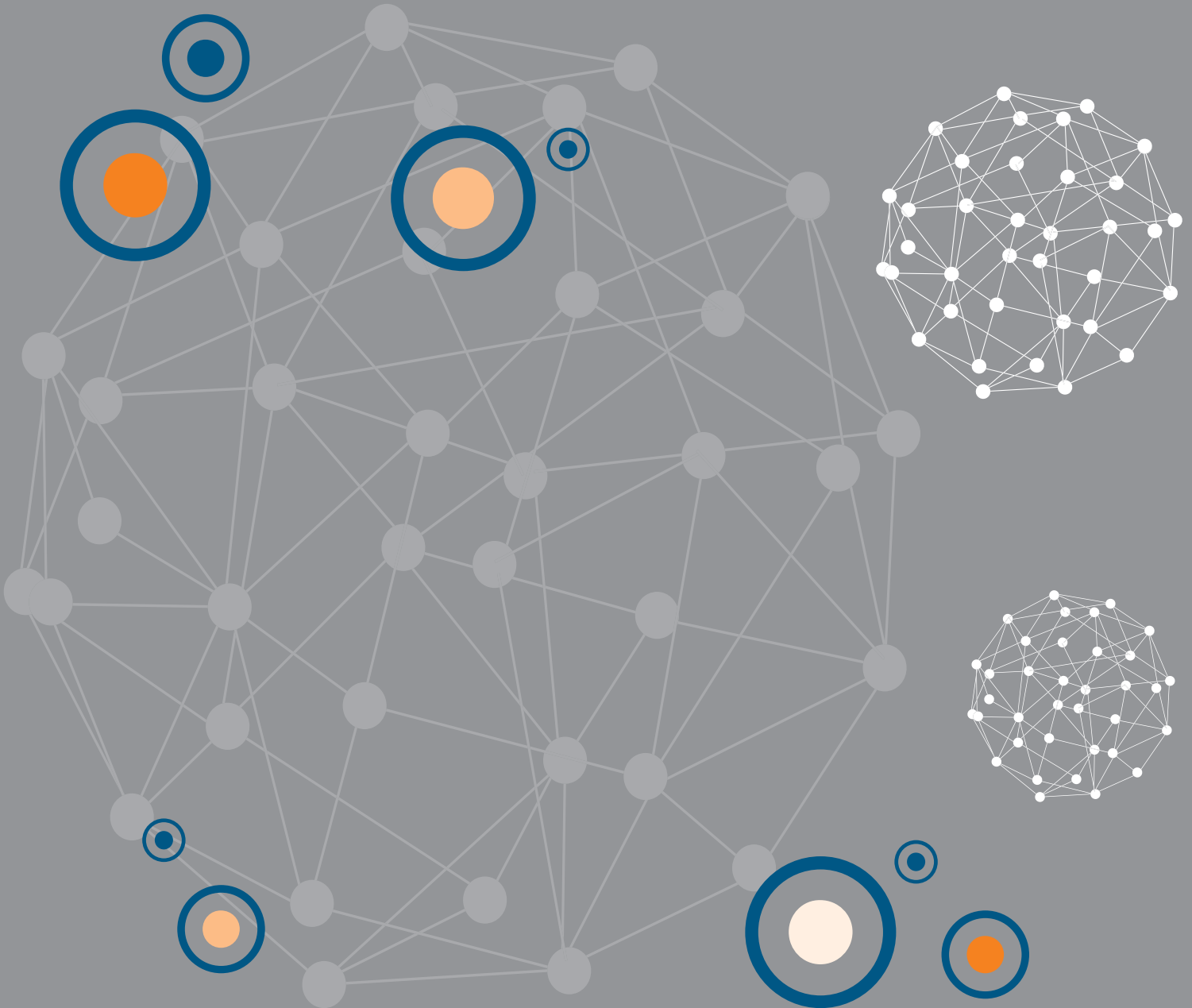


DEPARTMENT OF  
SCIENCE AND TECHNOLOGY  
VOTE NO. 30

# ANNUAL REPORT

2017/2018  
FINANCIAL YEAR



science  
& technology

Department:  
Science and Technology  
REPUBLIC OF SOUTH AFRICA



# TABLE OF CONTENTS

<b>PART A: GENERAL INFORMATION.....</b>	<b>4</b>
1. Contact information.....	4
2. List of abbreviations .....	5
3. Foreword by the Minister.....	7
4. Statement by the Deputy Minister .....	16
5. Report of the Accounting Officer .....	18
6. Statement of responsibility and confirmation of accuracy of the annual report .....	25
7. Strategic overview.....	26
7.1 Vision .....	26
7.2 Mission .....	26
7.3 Values .....	26
8. Legislative mandate .....	26
9. Organisational structure .....	28
10. Entities reporting to the Minister.....	29
10.1 Academy of Science of South Africa.....	29
10.2 The Council for Scientific and Industrial Research.....	29
10.3 Human Sciences Research Council .....	32
10.4 National Advisory Council on Innovation .....	33
10.5 National Research Foundation .....	33
10.6 South African Council for Natural Scientific Professions .....	35
10.7 South African National Space Agency.....	37
10.8 Technology Innovation Agency .....	40
<b>PART B: PERFORMANCE INFORMATION.....</b>	<b>43</b>
1. Auditor-General Report: Predetermined objectives.....	44
2. Overview of departmental performance .....	44
2.1 Service delivery environment.....	44
2.2 Alignment with broader government policies .....	44
2.3 Service delivery improvement plan.....	45
2.4 Organisational environment.....	48
2.5 Key policy developments and legislative changes .....	48
3. Strategic outcome-oriented goals.....	50
<b>Goal 1:</b> A responsive, coordinated and efficient national system of innovation.....	50
<b>Goal 2:</b> Increased knowledge generation .....	51
<b>Goal 3:</b> Human capital development .....	53
<b>Goal 4:</b> Using knowledge and innovation for economic development.....	54
<b>Goal 5:</b> Using knowledge and innovation for inclusive development.....	59

4.	Performance information by Programme .....	64
	<b>Programme 1:</b> Administration.....	64
	<b>Programme 2:</b> Technology Innovation .....	68
	<b>Programme 3:</b> International Cooperation and Resources .....	74
	<b>Programme 4:</b> Research Development and Support .....	80
	<b>Programme 5:</b> Socio-economic Innovation Partnerships.....	86
	Approval .....	95
5.	Transfer payments .....	96
6.	Conditional grants.....	100
7.	Donor funds .....	101
8.	Capital investment.....	106
<b>PART C: GOVERNANCE .....</b>		<b>107</b>
1.	Introduction .....	108
2.	Risk management.....	108
3.	Fraud and corruption .....	109
4.	Minimising conflict of interest.....	109
5.	Code of conduct .....	109
6.	Health, safety and environmental issues.....	110
7.	Portfolio Committee .....	110
<b>PART D: HUMAN RESOURCE MANAGEMENT .....</b>		<b>119</b>
1.	Introduction .....	120
2.	Overview of human resources .....	120
3.	Human resources oversight statistics.....	121
<b>PART E: FINANCIAL INFORMATION.....</b>		<b>141</b>
1.	Report of the Auditor-General to Parliament on Vote 30: Department of Science and Technology .....	142
2.	Annual financial statements .....	146
<b>CASE STUDIES .....</b>		<b>283</b>
	Offices of technology transfer – at the coalface of getting publicly financed research to have benefit society.....	283
	Positioning South Africa to go green using platinum group metals.....	285
	Use of the Umbiflow™ device to reduce stillbirths .....	287



# PART A

## GENERAL INFORMATION

# PART A: GENERAL INFORMATION

## 1. Contact information

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## 2. List of abbreviations

<b>ABIPP</b>	Agricultural Bio-economy Innovation Partnership Programme
<b>AGSA</b>	Auditor-General of South Africa
<b>ABIS</b>	Automatic Biometric Identification System
<b>AM</b>	Additive Manufacturing
<b>ARC</b>	Agricultural Research Council
<b>ASSAf</b>	Academy of Science of South Africa
<b>AU</b>	African Union
<b>BIDF</b>	Biorefinery Industry Development Facility
<b>BRAGMA</b>	Bridging Actions for GMES and Africa
<b>BRICS</b>	Brazil, Russia, India, China and South Africa
<b>CHPC</b>	Centre for High Performance Computing
<b>CoE</b>	centre of excellence
<b>CSIR</b>	Council for Scientific and Industrial Research
<b>DDG</b>	Deputy Director-General
<b>DHA</b>	Department of Home Affairs
<b>DPSA</b>	Department of Public Service and Administration
<b>DST</b>	Department of Science and Technology
<b>EO</b>	Earth observation
<b>ERM</b>	Enterprise Risk Management
<b>ESA</b>	European Space Agency
<b>EU</b>	European Union
<b>Exco</b>	The DST Executive Committee
<b>F'SAGRI</b>	French South African Institute in Agriculture
<b>F'SATI</b>	French South African Institute of Technology
<b>GAAP</b>	GMES & Africa Action Plan
<b>GMES</b>	Global Monitoring for Environment and Security
<b>GNSS</b>	Global Navigation Satellite System
<b>GTAC</b>	Government Technical Advisory Centre
<b>HCD</b>	human capital development
<b>HCT</b>	HIV counselling and testing
<b>HFCT</b>	Hydrogen and fuel cell technologies
<b>HOA</b>	home owner's allowance
<b>HSRC</b>	Human Sciences Research Council
<b>HySA</b>	Hydrogen South Africa
<b>ICT</b>	information and communication technology
<b>IDC</b>	Industrial Development Corporation
<b>IKS</b>	indigenous knowledge systems
<b>IK Bill</b>	The Protection, Promotion, Development and Management of Indigenous Knowledge Bill
<b>IP</b>	intellectual property
<b>IPR Act</b>	Intellectual Property Rights from Publicly Financed Research and Development Act
<b>KRISP</b>	KwaZulu-Natal Research and Innovation Sequencing Platform
<b>LED</b>	local economic development
<b>LOHC</b>	liquid organic hydrogen carriers
<b>LSP</b>	Large Survey Project

## 2. List of abbreviations (continued)

<b>MOF</b>	metal organic framework
<b>MPAT</b>	Management Performance Assessment Tool
<b>NACI</b>	National Advisory Council on Innovation
<b>NDP</b>	National Development Plan
<b>NEPAD</b>	New Partnership for Africa's Development
<b>NICIS</b>	National Integrated Cyberinfrastructure System
<b>NIPMO</b>	National Intellectual Property Management Office
<b>NRF</b>	National Research Foundation
<b>NSI</b>	national system of innovation
<b>NZG</b>	National Zoological Gardens
<b>OCIMS</b>	National Oceans and Coastal Information Management System
<b>OHS</b>	occupational health and safety
<b>OTT</b>	office of technology transfer
<b>PFMA</b>	Public Finance Management Act
<b>PGM</b>	platinum group metal
<b>R&amp;D</b>	research and development
<b>RDI</b>	research, development and innovation
<b>RIAT</b>	Rural Innovation Assessment Tool
<b>S&amp;T</b>	Science and Technology
<b>SAAF</b>	South African Air Force
<b>SAAO</b>	South African Astronomical Observatory
<b>SACNASP</b>	South African Council for Natural Scientific Profession
<b>SADC</b>	Southern African Development Community
<b>SAIAB</b>	South African Institute for Aquatic Biodiversity
<b>SAEON</b>	South African Environmental Observation Network
<b>SALT</b>	Southern African Large Telescope
<b>SAMRC</b>	South African Medical Research Council
<b>SANBI</b>	South African National Biodiversity Institute
<b>SANReN</b>	South African National Research Network
<b>SARAO</b>	South African Radio Astronomy Observatory
<b>SARChI</b>	South African Research Chairs Initiative
<b>SARIR</b>	South African Research Infrastructure Roadmap
<b>SBAS</b>	satellite-based augmentation system
<b>SCM</b>	Supply Chain Management
<b>SETI</b>	science, engineering, technology and innovation
<b>SKA</b>	Square Kilometre Array
<b>SME</b>	small and/or medium enterprise
<b>SoIF</b>	Sovereign Innovation Fund
<b>STI</b>	science, technology and innovation
<b>STIIL</b>	Science, Technology and Innovation Institutional Landscape
<b>TENET</b>	Tertiary Education and Research Network of South Africa
<b>WACS</b>	West Africa Cable System

### 3. Foreword by the Minister



**Ms Mmamoloko Kubayi-Ngubane, MP**

Minister of Science and Technology

Science, technology and innovation are essential for the implementation of the 2030 Agenda for Sustainable Development adopted by global leaders at the United Nations (UN) General Assembly in 2015. If we are to realise the 17 Sustainable Development Goals outlined in Agenda 2030, South Africa needs to galvanise science, technology and innovation across all disciplines in our quest to build a knowledge economy.

Science, technology and innovation (STI) are also central to achieving the objectives the country has set for itself in the National Development Plan. They should be leveraged for the effective growth and development of South Africa and lay the foundations needed to address global challenges, today and in the future.

The Department continued to implement its 2015-2020 Strategic Plan, which entered its fourth year during the period under review. In this regard, the Department focused on supporting a dynamic system of innovation by strengthening collaboration among public research institutions, universities, industry and civil society.

The Department was allocated a budget of R7,5 billion in the 2017/18 financial year and used it to implement its Strategic Plan and Annual Performance Plan, strengthening the value of STI in society and contributing to various government priorities aimed at addressing poverty, inequality and unemployment, in particular through the Economic Sectors, Employment and Infrastructure Development Cluster.

The country's human capital and research outputs need to increase so that our national system of innovation can contribute optimally to addressing South Africa's socio-economic challenges. The Department supported this goal through initiatives such as the South African Research Chairs Initiative and Centres of Excellence Programme. It is pleasing to note that the equity profile of honours, master's and doctoral students supported by the Department closely match the targets set in the DST Ministerial Guidelines for achieving equity in the distribution of bursaries, scholarships and fellowships. However, much more still needs to be done.

The Department has made meaningful progress since the introduction of the White Paper on Science and Technology in 1996, and related policy documents like the National Research and Development Strategy and Ten-Year Innovation Plan, aimed at transforming the science, technology and innovation system to serve all South Africans, expanding and transforming human resources, increasing financial resources and promoting innovation to support socio-economic development. Our efforts to create institutions, build relationships and facilitate coherence are beginning to deliver positive results.

However, there are still challenges. Our science system remains small and fragmented. Recent reviews point to issues such as non-inclusive agenda setting, insufficient business and civil society involvement, significant underfunding, and inadequate high-level science, engineering and technology skills for the economy.



### 3. Foreword by the Minister (continued)

We are therefore working on a new White Paper on Science, Technology and Innovation, and have commissioned the National Advisory Council on Innovation to develop a framework for a new decadal plan. Both of these should be finalised in the next financial year.

The premise of the new White Paper is that science, technology and innovation are central to inclusive and sustainable development. They should be instrumental in improving public service delivery and decision-making for public policy, increasing the competitiveness of existing firms and forming new technology-based firms, modernising existing industries such as agriculture and mining while developing emerging industries, and, through all of this, improving the quality of life of our people.

In the period under review, we reached an important milestone with the completion of the 64-dish MeerKAT, and Ghana became the first of South Africa's eight African Square Kilometre Array partner countries to complete the conversion of a communications antenna into a functioning radio telescope.

The economic growth of South Africa requires new technological industries. Through its entity, the Council for Scientific and Industrial Research, the Department continues to make steady progress, on both the technical and the commercialisation fronts, through the Aeroswift and titanium metal powder projects. The next financial year will be crucial in defining the long-term direction of these initiatives with regard to the commercialisation of the technologies as we advance towards the 4th Industrial Revolution.

We are making good progress in implementing the Hydrogen SA (HySA) Strategy, demonstrating fuel cell technology as a viable source of clean energy in South Africa. In the period under review, the Department installed the first HySA-developed fuel cell system at Poelano Secondary School in the North West. The system is providing reliable power for lighting and computer equipment. This initiative demonstrates how renewable energy can meet the needs of communities without access to the main electricity grid.

The Department continued the implementation of initiatives in its Industry Innovation Partnerships portfolio, with the successful launch of the Biorefinery Industry Development Facility in the year under review. It is important to note that the facility, the third of four industry development centres to be launched, is a key enabling intervention in the Waste Research, Development and Innovation Roadmap and the Bio-economy Strategy.

The Department also aims to lift economic growth through initiatives such as the technology stations programme, the grassroots innovation programme, and various community-based economic development initiatives.

Over the last five years, we have secured joint investment by the Department of Trade and Industry in seven Sector Innovation Funds that are developing critical capability in vital industry sectors. We plan to use the European Union's budget over the next three years to advance the Sector Innovation Programme further, scaling up successful service delivery innovations and establishing strategic partnerships with EU institutions.

Our support for small and medium enterprises continues to grow. In the previous financial year we supported 2 800 SMEs through the Technology Innovation Agency.

The Portfolio Committee on Science and Technology ensured the processing of the Draft National Research Foundation Amendment Bill and the Protection, Promotion, Development and Management of Indigenous Knowledge Bill. We anticipate that these Bills will be passed in the coming financial year.

In the period under review, our international portfolio grew, leading to increased access to global knowledge, resources and capacity to advance the objectives of our national system of innovation. The Department will continue to focus on the advancement of the African agenda in science and technology, in support of programmes such as the Southern African Development Community's Industrialisation Strategy.

### 3. Foreword by the Minister (continued)

Beyond our own continent, the DST will work to further expand collaboration with partners in the Global South, especially within the Brazil, Russia, India, China and South Africa (BRICS) framework. We will also develop our long-standing partnerships in Europe, Japan and elsewhere, keeping to the principle of mutual benefit and shared responsibility, and ensuring South Africa remains a preferred partner for international cooperation in science.

I would like to express my gratitude to the Portfolio Committee on Science and Technology, the Director-General and staff of the Department of Science and Technology, and the science councils, industry and civil

society stakeholders in the national system of innovation, who remain committed to our goal of placing South Africa on a growth and development trajectory in pursuance of an inclusive society.



**Ms Mmamoloko Kubayi-Ngubane, MP**

Minister of Science and Technology

31 July 2018

### 3. AMAZWI OKWENDLALELA ATHULWA NGUNGQONGQOSHE

Isayensi, ubuchwepheshe kanye nokusungula kubalulekile ekusetshenzisweni koHlelo Lwentuthuko Ezinzile lonyaka we-2030 olwamukelwa ngabaholi bomhlaba emhlanganweni weSigungu Esiphezulu Senhlangano Yezizwe (i-UN) ngonyaka we-2015. Ukuze siphumelele ekufezeni izinhloso ezi-17 Zentuthuko Ezinzile ezibekwe oHlelweni lwe-2030, iNingizimu Afrika kudingeka ukuthi ifukule isayensi, ubuchwepheshe kanye nokusungula kuyo yonke imikhakha emizamweni yethu yokwakha umnotho ogxile olwazini olutholakalayo.

Isayensi, ubuchwepheshe kanye nokusungula (i-STI) kuphinda kubaluleke ekufezeni izinhloso izwe elizibekela zona oHlelweni Lokuthuthukiswa Kwezwe. Kumele kufukulwe ukuze iNingizimu Afrika ikhule futhi ithuthuke ngempumelelo futhi yakhe izisekelo ezidingekayo ukubhekana nezinsalelo zomhlaba, esikhathini samanje kanye nesizayo.

UMnyango uqhubekile nokusebenzisa Uhlelo Olubalulekile lwe-2015-2020, olungene onyakeni walo wesine kulesi sikhathi esibuyekizwayo. Mayelana nalokhu, uMnyango ugxile ekwesekeni uhlelo olunohlonze lokusungula ngokuqinisa ukubambisana phakathi kwezikhungo zocwaningo zikahulumeni, amanyuvesi, imboni kanye nomphakathi.

UMnyango wanikezwa isabelomali samarandi ayizigidi ezi-7,5 kunyaka wezimali we-2017/18 futhi wasisebenzisa ukuqalisa Uhlelo Olubalulekile kanye noHlelo Lonyaka Lokusebenza ngokusebenzisana nezinhlangano ezingaphansi koMnyango, ukuqinisa ukubaluleka kwe-STI emphakathini nokufaka isandla kuzihlelo ezihlukahlukene zikahulumeni okuhloswe ngazo ukubhekana nobuphophu, ukungalingani kanye nokuswelakala kwemisebenzi, ikakhulukazi ngokusebenzisa Imikhakha Yomnotho, Ingxenye Yezemisebenzi Nokuthuthukiswa Kwengqalasizinda.

Isibalo sabasebenzi bezwe kanye nemiphumela yocwaningo kumele sinyuke ukuze uhlelo lwethu lokusungula lukazwelonke lube nomthelela omkhulu ekubhekaneni nezinsalelo zenhlalo-mnotho eNingizimu Afrika. UMnyango usekele le nhloso ngokusebenzisa izinhlelo ezifana *ne-South African*

*Research Chairs Initiative* kanye nohlelo i-*Centres of Excellence Programme*. Kuyathokozisa ukuthi iphrofayili yokulingana yabafundi beziqo ze-*honours*, eze-*master's* kanye nezobudokotela abasekelwe nguMnyango ishoshela ngakumikhawulo yezinguquko ebekwe kuMihlahlandlela Kangqongqoshwe we-DST yokufeza ukulingana ekwabiweni kwemifundaze kanye nezikhundla zasemanyuvesi sokuzithuthukisa emkhakheni othile. Noma kunjalo, kusekuningi okusadingeka kwenziwe.

UMnyango wenze inqubekela phambili ebonakalayo kusukela kwasungulwa uMthetho Odingidwayo Wezesayensi Nezobuchwepheshe ngonyaka we-1996, kanye nemibhalo yenqubomgomo ehlobene nawo njengoHlelo Lukazwelonke Lwezocwaningo Nentuthuko kanye noHlelo Lokusungula Lweminyaka Eyishumi, okuhloswe ngakho ukuguqula isayensi, ubuchwepheshe kanye nohlelo lokusungula ukuze kusize bonke abantu baseNingizimu Afrika, ukwandisa nokuguqula iphrofayili yabasebenzi, ukukhulisa izinsiza zezimali kanye nokukhuthaza ukusungula ukuze kusekelwe intuthuko yenhlalo-mnotho. Imizamo yethu yokwakha izikhungo, ukwakha ubudlelwane nokugqungquzela ukubambisana kuqale ukuletha imiphumela emihle

Noma kunjalo, kusekhona izinsalelo. Uhlelo lwethu lwesayensi luseluncane futhi luhlakazekile. Ukubuyekeza kwakamumva kuveza inkinga yohlelo olungafaki zonke izinhlobo zabantu, ukungabambi iqhaza ngokwanele kwamabhizinisi kanye nomphakathi, ukungaxhaswa ngezimali ngokwanele kanye nesibalo esiphezulu sokuswelakala kwamakhono ezesayensi, ubunjiniyela nobuchwepheshe adingekayo emnothweni.

Ngakho-ke, sisabhala Umthetho Ohlongozwayo Wezesayensi omusha, futhi sesijube Umkhandlu Kazwelonke Wezokweluleka Ngezokusungula ukuthi uthuthukise uhlaka lohlelo olusha lweminyaka eyishumi. Kokubili lokhu kuzophothulwa ngonyaka olandelayo wezezimali.

Isisekelo soMthetho Ohlongozwayo omusha wukuthi isayensi, ubuchwepheshe kanye nokusungula kungumongo wentuthuko efaka wonke umuntu

### 3. AMAZWI OKWENDLALELA ATHULWA NGUNGQONGQOSHE

futhi ezinzile. Kumele kube neqhaza ekuphuculeni ukuhlinzekwa kwezinsizakalo kubantu kanye nokuthatha izinqumo mayelana nezinqubomgomo zomphakathi, ukukhulisa ukukwazi ukuncintisana kwamafemu akhona njengamanje kanye nokusungula amafemu amasha asebenzisa ubuchwepheshe, ukuguqula izimboni ezikhona njengamanje zibe ngezesimanje njengezokulima nokuvukuza ngesikhathi esifanayo kuthuthukiswe izimboni ezifufusayo, futhi ngokusebenzisa konke lokhu, kuthuthukiswe izinga lezimpilo zabantu bakithi.

Esikhathini esibuyekwayo, sifinyelele kusinyathelo esibaluleke kakhulu ngokuphuthulwa kwe-MeerKAT enezindishi ezi-64 futhi izwe laseGhana libe ngelokuqala kumazwe ase-Afrika iNingizimu Afrika ebambisene nawo ku-Square Kilometre Array ukuphuthula ukuguqula isidonsimagagasi omoya sibe yisibonakude somsakazo.

Ukukhula komnotho eNingizimu Afrika kudinga izimboni ezintsha zezobuchwepheshe. Ngokusebenzisa isikhungo sawo uMkhandlu Wezocwaningo Lwesayensi Nezimboni, uMnyango uqhubekela phambili, kwezobuncweti kanye nokufaka emakethe, ngokusebenzisa amaphrojekthi e-**Aeroswift kanye ne-titanium metal powder**. Unyaka wezezimali olandelayo uzoba ngobalulekile ekukhombiseni ukuthi lezi zinhlelo zibheke kuphi esikhathini eside esizayo mayelana nokufakwa emakethe njengoba sishoshela Enguqukwini Yezimboni ye-4.

Senza inqubekela phambili ebonakalayo ekusebenziseni uhlelo lwe-**Hydrogen SA (HySA) Strategy**, nolubonakalisa ubuchwepheshe be-**fuel cell** njengomthombo wezemandla ahlanzekile eNingizimu Afrika. Esikhathini esibuyekwayo, uMnyango ufake uhlelo lokuqala lwe-**fuel cell** oluthuthukiswe nge-HySA ePoelano Secondary School eNyakatho Ntshonalanga. Uhlelo luhlinzeka ugesi othembekile wokukhanyisa kanye nokusebenzisa amakhompuyutha. Lolu hlelo lukhombisa ukuthi amandla aphehlwe kabusha angahlangabezana kanjani nezidingo zomphakathi engenawo ugesi.

UMnyango uqhubekile nokuqalisa izinhlelo kuphuthifoliyo yayo ye-**Industry Innovation Partnerships**, ngokuthulwa ngempumelelo **kwe-Biorefinery Industry**

**Development Facility** kulo nyaka obuyekwayo. Kubalulekile ukuveza ukuthi lesi sikhungo, yisikhungo sesithathu kwezine zokuthuthukiswa kwezimboni ezizothulwa, sibalulekile ekuvumeleni ukungenelela kuCwanningo Ngemfucuzo, Uhlaka Lwentuthuko Nokusungula kanye ne-**Bio-economy Strategy**.

UMnyango uhlose futhi ukufukula ukukhula komnotho ngokusebenzisa izinhlelo ezifana nohlelo lweziteshi zezobuchwepheshe, uhlelo lokufukula abasunguli abangatholanga imfundo kanye nezinye izinhlelo ezihlukahlukene ezigxile emphakathini zokuthuthukiswa komnotho.

Eminyakeni emihlanu edlule, sithole utshalomali oluvela kuuMnyango Wezokuhweba Nezimboni kuma-**Sector Innovation Funds** ayisikhombisa athuthukisa amakhono abalulekile emikhakheni yezimboni ezibalulekile. Sihlela ukuthuthukisa **i-Sector Innovation Programme** iye phambili, sinyuse ukusungula okuhlinzeka izinsizakalo ngempumelelo kubantu kanye nokwakha kanye nokuqinisa ubudlelwano nezikhungo ze-EU.

Usekelo lwethu lwamabhizinisi amancane kanye naphakathi nendawo kuyaqhubeka nokukhula. Esikhathini esibuyekwayo sisekele ama-SME ayi-2 800 ngokusebenzisa i-**Technology Innovation Agency**.

IKomidi Elibhekelele Ezesayensi Nezobuchwepheshe liqinisekise ukudingidwa koMthethosivivinywa Owuhlaka Wokuchibiyela Inhlangothi Kazwelonke Yezocwaningo kanye noMthethosivivinywa Wokuvikela, Ukukhuthaza, Ukuthuthukisa kanye Nokusingatha Izinhlelo Zolwazi Lwendabuko. Silindele ukuthi leMithethosivivinywa iphasiswe ngonyaka wezezimali ozayo.

Esikhathini esibuyekwayo, iphuthifoliyo yethu yomhlaba ikhulile, nokuholele ekukhuleni kokufinyelela olwazini lomhlaba, izinsiza kanye namandla okufeza izinhloso zohlelo lukazwelonke lokusungula. UMnyango uzoqhubeka nokugxila ekuthuthukiseni i-ajenda ye-Afrika kwisayensi nobuchwepheshe, ekusekeleni izinhlelo ezifana ne-Southern African Development Community's Industrialisation Strategy.

### 3. AMAZWI OKWENDLALELA ATHULWA NGUNGQONGQOSHE

Ngaphandle kwezwekazi lethu, i-DST izosebenzela ukukhulisa ukubambisana namazwe asathuthuka angaphansi kweqoqo lamazwe i-*Global South*, ikakhulukazi phakathi kwe-Brazil, Russia, India, China neNingizimu Afrika (i-BRICS). Sizophinda sithuthukise ukusebenzisana kwethu kwesikhathi eside neYurophu, iJaphani kanye nakwezinye izindawo, silandela umgomo wokuhlomulisa wonke amazwe abambe iqhaza kanye nemisebenzi eyabelwanayo kanye nokuqinisekisa ukuthi iNingizimu Afrika ihlala iyizwe elithandekayo ukuthi kusetshenziswane nalo ekubambisaneni kwezesayensi emhlabeni jikelele.

Ngingathanda ukudlulisa ukubonga kwami Ekomidini Elengamele Ezesayensi Nezobuchwepheshe, uMqondisi-Jikelele kanye nabasebenzi boMnyango Wezesayensi

Nezobuchwepheshe, nemikhandlu yezesayensi, imboni kanye nemiphakathi ethintekayo ohlelweni lukazwelonke lokusungula, abasazibophezele namanje ekufezeni inhloso yethu yokubeka iNingizimu Afrika emgudwini wokukhula kanye nentuthuko ngenhloso yokuba sibe nomphakathi olinganayo.



**Nkz Mmamoloko Kubayi-Ngubane, MP**

UNgqongqoshe Wezesayensi Nezobuchwepheshe

31 Ntulikazi 2018

### 3. KETAPELE KA TONA

Saense, theknolotši le boihlanelo di bohlokwa phethagatšong ya Lenaneo la 2030 la Tlhabollo yeo e Swarelelago yeo e amogetšwego ke baetapele ba lefase ka bophara kua Kopanongkgothakgothe ya Ditšhabakopano ka 2015. Ge eba re nyaka go lemoga ka Dinepo tše 17 tša Tlhabollo yeo e Swarelelago, go nyakega gore Afrika Borwa e hloheletše saense, theknolotši le boihlanelo go ralala magoro ka moka ka nepo ya go aga ikonomi ya tsebo.

Saense, theknolotši le boihlanelo (STI) di bohlokwa go fihlelela dinepo tšeo naga ye e ipeetšego tšona go ya ka Thulaganyo ya Tlhabollo ya Bosetšhaba. Dinepo tše di swanetše gore di phethagatšwe bakeng sa kgolo ya makgonthe le tlhabollo ya Afrika Borwa le go thea metheo yeo e nyakegago go rarolla ditlhotlo tša lefaseng ka bophara, lehono le kamoso.

Kgoro e gatetše pele go phethagatša Thulaganyo ya yona ya Leanopeakanyo ya 2015-2020 yeo e swerego mengwaga ye mene mo pakeng ye re lego go yona. Mabapi le se, Kgoro e šeditše go thekga sistemo ya mafolofolo ya boihlanelo ka go tiišeletša tšhomišanommogo magareng ga dihlolongwa tša mmušo tša diphatišišo, diyunibesithi, diintasteri le mekgatlo ye lego setšhabeng.

Kgoro e abetšwe tekanyetšokabo ya R7,5 bilione ngwageng wa ditšhelete wa 2017/18 le go e šomiša go phethagatša Thulaganyo ya yona ya Leanopeakanyo le Thulaganyo ya yona ya Bodiragatši bja Ngwaga ka Ngwaga gotee le makalagwebo ao a lego ka fase ga Kgoro ye, le go maatlafatša mohola wa STI setšhabeng le go kgatha tema go ditlapele tša mmušo tša go fapafapana tšeo di nepilego go kalokana le bohloki, go se lekalekane le tlhokego ya mešomo, kudukudu ka Mafapha a Ikonomi, Mešomo le Seboka sa Tlhabollo ya Mananeokgoparara.

Dipoelo tša naga ye tša methopo ya batho le tša diphatišišo di swanetše go hlatloga gore sistemo ya rena ya bosetšhaba ya boihlanelo e ka kgatha tema ka botlalo go rarolla ditlhotlo tša Afrika Borwa tša ikonoming maphelong a batho. Kgoro e thekgile nepo ye ka maihlanelo a bjalo ka *South African Research*

*Chairs Initiative* le *Centres of Excellence Programme*. Go a thabiša go lemoga gore kakaretšo ya tekatekano ya baithuti ba mangwalo a *honours, master's* le *doctorate* ka Kgoro ye a rotogela go batamela dinepo tša diphetogo tšeo di theilwego ka gare ga Ditlhahlo tša Tona tša DST go fihlelela tekatekano kabong ya dipasari, dithušo tša ditšhelete tša baithuti le dithušo tša ditšhelete tša dialoga tšeo di phagamego. Le ge go le bjalo, go santše gona le tše ntši tšeo di swanetšego go dirwa.

Kgoro e fihleletše kgatelopele yeo e bonagalago ga e sale go tsebagatšwa Pampiritšhweu ka Saense le Theknolotši ka 1996, le ditokomane tša go amana le pholisi tše bjalo ka Leanopeakanyo la Diphatišišo tša Bosetšhaba le Tlhabollo le Thulaganyo ya Mengwaga ye Lesome ya Boihlanelo tšeo di nepilego go fetša sistemo ya saense, theknolotši le boihlanelo go hlankela Mafrika Borwa ka moka, go oketša le go fetša didirišwa tša batho, go hlatloša didirišwa tša ditšhelete le go hloheletša boihlanelo go thekgaa tlhabollo ya ikonomi maphelong. Matsapa a rena a go hlola dihlolongwa, go bopa dikamano le go kgontšha phedišano setšhabeng ke mathomomayo a go tliša dipoelo tše botse.

Le ge go le bjalo, go santše go nale ditlhotlo. Sistemo ya rena ya saense e santše e le ye nyenyane ebile e arogane. Ditshekatsheko tša moragorago di bontšha ditaba tše bjalo ka go thewa ga mananeo a go se akaretše batho ka moka, tlhaelelo ya dikgwebo le tlhaelelo ya kamego ya mekgatlo ye lego setšhabeng, dithekgo tša mašelang tšeo di hlaelago ka diroto tše kgolo le tlhaelelo ya saense ya maemo a godimo, boentšineere le mabokgoni a theknolotši ikonoming.

Ka gona, re gare re šomana le Pampiritšheu ye mpsha ya Saense, Theknolotši le Boihlanelo, ebile re thwetše Khansele ya Boeletši ya Bosetšhaba go tša Boihlanelo go tšweletša tlhaku ya thulaganyo ye mpsha ya mengwaga ye lesome. Dilo tše ka bobedi ga tšona di swanetše go rungwa mo ngwageng wo tlogo wa ditšhelete.

Lenaokgolo la Pampiritšhweu ye mpsha ke gore saense, theknolotši le boihlanelo di bohlokwa tlhabollong yeo e akaretšago tšohle le ya go swarelela. Saense, theknolotši le boihlanelo ka boraro ga tšona di swanetše go ba le

### 3. KETAPELE KA TONA

khuetšo kaonafatšong ya kabo ya ditirelo tša mmušo le go tšewa ga diphetho dipholiseng tša mmušo, go hlatloša moya wa phadišano mo difemeng tšeo di lego gona le go hlola difeme tše difsa tša go šoma ka theknolotši, go tliša diphetho tša sebjalebale mo diinstastering tšeo di lego gona tše bjalo ka temo le meepo mola ka go le lengwe go hlabollwa diintasteri tšeo di tšwelelago le gape go kaonafatša khwalithi ya maphelo a batho ba gaborena ka tše ka moka.

Mo nakong ye re lego go yona, re fihleletše kgatelopele ye kgolo ka go phethagatšwa ga 64-dish MeerKAT, le gona Ghana e bile ya mathomo ya naga ya bagwebišani ba Afrika Borwa ba seswai ba African Square Kilometre Array ba go phethagatša go fetolelwa ga dieriele tša dikgokagano go ba thelekoupu yeo e šomago ya radio.

Kgolo ya ikonomi ya Afrika Borwa e hloka diintasteri tše difsa tša theknolotši. Ka lekalakgwebo la yona la *Council for Scientific and Industrial Research*, Kgoro e santše e tšwelapele go dira kgatelopele ya mošito, ka mahlakoreng a sethekniki le a kgwebo ka bobedi ga ona, ka diprotšeke tša ditšhipi tšeo di šitšwego tša *Aeroswift* le *titanium*. Ngwaga wo o latelago wa ditšhelete o tla ba bohlokwa tlhalošong ya tlhahlo ya lebaka le letelele ya maihlamelo a mabapi le kgwebafatšo ya ditheknolotši ge re le gare re gatela pele re lebile Diphetogong tša Bone tša Intasteri.

Re gare re fihlelela kgatelopele ya go kgotsofatša mo phethagatšong ya Hydrogen SA (HySA) Strategy, ka go bontšha theknolotši ya dibešwa tša sele bjalo ka mothopo wa go swarelela wa enetši ya go hlweka mo Afrika Borwa. Mo nakong ye re lego go yona, Kgoro e hlomile sistemo ya mathothomo ya dibešwa tša sele yeo e tlilego ka HySA Sekolong seo se Phagamego sa Poelano go la Leboa Bodikela. Sistemo ye e aba mohlagase wa go botege wa mabone le wa didirišwa tša dikhomphuthara. Maihlamelo a a laetša ka fao enetši ya go mpshafatšwa e ka fihlelelago dinyakwa tša setšhaba ntle le go kgokaganywa le netweke ya bohle ya mohlagase.

Kgoro e tšwetšapele ka phethagatšo ya maihlamelo mo lefapheng la yona la Dikgwebišano tša Boihlamelo bja Diintasteri, ka tsebagatšo yeo e atlegilego ya *Biorefinery*

*Industry Development Facility* mo ngwageng wo re lego go ona. Go bohlokwa go lemoga gore senolofatši se, e bago sa boraro godimo ga disenthara tše nne tša tlhabollo ya instasteri, ke magato a bohlokwa ao a se kgontšhago mo Maitekelong a Diphatišišo tša Dilahlwa, Tlhabollo le Boihlamelo gotee le Leanopeakanyo la Ikonomi maphelong.

Kgoro e nepile gape go hlabolla kgolo ya ikonomi ka maihlamelo a bjalo ka lenaneo la theknolotši ya diteišene, lenaneo la boihlamelo bja mathomomayo, le maihlamelo a go fapafapana a tlhabollo ya ikonomi ao a ikadilego setšhabeng.

Mo mengwageng ye mehlano ya go feta, re fihleletše dipeeletšo tša mohlakanelwa tša go tla ka Kgoro ya Bogwebi le Intasteri mo Dikhwameng tše šupa tša Lefapha la Boihlamelo tšeo di tšweletšago bokgoni bjo bohlokwa kudu mafapheng a bohlokwahlokwa a intasteri. Re rulaganya go tšwetšapele Lenaneo la Lefapha la Boihlamelo; go hlatloša boihlamelo bjo bo atlegilego bja kabo ya ditirelo le go hloma gape le go tiišetša dikgwebišano tša leanophethagatšo gotee le dihlolongwa tša EU. Thekgo ya rena dikgwebong tše nnyane le tša magareng e tšwelapele go gola. Mo ngwageng wo re lego go ona re thekgile di-SME tše 2 800 ka Kemedi ya Theknolotši ya Boihlamelo.

Komiti ya Potfolio go tša Saense le Theknolotši e netefaditše go šetšwa ga Seakanywa sa Bosetšhaba sa Molaokakanywa wa Motheo wa Diphatišišo gotee le Tšhireletšo, Tlhohleletšo, Tlhabollo le Taolo ya Molaokakanywa wa Ditheo tša Tsebo ya Tlhago. Re holofela gore melaokakanywa ye e tla phasišwa mo ngwageng wo o latelago wa ditšhelete.

Mo ngwageng wo re lego go ona, potfolio ya rena ya boditšhabatšhaba e gotše, gomme seo sa tliša khumanego yeo e nabilego ya tsebo ya lefaseng ka bophara, didirišwa le mabokgoni a go tšwetšapele dinepo **tša sistemo ya rena ya** bosetšhaba ya boihlamelo. Kgoro e tla tšwelapele go šetša go tšwetšwapele ga lenaneo la Afrika go tša saense le theknolotši, go thekga mananeo a bjalo ka Leanopeakanyo la Go hlongwa ga diintasteri

### 3. KETAPELE KA TONA

Ditšhabeng tša Afrika ye Borwa tšeo di Hlabologago e bago *Southern African Development Community's Industrialisation Strategy*.

Go feta kontinente ye ya rena, DST e tla šoma go hlatlotša tšhomišanommogo le Bagwebišani gola Global South, kudukudu ka gare ga sebopego sa dinaga tša BRICS e bago Brazil, Russia, India, China le Afrika Borwa. Re tla hlabolla gape le dikgwebišano tša rena tša lebaka le letelele kua Europe, Japan le mafelo a mangwe, re sa le bale moeno wa go holega ga batho bohle le maikarabelo a mohlakanelwa, le gape go netefatša gore Afrika Borwa e ba mogwebišani wa mmamoratwa wa tšhomišanommogo ya boditšhabatšhaba go tša saense

Ke rata go lebiša ditebogo tšaka go Komiti ya Potfolio go tša Saense le Theknolotši, Molaodipharephare le bašomedi ba Kgoro ya Saense le Theknolotši, le dikhansele

tša saense, intasteri le bakgathatema ba mekgatlo ye lego setšhabeng mo sistemong ya bosetšhaba ya boihlamelo, bao ba sa ikgafetšego mo nepong ya rena ya go bea Afrika Borwa maemong a kgolo le a tlhabollo go fihlelela setšhaba sa go akaretša bohle.



**Mohumagadi Mmamoloko Kubayi-Ngubane, MP**

Tona ya Saense le Theknolotši

31 Julae 2018



## 4. Statement by the Deputy Minister



**Ms Zanele kaMagwaza-Msibi**

Deputy Minister of Science and Technology

Science, technology and innovation (STI) continue to play a leading role in enhancing productivity, economic growth and socio-economic development in South Africa. This Annual Report highlights the progress we have made in using science and technology to address some of the most pressing challenges that confront us.

### Increased knowledge generation

Knowledge generation is crucial for a knowledge economy, and the Department of Science and Technology (DST) acknowledges that without publications, research grants and research and innovation infrastructure, knowledge generation would not be possible. In the period under review, researchers funded by the DST and the National Research Foundation produced thousands of articles that were published and cited in the Thomson Reuters Web of Science database.

Moreover, in terms of supporting and promoting research that develops the basic sciences through the production of new knowledge and relevant training opportunities, the DST awarded a number of research grants through DST/NRF-managed programmes, of which a substantial number went to black and women researchers.

In an effort to coordinate and support high-end skills development in strategic and emerging areas such as space science, energy and nanotechnology, the DST provided funding for research in the fields of rocket engineering to the University of KwaZulu-Natal, and satellite communications, navigations and surveillance (CNS) to Durban University of Technology (DUT).

CNS will play a critical role in the future development of satellite-based augmentation systems. DUT has been earmarked as the country's lead institution in the area of satellite positioning and navigation, and will be positioned as a spoke for the Pan African University Institute for Space Sciences.

### Tshwane Khulelwe project

During the year under review, the Department supported the Tshwane Khulelwe project, an initiative that aims to curb maternal mortality. The primary objective of the project was to evaluate the clinical significance and benefit of routine screening with Umbiflow, a portable umbilical artery Doppler device developed by the South African Medical Research Council and the Council for Scientific and Industrial Research, of an unselected population in a low-resource primary health care setting. The device is meant to assist in detecting foetuses at risk of stillbirth, and is cost-effective compared to other such devices. Funding has been secured from the World Health Organisation to expand the project into other African countries.

### Improved access to sanitation

Water supply and sanitation in South Africa remains a challenge, particularly in rural areas faced with growing service delivery backlogs.

## 4. Statement by the Deputy Minister (continued)

To contribute towards addressing these challenges, the DST in collaboration with the Bill & Melinda Gates Foundation invested in a programme aimed at piloting innovative sanitation technologies. This programme has provided access to decent and appropriate sanitation services to previously underserved rural communities. It is also contributing to technology localisation and unlocking industrialisation opportunities for South Africa.

An innovative, water-efficient sanitation technology solution from Loughborough University in the UK is also being localised in the country. The South African team, spearheaded by the DST, had developed and constructed a local prototype. During the reporting period, the product entered the testing phase. Once it has been tested and optimised, the model for mass production will be developed.

### Rural Innovation Assessment Tool

The Department continues to lead the demonstration of targeted decision support through innovative technology solutions to improve the delivery of basic services. During the reporting period, the DST and the Human Sciences Research Council brought together a multitude of local economic development (LED) officials from selected rural municipalities and rural-based universities for a seminar on “Owning tools for local innovation assessments: Benefits for local municipalities”.

The seminar provided a platform for Rural Innovation Assessment Tool (RIAT) participants to share their experiences on using the tool set. The tool set enables users to unearth rural innovations, envision a prosperous future for a local economy, and identify interventions that have the potential to be high-impact catalysts.

The DST used the seminar to showcase the importance of the relationship between municipalities and universities for LED. One of the key outcomes was an agreement to establish a community of practice involving all RIAT participants, in order to expand the gains of RIAT in those municipalities.

### Renewable Energy Hub and Spoke Programme

During the reporting period, SolarTurtle, a spin-off company of the Renewable Energy Hub and Spoke Programme at Stellenbosch University, built on the success of the Technology for Rural Education and Development programme in Cofimvaba, in the Eastern Cape, by expanding its footprint to other rural areas in South Africa and the Southern African region.

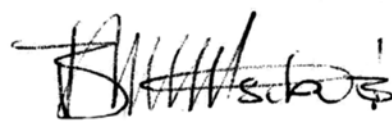
Last year, in partnership with Nedbank, the SolarTurtle team launched its 100% renewable energy powered “mobile bank in a shipping container” in Mncwasa village in the remote Mbhashe Local Municipality in the Eastern Cape.

This cashless, wireless enabled branch is a pilot that seeks to understand the feasibility of switching away from the Telkom and Eskom networks, which are vulnerable to factors such as cable theft and unscheduled downtimes. The lessons will be used to guide a possible roll-out in remote rural areas in South Africa and the rest of the continent.

The SolarTurtle initiative also received support from the European Union, securing a contract for the roll-out of the initiative in Lesotho to empower women entrepreneurs with access to clean forms of energy.

### Conclusion

I wish to express my sincere gratitude to Minister Kubayi-Ngubane and the Director-General, Dr Mjwara, for their hard work and leadership, as well as to all the ministerial and departmental officials, board chairs, science council CEOs, the Chair and members of the Portfolio Committee on Science and Technology, and our dedicated scientists and researchers.



**Ms Zanele kaMagwaza-Msibi**

Deputy Minister of Science and Technology

31 July 2018

## 5. Report of the Accounting Officer



**Dr PM Mjwara**

Accounting Officer

### 5.1 Introduction

The Department continued working hard to ensure that all its plans were achieved in the period under review. Significant progress was with the Department's contribution to addressing poverty, unemployment and inequality in the country through the implementation of a broad range of programmes, including various sector-specific initiatives. The DST's efforts in this regard are guided by the Ten-Year Innovation Plan, the National Research and Development Strategy and the National Development Plan. The DST also provided support to the Economic Sectors, Employment and Infrastructure Development Cluster and to the government's Nine-Point Plan project management team.

### 5.2 Overview of departmental operations

The Department is committed to maintaining the highest standards of corporate governance, which are fundamental to the management of public finances and other resources. During the 2017/18 financial year, the Department ensured that the Executive Committee, the Operations Committee, the Audit Committee, the Enterprise Risk Management Committee, the Information Technology Steering Committee and the bid committees continued to execute their responsibilities diligently.

According to the National Development Plan (NDP), South Africa needs to create 11 million jobs by 2030 to achieve full employment. Recognising that timely

payment for goods and services rendered by service providers, especially small and medium enterprises (SMEs), is important for achieving this goal, the DST complied with the period prescribed in the National Treasury Regulations for the payment of suppliers within 30 days of receipt of a legitimate invoice during the year under review.

Monitoring and evaluation of performance is a management function. The legal requirement related to effective performance monitoring, evaluation and corrective action is reflected in the Treasury Regulations. The DST Executive Committee developed and approved Guidelines for Performance Management Roles and Responsibilities to foster accountability in the institution.

During the 2017/18 financial year, the Department implemented its Governance Framework to ensure that the entities complied with the relevant legislation and directives from the National Treasury, the Presidency and Parliament.

### 5.3 Significant developments and major projects undertaken

A brief overview of significant developments and major projects undertaken during the financial year is outlined below. More details are given in Section 3: Strategic Outcome-Oriented Goals.

## 5. Report of the Accounting Officer (continued)

### National Intellectual Property Management Office

During the period under review, the National Intellectual Property Management Office (NIPMO) continued to provide financial and non-financial support through offices of technology transfer (OTTs). By the end of 2017/18, the total financial support provided to OTTs for human capacity and development needs amounted to over R150 million. This support has contributed to the creation of 132 positions. The non-financial support provided by NIPMO included initiatives such as a patent drafting course, a summer school and various intellectual property awareness sessions throughout the country. Furthermore, in partnership with the World Intellectual Property Office, NIPMO offered the first workshop on intellectual property and innovation policy for African countries, broadening NIPMO's footprint in the continent.

The number of actionable disclosures received by NIPMO has also increased to a total of 1 498 since the enactment of the Intellectual Property Rights from Publicly Financed Research and Development Act, 2008 (IPR Act), with 45 licence agreements granted to SMEs and Broad-Based Black Economic Empowerment entrepreneurs and companies. NIPMO continued to provide support to institutions to protect and maintain their intellectual property through the Intellectual Property Fund, with R14,9 million spent during the 2017/18 financial year.

A review panel was appointed to review the socio-economic impact of NIPMO's implementation of the IPR Act. This process is expected to be concluded by the end of the 2018/19 financial year, and will inform the way NIPMO functions going forward.

### Energy Security Grand Challenge – Energy storage

The Energy Security Grand Challenge is implemented mainly through three flagship programmes, namely, Hydrogen South Africa (HySA), the Energy Storage Research, Development and Innovation (RDI) Programme, and the Renewable Energy Hub-and-Spokes Programme. The period under review saw support for 40 postgraduate students, 46 academic publications, the

registration of eight intellectual property rights, three prototypes and three commercial products under the Grand Challenge.

In October 2017, the pilot facility for the production of manganese-based precursor materials for lithium-ion battery cathodes was launched. The launch was followed by the hosting of an international energy storage workshop, where discussions were initiated with potential partners regarding the commercialisation and local production of the precursor materials.

### National Oceans and Coastal Information Management System

The alpha version of the National Oceans and Coastal Information Management System (OCIMS) was released to key end-users with a number of decision-support tools. The OCIMS project is now halfway through the first five-year phase and has already made several positive contributions to compliance and enforcement interventions, and safeguarding the aquaculture industry through red tide alerts. Apart from harmful algal bloom detection, OCIMS is currently providing decision-support tools for integrated vessel tracking, coastal flood hazards and near-shore sea states.

The flight model of ZACube-2, a precursor for the CubeSat constellation for maritime domain awareness under Operation Phakisa (Oceans Economy), was completed in the period under review.

### Rural Innovation Assessment Tool

The Department continued to lead the demonstration of targeted decision-support through innovative technology solutions to improve the delivery of basic services. During the reporting period, the DST and the Human Sciences Research Council (HSRC) brought together over 70 people working in local economic development in selected rural municipalities and rural-based universities for a seminar under the banner of "Owning tools for local innovation assessments: Benefits for local municipalities". The seminar provided a platform for participants to share their experiences in using the Rural Innovation Assessment Tool (RIAT). The tool set enables users to identify interventions with the potential

## 5. Report of the Accounting Officer (continued)

to be high-impact catalysts for rural innovation towards growing the local economy. The seminar was a valuable opportunity for the DST to demonstrate the importance of the relationship between municipalities and universities in relation to local economic development. One of the important outcomes of the seminar was an agreement to establish a community of practice involving all RIAT participants to continue expanding the benefits of RIAT in their municipalities.

### Research and innovation infrastructure

The implementation of the South African Research Infrastructure Roadmap (SARIR), which includes plans for the establishment of national infrastructure in the scientific domains of humans and society; health, biological and food security; earth and environment; materials and manufacturing; and energy, continued in the reporting period. The investment in the implementation of SARIR and support for the National Research Foundation (NRF) national facilities formed a significant portion of the funds allocated for research infrastructure provision during the period under review. Unfortunately, the number of research infrastructure grants that could be awarded had to be reduced owing to substantial cuts in the budget, and only 28 could be awarded.

Significant progress has been made in establishing the National Integrated Cyberinfrastructure System (NICIS), in which high-performance computing and data management services are integrated with one another and with the national research network to support the computational requirements of data-intensive research projects, including big data flagship projects like the MeerKAT/Square Kilometre Array (SKA). A memorandum of understanding between NICIS and the South African Radio Astronomy Observatory was finalised. The collaboration is intended to provide a basis for interaction and protocols to support the positioning of South Africa to leverage the opportunities presented by co-hosting the SKA.

With respect to NICIS, the South African National Research Network (SANReN) and the Tertiary Education and Research Network of South Africa (TENET) completed

the implementation of the first 10 Gbps link from South Africa to Europe on the West Africa Cable System (WACS). This 10 Gbps capacity provides a crucial Africa-to-Europe leg for the broadband cable ring in the Atlantic Ocean, and will become the channel through which all MeerKAT/SKA and CERN-related data will be carried (almost cost-free) between Europe and South Africa. The 10 Gbps capacity can also be exchanged by SANReN at no cost for capacity on other networks should the need arise. Through the addition and upgrade of sites on the national backbone and upgrade of the WACS, SANReN increased the total broadband capacity available to about 3 292 Gbps.

### MeerKAT/SKA project

Future activities on the MeerKAT project will focus on enhancing the science mode capability of the telescope by installing two more science modes. Sixty-four ultra-high-frequency science mode receivers will be installed on the MeerKAT by 31 March 2019.

South Africa continues to be actively involved in negotiations towards the establishment of the SKA Intergovernmental Organisation, of which South Africa will be a founding member.

### Sector Innovation and Green Economy

The DST continued to support the implementation of the Water and Waste RDI Roadmaps, including 60 students (11 PhD, 44 MSc and five honours students). The year 2017 was also the first year of the coursework master's in Waste Management at North-West University, the first of its kind in South Africa.

The Imvelisi Enviropreneur Programme, now in its second year, supported 86 environmental entrepreneurs, selected from the 1 132 applications received, at two ideation workshops, helping them to turn their concepts into business cases that could be taken to potential investors. This is a one-of-a-kind programme, as currently no incubator (private or state-owned) supports the ideation phase of innovation, particularly in the environmental sector. The first cohort of this programme has resulted in nine registered businesses, seven of which have clients, and one employing 10 people.

## 5. Report of the Accounting Officer (continued)

The DST continued its successful Industry Innovation Partnerships Programme with the launch of the Biorefinery Industry Development Facility (BIDF) in March 2018. The BIDF not only responds to the objective of partnering with industry to improve competitiveness, but is also a key enabling intervention in both the Waste RDI Roadmap and the industrial sector aspect of the Bio-economy Strategy. The BIDF launch attracted the interest of a number of potential partners from the private sector, including a major retailer interested in pursuing a new clothing product line from some of the waste material sources. This is the third of four industrial development centres to be launched, with all three receiving continued supported in 2017/18. The seven Sector Innovation Funds were also supported.

A significant amount of work has been done to realise the opportunity presented by the SA-China science park collaboration commitment.

A programme management unit was established at the Council for Scientific and Industrial Research to assist in the advancement of initiatives in the local systems of innovation portfolio.

### 5.4 Future plans of the Department

#### Sovereign Innovation Fund

The Sovereign Innovation Fund (SolF), which will be initiated in the 2019/20 financial year, is a public-private funding partnership aimed at harvesting and commercialising South African technological innovations for deployment in national and international markets. Once operational, SolF will serve as a new national financing instrument that is funded by investments from the public and private sectors, with the public funding being used to reduce the investment risk of early-stage technology development phases, creating opportunities for later-stage investments from the private sector.

SolF will be implemented as a key component of government's ongoing strategies in support of a strengthened national investment system for scalable, local and global technology deployment. It will be an important complementary intervention to augment

the work of the Technology Innovation Agency (TIA) as well as other government technology development programmes and initiatives.

In addition, through the proactive and systematic crowding in of innovation investment opportunities, SolF will also serve to build a critical pipeline for other public and private investors.

The DST has had numerous discussions with other government departments and the private sector towards the establishment of SolF. In the discussions, synergies were identified with the work being undertaken by National Treasury and the Department of Small Business Development. The three departments subsequently worked together towards the development of the SME Innovation Fund. The Government Technical Advisory Centre (GTAC) was commissioned to develop a technical business case for the establishment of the SME Innovation Fund.

The SME Innovation Fund incorporates the early-stage funding function that was part of the SolF concept (including the support of pre-commercial, seed, start-up and fledgling companies, as well as larger-scale R&D technology development initiatives). In the 2018 State of the Nation Address and 2018 Budget Speech, government committed itself to establishing an "SME Innovation Fund specifically focusing on start-ups", and the National Treasury indicated a provision of R2,1 billion over the Medium-Term Expenditure Framework period to support the Fund.

### 5.5 Discontinued activities and implications for the Department

The Stellenbosch University aquaculture and Technology for Rural Education and Development projects under the Innovation for Inclusive Development Programme will be discontinued/closed-off due to progress made to date and delivery against contracts.



## 5. Report of the Accounting Officer (continued)

### 5.6 New or proposed activities and implications for the Department

There are no new or proposed activities that will be implemented in the next financial year.

### 5.7 Overview of the financial results of the Department

#### Departmental receipts

The table below shows receipts collected by the Department in the financial year under review (2017/18) and the previous financial year (2016/17).

Departmental receipts	2016/17			2017/18		
	Estimate	Actual amount collected	(Over)/Under Collection	Estimate	Actual amount collected	(Over)/Under Collection
	R'000	R'000	R'000	R'000	R'000	R'000
Sale of goods and services other than capital assets	29	57	(28)	58	60	(2)
Sale of scrap, waste and other goods	-	-	-	3	2	1
Interest, dividends and rent on land	8	9	(1)	56	34	22
Sale of capital assets	-	45	(45)	-	430	(430)
Financial transactions in assets and liabilities	6 963	8 087	(1 124)	8 072	9 774	(1 702)
<b>Total</b>	<b>7 000</b>	<b>8 198</b>	<b>(1 198)</b>	<b>8 189</b>	<b>10 298</b>	<b>(2 109)</b>

The revenue collected by the Department in the period under review was significantly higher than in the previous financial year. The increase was due to surpluses on project funds that were returned to the Department, and the sale of old vehicles that were uneconomical to maintain. The other collections were in relation to commission on insurance deducted from officials.

#### Spending trends

The Department's appropriation for the year under review was R7,557 billion, compared to R7,429 billion in

2016/17, which was a 1,7% increase from 2016/17. The minimal increase was due to baseline increases in the compensation of employees and some of the line items under transfers and subsidies.

The table below shows budget and actual expenditure per Programme for the financial year under review (2017/18) and the previous financial year (2016/17).

## 5. Report of the Accounting Officer (continued)

Departmental receipts	2017/18			2016/17		
	Estimate	Actual amount collected	(Over)/Under Collection	Estimate	Actual amount collected	(Over)/Under Collection
	R'000	R'000	R'000	R'000	R'000	R'000
Administration	342 871	338 197	4 674	356 110	332 629	23 481
Technology Innovation	1 133 760	1 116 181	17 579	1 027 588	1 016 471	11 117
International Cooperation and Resources	166 192	130 598	35 594	121 316	118 466	2 850
Research Development and Support	4 300 793	4 291 924	8 869	4 157 604	4 152 019	5 585
Socio-Economic Innovation Partnerships	1 613 613	1 612 645	968	1 766 378	1 764 009	2 369
<b>Total</b>	<b>7 557 229</b>	<b>7 489 545</b>	<b>67 685</b>	<b>7 428 996</b>	<b>7 383 594</b>	<b>45 402</b>

Since the Department was established, it has consistently spent above 90% of its budget. In the period under review, it spent 99,1% of its budget.

### Summary of budget expenditure analysis per economic classification

Details	2017/18 R'000	2017/18 %
Amount voted	7 557 229	100
Actual expenditure	7 489 545	99,1%
Unspent funds	67 685	0,9%
<b>Economic classification</b>		
Current payments	514 153	6,8%
Transfer payments	6 954 524	92,0%
Payments for capital assets	20 649	0,3%
Payments for financial assets	219	0,002%
<b>Total payments</b>	<b>7 489 545</b>	<b>99,1%</b>

### Virements

The Department effected virements amounting to R94,5 million after the Adjusted Estimates of National Expenditure process, which represents 1,3% of the adjusted budget. An amount of R50,3 million was moved between major items, and R94,5 million was moved between Programmes.

The virements under transfers and subsidies were redirected towards the Intellectual Property Fund to

capacitate offices of technology transfer, the International Centre for Genetic Engineering and Biotechnology operations and infrastructure, and human capital development at historically disadvantaged institutions.

### Supply Chain Management

The Department continued to implement the Supply Chain Management (SCM) Policy approved in the previous financial year. Over and above this, the Department follows departmentally approved SCM Guidelines and all relevant prescripts for the prevention



## 5. Report of the Accounting Officer (continued)

and detection of unauthorised, irregular, and fruitless and wasteful expenditure. The Department also developed and implemented strengthened controls within SCM, which have improved all processes in the procurement of goods and services by ensuring that transactions comply with prescripts.

The Department has functional bid management committees in place. Ad hoc bid evaluation committees were appointed depending on the goods or services required. No unsolicited bid was accepted during the year under review.

Capacity constraints in the Directorate: SCM owing to the moratorium on filling vacant positions are being addressed by providing officials with additional skills relevant to the supply chain environment, and giving them additional tasks without compromising the segregation of duties principle.

### 5.8 Gifts and donations received in kind from non-related parties

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

### 5.9 Standing Committee on Public Accounts (SCOPA) resolutions

There were no SCOPA resolutions.

### 5.10 Prior modifications to audit reports

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

### 5.11 Exemptions and deviations received from the National Treasury

No exemptions or deviations were received from the National Treasury.

### 5.12 Events after the reporting date

No significant events occurred after the reporting date.

### 5.13 Other

No other significant matters were raised during the period under review.

### 5.14 Acknowledgements and appreciation

I am grateful to Minister Kubayi-Ngubane and Deputy Minister kaMagwaza-Msibi for their guidance and support during the period under review. Thanks are also due to Minister Naledi Pandor, who led the Department for a large part of the 2017/18 financial year. I appreciate the tireless efforts of the Department's staff, including the executive team, to ensure sure that the Department's objectives were achieved, and acknowledge the dedication and support of the governance structures of the DST, the Audit Committee, the Enterprise Risk Management Committee and the various internal DST committees.

### 5.15 Conclusion

The Department will strive to achieve its objectives despite the current staff shortages.

### 5.16 Approval and sign-off

The Annual Financial Statements have been approved by the Accounting Officer.



**Dr Phil Mjwara**

Director-General

31 May 2018

## 6. Statement of responsibility and confirmation of accuracy of the Annual Report

I confirm that, to the best of my knowledge and belief –

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

In my opinion, the Annual Report fairly reflects the operations, the performance information, the human resources information and the financial affairs of the Department for the financial year ended 31 March 2018.



**Dr Phil Mjwara**

Director-General

31 May 2018

## 7. Strategic overview

### 7.1 Vision

Increased well-being and prosperity through science, technology and innovation.

### 7.2 Mission

To provide leadership, an enabling environment and resources for science, technology and innovation in support of South Africa's development.

### 7.3 Values

- **Professionalism**

The Department is professional and delivers high-quality performance to both internal and external stakeholders.

- **Innovation**

The Department is innovative in solving problems and enhancing effectiveness and efficiency.

- **Ethical behaviour**

The Department and its employees are consistent in their actions, and accountable and transparent in dealing with public funds and other resources.

- **Knowledge sharing**

The Department and its employees share and use knowledge constructively to ensure that it contributes to the building of a robust and productive knowledge economy.

## 8. Legislative mandate

### 8.1 Academy of Science of South Africa Act, 2001

This Act establishes the Academy of Science of South Africa 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; to encourage and promote innovative and independent scientific thinking; to promote the optimum intellectual development of all people; to advise and facilitate appropriate action in relation to the country's needs, opportunities and challenges; and to

link South Africa with high-level scientific communities within the Southern African Development Community, the rest of Africa and internationally.

### 8.2 Astronomy Geographic Advantage Act, 2007

This Act provides for the preservation and protection of areas in South Africa uniquely suited to optical and radio astronomy, and for intergovernmental cooperation and public consultation on matters concerning such areas.

### 8.3 Human Sciences Research Council Act, 2008

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

### 8.4 Income Tax Act, 1962

Section 11D of the Income Tax Act gives the Minister of Science and Technology authority to approve scientific and/or technological research and development undertaken or funded in South Africa for a tax deduction in order to promote private sector R&D activities in the country.

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

This Act provides for the more effective use of intellectual property emanating from publicly financed research and development, through the establishment of the National Intellectual Property Management Office, the Intellectual Property Fund, and offices of technology transfer at higher education institutions and science councils.

## 8. Legislative mandate (continued)

### 8.6 National Advisory Council on Innovation Act, 1997

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

### 8.7 National Research Foundation Act, 1998

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

### 8.8 Natural Scientific Professions Act, 2003

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

### 8.9 Scientific Research Council Act, 1988

This Act refers to the activities of the Council for Scientific and Industrial Research, which undertakes directed research and development for socio-economic growth in areas that include the built environment, defence, the environmental sciences, and biological, chemical and laser technology.

### 8.10 South African National Space Agency Act, 2008

This Act establishes the South African National Space Agency to promote space science research, cooperation in space-related activities, and the creation of an environment conducive to the development of space technologies by industry.

### 8.11 Technology Innovation Act, 2008

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

## 9. Organisational structure



*The Minister of Science and Technology*  
**Ms Mmamoloko Kubayi-Ngubane**



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



*Director-General*  
**Dr Phil Mjwara**



*Deputy Director-General: Institutional Planning and Support*  
**Mr Tommy Makhode**



*Deputy Director-General: Corporate Services*  
**Ms Nombuyiselo Mokoena**



*Deputy Director-General: International Cooperation and Resources*  
**Mr Daan du Toit**



*Deputy Director-General: Technology Innovation*  
**Mr Mmboneni Muofhe**



*Deputy Director-General: Research Development and Support*  
**Dr Thomas Auf der Heyde**



*Deputy Director-General: Socio-Economic Innovation Partnerships*  
**Mr Imraan Patel**

## 10. Entities reporting to the Minister

### 10.1 Academy of Science of South Africa



#### Overview of objectives

The Academy of Science of South Africa (ASSAf) aspires to be the apex organisation for science and scholarship in South Africa, recognised and connected both nationally and internationally. Through its membership, which represents the collective voice of the most active scholars in all fields of scholarly enquiry, ASSAf aims to generate evidence-based solutions to national problems.

As the only national science academy to be officially recognised by the South African government, ASSAf recognises and rewards excellence; promotes innovation and scholarly activity; provides effective, evidence-based scientific advice to government and other stakeholders; promotes public interest in and awareness of science and science education; and promotes national, regional and international linkages.

Some of the highlights for the period under review are set out below.

#### Membership

ASSAf currently has a membership of 541 top scholars in South Africa across diverse scientific disciplines, who could be used as a resource for evidence-based solutions to national problems.

#### Science advice

Authoritative, evidence-based studies aimed at providing scientific advice in critical areas relevant to the NDP were undertaken. Many of the Academy's current studies address the need to develop skills for a knowledge-based economy. ASSAf published four consensus study reports during the year – *Revitalising Agricultural Education and Training in South Africa*; *The State of Research, Development and Innovation of*

*Electrical Energy Efficiency Technologies in South Africa*; *Reconceptualising Health Professions Education in South Africa*; and *Grouped Peer Review of Scholarly Journals in Architecture, Built Environment and Engineering*.

#### SciELO SA

The first fully open access platform for scholarly publishing in South Africa, the Scientific Electronic Library Online (SciELO) SA Collection, is a full-text searchable database of selected, high-quality open access South African scholarly journals. SciELO SA is included in the Web of Science and Scopus search platforms, and as an index for automatic accreditation under the Department of Higher Education and Training's Research Outputs Policy.

#### International liaison

Internationally, ASSAf has strengthened collaboration with African and overseas academies of science. It continues to represent South Africa on a number of continental and global science advice bodies, including the Network of African Science Academies and the InterAcademy Partnership. ASSAf also hosts two regional offices of key international partners, namely the International Council for Science Regional Office for Africa and The World Academy of Sciences Regional Office for Sub-Saharan Africa.

### 10.2 The Council for Scientific and Industrial Research



#### Overview of objectives

The Council for Scientific and Industrial Research (CSIR) is a world-class African research and development organisation, which was established through an Act of Parliament in 1945. The CSIR undertakes directed, multidisciplinary research and technological innovation that contributes to the improved quality of life of South Africans. The organisation plays a key role in supporting



## 10. Entities reporting to the Minister (continued)

government's programmes through directed research that is aligned with the country's priorities, the organisation's mandate, and its science, engineering and technology areas of competence.

Some of the highlights for the period under review are set out below.

### Enterprise creation and development

The CSIR has assisted several enterprises through its various organisational mechanisms, including the following:

- Tshwane Bioenergy Feasibility Study: A feasibility study showed that a viable bioenergy facility could be established, resulting in both economic and environmental benefits to the City of Tshwane. The facility will use organic waste from the Tshwane Fresh Produce Market, the waste water treatment works, and garden waste to produce pure methane to power the A Re Yeng buses, carbon dioxide for the food industry, and liquid and solid fertilizer.
- A comprehensive feasibility study was conducted for the City of Tshwane Metropolitan Municipality Business Process Outsourcing and Technology Park in Hammanskraal. On completion, the park will have created more than 3 000 job opportunities for young people.
- The National Foundry Technology Network has assisted a cluster of six rural foundries in Limpopo with technology interventions to improve their processes in the most effective, environmentally friendly and economical way. The foundries are now able to produce pots faster and more economically.

### Digital opportunities

The beta model of the CSIR Meraka's Micro-enterprise Media Engine (MEME) for broadcast (Pokotong TV on the Google Play Store) with video on demand capability was made available to three South African film schools for the students to broadcast their work. A novel incubation strategy was developed around a digital media mall concept to encourage television entrepreneurs to test

the MEME technology and new business models for pan-African mobile television and film content distribution. The Department of Telecommunications and Postal Services plans to enter a partnership with the CSIR to increase youth employment in the television and film sector through SME growth.

### Resource efficiency – National Cleaner Production Centre South Africa

- Energy efficiency interventions at three Tiger Brands sites yielded a combined energy savings of 16,3 GWh and financial saving in excess of R4,4 million. An intervention at the Aspen Pharmacare plant in Port Elizabeth resulted in savings of over 1 million kWh and 25 605 kl of water.
- In respect of small, medium and micro-enterprises, the CSIR helped improve energy performance at the Lamp Factory in Silverton by 50%, and reduce steam boiler fuel consumption at the family-owned Klein River Cheese factory in Stanford by 50%.

### Mining

Six programmes of work were approved in the first phase of the South African Mining, Extraction, Research, Development and Innovation Strategy. The CSIR and the Chamber of Mines (now Minerals Council South Africa) have done significant work developing these programmes, which are on the longevity of current mining operations, mechanised drilling and blasting, 24/7 non-explosive rock breaking, advanced orebody knowledge, real-time information management systems, and successful applications of technology mapping.

The CSIR provided the South African mining industry with technical input towards compliance with legislated occupational health and safety requirements, as well as health and safety initiatives originating from mining companies. Equipment, products and samples that are vital to the health and safety of workers in South African mines were evaluated, certified and analysed to assist more than 500 mines and companies in the mining industry.

## 10. Entities reporting to the Minister (continued)

In response to a need for improved training of mine workers in the use of self-contained self-rescuers (portable oxygen sources), the CSIR has developed a novel device that enables mines to offer experiential training to all mine workers at a relatively low cost. The device was patented and a licence to manufacture it is being negotiated with a local SME.

The CSIR's Kloppersbos facility successfully completed a programme to evaluate an innovative coal dust explosion suppression product for a consortium from Australia and the USA, and assisted a South African mining company with evaluating their limestone dust product as a potential alternative to the more widely used dolomitic stone dust to prevent underground coal dust explosions.

### ICT for industrialisation

The collaboration between Meraka and the Manufacturing, Engineering and Related Services Sector Education and Training Authority is progressing well. During the reporting period, an innovative skills development platform for solar photovoltaic maintenance technicians was developed and piloted. New and emerging technologies such as blockchain, virtual and augmented reality, artificial intelligence and cyber-physical systems will be combined with advances in online learning systems and new business models to develop a platform that can scale beyond the current manual system used by the authority.

A proof-of-concept system to augment e-books with aligned human-narrated and synthesised audio was developed. There was significant interest in the new system, as it presents a unique differentiator in providing aligned audio and highlighted text in one publication.

### Incubation of national capabilities to support service delivery

Having previously completed the specifications for the Department of Home Affairs (DHA) for the future national Automatic Biometric Identification System (ABIS), in 2017/18 the CSIR assisted the DHA to select and appoint a service provider. In parallel to the implementation of the ABIS, the CSIR has now been contracted to develop the specifications for a national identity system for the DHA.

Two use cases for the prototype speech-to-speech translations system were identified (education and health domains), and a collaboration agreement was signed with a partner (Fast Academy) to develop the mobile applications to deliver the speech-to-speech services, which will be phased in. These services entail combinations of text-to-speech, automatic speech recognition, and machine translation. The education use case will deliver mathematics content in text and audio using text-to-speech via the pipeline, while the health use case will deliver all three of services via the pipeline to enable communication between healthcare professionals and patients where there are language gaps.

### Green economy solutions

Under the Waste RDI Roadmap, an open and targeted call for scholarship applications was made, as a result of which 11 master's/PhD scholarships have been funded to date. Of the students supported, 36% were women and 64% were black people.

Ten projects have been initiated to date with a strong focus on planned research and development related to technology solutions and organic waste. There is also a targeted research project aimed at mapping waste electrical and electronic equipment dismantling, pre-processing and processing technology in South Africa.

The CSIR completed the Green Economy Project Implementation Guideline for the Agricultural Sector, focusing on crop production in South Africa. Development banks and investors are critical actors in the transition to a green economy, and the CSIR has completed a reference book providing a framework for the design, evaluation and monitoring of green economy projects to help increase the impact of large investment projects and prevent investment that is marketed as environmentally friendly when it is not.

CSIR research and development outputs encouraging a move away from fossil fuel use included a project on the feasibility of generating electricity from alien invasive plants on the Agulhas Plain, and the completion of a biogas for mobility techno-feasibility study for the City



## 10. Entities reporting to the Minister (continued)

of Johannesburg, which informed decisions on the best options for biogas production for the city's new dual-fuel public transport buses. The CSIR has been working to change local-level approaches to underused municipal waste resources. A study on the best economic and regulatory instruments to be used to enhance waste separation at source, with direct relevance for the City of Johannesburg and other metropolitan cities in South Africa, was completed.

The Biorefinery Industry Development Facility was completed, and stakeholders and the media expressed strong interest and support for the facility. Furthermore, the CSIR has successfully collaborated with and completed the transfer of data, knowledge and technology improvements to Sappi. This has directly assisted in improving specialised dissolving wood pulp production at Saiccor in Umkomaas, the largest such mill in the world.

### 10.3 Human Sciences Research Council



#### Overview of objectives

The Human Sciences Research Council (HSRC) is mandated to initiate, undertake and foster strategic basic and applied policy research in the human sciences, and to gather, analyse and publish data relevant to developmental challenges in South Africa, elsewhere in Africa and in the rest of the world.

Some of the highlights for the period under review are set out below.

Of all the work that the HSRC has done, two areas deserve emphasis. The first is the alignment of the organisation's research priorities around poverty and inequality. The second is its research into urban spatial inequality.

#### Aligning research priorities around poverty and inequality

The HSRC has consolidated its work on poverty and inequality around three new research initiatives on the themes of well-being, urbanisation, development and transformative governance. Public dialogue with the University of the Western Cape resulted in the expansion of conceptual and methodological frameworks for the three flagship projects and commitments to collaborate in relevant research and informing appropriate public policies.

#### Urban spatial inequality

Spatial inequalities in urban areas are a natural consequence of income inequalities between households. The inputs made by the HSRC on urban spatial inequality focused on the following:

- The prioritisation of well-situated urban land owned by state-owned enterprises for low-cost housing and services that target the poor – to address the legacy of past exclusion and spatial inequality – before it is released for other purposes.
- The expropriation of well-situated private urban land where landowners are holding it for speculative purposes.
- The review of regulations that place too onerous a burden on informal housing and informal economic activities with a view to providing exemptions for some areas.
- The sidelining of informal traders by regulations that govern shopping mall developments in townships.
- Better oversight to regulate private development on well-situated public land to protect the public interest.
- The establishment of a coordinating structure that encompasses all role players in the land, housing and urban development spheres at national, provincial and local level.

## 10. Entities reporting to the Minister (continued)

### 10.4 National Advisory Council on Innovation



#### Overview of objectives

The National Advisory Council on Innovation (NACI), established by the National Advisory Council on Innovation Act, 1997, is a statutory advisory board that advises the Minister of Science and Technology, and through the Minister, the Cabinet, on the role and contribution of science, mathematics, innovation and technology in promoting and achieving national objectives. The NACI Act gives NACI a broad policy (advisory) mandate over all matters intrinsic to the functioning of the national system of innovation (NSI).

Some of the highlights for the period under review are set out below.

#### National Science, Technology and Innovation Information Portal

The National STI Information Portal provides an efficient mode of accessing STI data and information from various sources by integrating them into a single repository and interfacing them with other STI information systems. Some of the key features of the portal are an expert analysis section, which will include formal analytical contributions about key issues in the NSI; a statistics section that groups data according to selected topics; a digital libraries section, with links to SciELO and the UN's Sustainable Development Goals; the STI knowledge base section, will be a repository with a link to useful information on, for example, funding and grants, reports, policy briefs and strategies from selected STI institutions; and communities of practice sections, which will include blogs and will provide a platform for discussions and collaborations in understanding key issues, trends and events in the NSI.

#### Science, technology and innovation advice submitted

The Council presented its submission on the new draft White Paper on STI to the Minister on 25 July 2017. NACI submitted policy advice on the Biomass Assignment Model Within a Bio-Based Economy (Green Economy) and an evaluation of the Sector Innovation Fund programme. NACI also submitted a draft report on the Analysis of Government Support Programmes for Business Research and Innovation, and discussed this with the Director-General of Science and Technology on 17 November 2017.

### 10.5 National Research Foundation



#### Overview of objectives

The National Research Foundation (NRF) is an agency of government. Its primary objective is to contribute to the improvement of the quality of life of all the people of the country through the promotion of a knowledge economy based on the generation, transfer and use of knowledge. The organisation therefore promotes and supports research through the provision of grants and bursaries, research infrastructure, international and industry collaboration opportunities and mobility through all the stages of a researcher's career, across the spectrum of basic, applied, and strategic research, with an appropriate mix of programmes and funding mechanisms, in alignment to national priorities. The NRF also supports and promotes awareness of and engagement with science to improve the level of science literacy and public participation in science, technology, engineering, mathematics and innovation. Below are some highlights for the period under review.

## 10. Entities reporting to the Minister (continued)

### **Proactive leadership, consistent service excellence and stakeholder relations**

A number of training interventions were facilitated through the Science Granting Councils Initiative in Sub-Saharan Africa, which was established to strengthen the ability of science granting councils to manage research, design and monitor research programmes based on robust indicators, support science engagement, and establish partnerships with other role players in their respective science sectors.

### **Employment equity targets**

For the period under review, the overall black staff representation was 71,2% against a target of 76%, with female representation at 40,9% and people with disabilities at 0,6%.

### **Research outputs**

The number of publications in the period under review was 574, a record and well above the previous year's achievement of 458. The overall citation impact for the programme is 1,47, a 17% improvement over the past five years.

### **Strategic investments**

R734,3 million was invested in the South African Research Chairs Initiative (SARChI) and the Centres of Excellence (CoEs). Currently, 215 research chairs are operational. For the period under review, approximately 1 900 postgraduate students (more than 50% female and 61% black) were supported by SARChI and the CoEs.

### **Biodiversity, environmental and conservation sciences**

The team at the South African Environmental Observation Network (SAEON) Fynbos Node published an article in the Proceedings of the National Academy of Sciences of the United States of America, that indicates the first evidence of climate change impact on Fynbos biodiversity, and highlights the interaction between fire and climate change, which is of interest for flammable ecosystems around the world.

The South African Institute for Aquatic Biodiversity (SAIAB) coordinates a multi-institutional collaboration funded by the Water Research Commission to develop emerging freshwater biologists. Students from SAIAB, Cape Nature, the Centre for Invasion Biology, the Freshwater Research Centre and the universities of Venda, the Western Cape, Fort Hare, Stellenbosch and Rhodes have benefited from the project to date.

SAIAB researchers are collaborating with scientists from Norway, Canada, France, Australia and Seychelles to study the movement patterns and behaviour of many coastal fishery species, sharks and stingrays, using acoustic telemetry technology. SAIAB also hosts the National Acoustic Tracking Array Platform (a partner of the Canadian-based Ocean Tracking Network project), which collects data on aquatic animals tagged by no less than 12 local organisations.

### **Astronomy and geosciences**

Science output at the South African Astronomical Observatory (SAAO) in the period under review comprised 116 peer-reviewed papers and 45 based on Southern African Large Telescope (SALT) data.

Both SAAO and SALT featured highly in the astronomical event of 2017, and perhaps the biggest single international collaborative astronomy event of all time: the multiwavelength observation of a gravitational wave (GW170817) linked to a binary neutron-star merger. Multi-messenger astrophysics was born with this event, as it was the first time both gravitational waves and electromagnetic radiation (light) were observed and studied from the same source.

The modernisation of SAAO telescopes and instruments in Sutherland is in progress. Key milestones were establishing the remote observation capabilities for the 1,0 m and 1,9 m telescopes, and the commissioning of the new Lesedi telescope. A remote observing station in Cape Town is being commissioned for all SAAO telescopes. A new multimillion-rand telescope in the Karoo will offer astronomers an unprecedented view of the stars.

## 10. Entities reporting to the Minister (continued)

In October 2017, MeerKAT observations were used in a paper published in *The Astrophysical Journal Letters* reporting electromagnetic observations of a pair of inspiralling neutron stars detected by the Laser Interferometer Gravitational-wave Observatory (in the United States of America) and the Virgo detector at the European Gravitational Observatory (in Italy).

The MeerKAT corporate goal has been achieved in terms of the completion of the construction of the telescope. By 31 March 2018 the South African Radio Astronomy Observatory (SARAO) team demonstrated the science readiness of the entire MeerKAT signal processing chain by successfully observing a calibrator source using the SKARAB correlator, showing that the required system components have been successfully integrated to an appropriate level. The team must still obtain a successful Large Survey Project (LSP) observation that is considered acceptable by the LSP's Principal Investigator.

The European Space Agency (ESA) requested the Hartebeesthoek Radio Astronomy Observatory to host a Global Navigation Satellite System reference station for them. After a year of preparation, the system was installed on 22 September 2017, and data is streaming to the ESA repository. A second system was installed at the Matjiesfontein site in March 2018. ESA confirmed that the data meets the required standards.

### 10.6 South African Council for Natural Scientific Professions



#### Overview of objectives

The South African Council for Natural Scientific Professions (SACNASP) is the regulatory body for natural science practitioners (professional natural scientists, natural scientists in training, natural science technologists and natural science technologists in training) in South Africa.

Some of the highlights for the period under review are set out below.

#### Highlights in the period under review

There were 2 045 new registrations at SACNASP in 2017/18, with the number of registered scientists totalling 12 713 at the end of the financial year.

In terms of key stakeholder engagement, SACNASP has focused on industry, government, academia and the recognised voluntary associations. SACNASP is in discussions with DST entities with the aim of allowing the registered scientists to be more involved in some of their work and to contribute to the national agenda. The entities include the South African Agency for Science and Technology Advancement (the promotion of science), the South African National Space Agency (training of scientists) and the Council for Scientific and Industrial Research (continuing professional development (CPD) courses, specifically at the Biomanufacturing Industry Development Centre). The entities are starting to realise the value of engaging with scientists on the SACNASP database.

SACNASP has also been in discussions with government departments regarding the registration of scientists working in their departments. These include the DST, where SACNASP accompanied and represented the Department at some of its engagements and discussions on the new White Paper on Science, Technology and Innovation. It is participating in the Basic Sciences Platform meetings arranged by the DST in support of strengthening the basic sciences. SACNASP also assists the Department of Home Affairs with critical skill evaluations in the natural sciences. The organisation is part of the steering committee that the Department of Water and Sanitation has established to review their candidate learnership programme, and is also advising the Department of Public Works in a similar project. There is an ongoing relationship between SACNASP and the Department of Agriculture, Forestry and Fisheries on the registration of extension scientists, and the Department of Environmental Affairs on the governance of environmental matters. SACNASP has also been engaging with the Department of Public Works on their Water Care Candidacy Mentoring Programme. SACNASP is working with various government departments on

## 10. Entities reporting to the Minister (continued)

mentoring programmes and is also developing its own candidate mentoring framework.

SACNASP has engaged with the Department of Higher Education and Training on the South African National Qualifications Framework, and signed a memorandum of understanding with the South African Qualifications Authority on collaboration in terms of international qualifications. SACNASP is discussing CPD programmes with higher education institutions like the University of Pretoria, and the registration of scientists with gaps in their science qualifications with the Pearson Institute of Higher Education. Further engagements have taken place with the University of South Africa and the University of Limpopo on the registration of academic staff and CPD. SACNASP also engaged with Pick n Pay on the professional registration of their scientific staff in this financial year.

In terms of other professional bodies, SACNASP has actively engaged the South African Veterinary Council on SACNASP-registered scientists working with animals. SACNASP has and is represented on the National Science and Technology Forum discussion forum for professionals in science, engineering and technology (proSET).

At the request of scientists, SACNASP has commenced networking sessions in all provinces. Two were held during the 2017/18 financial year, one in the Western Cape and one in KwaZulu-Natal. Both events were well attended and there was lively dialogue, especially on issues pertaining to CPD. SACNASP was also an active participant in the Women in Science Networking programme held in Midrand and hosted by the Eskom Women Advancement Programme. This was done in partnership with the National Research Foundation and Mintek.

SACNASP regularly attends conferences and workshops held by voluntary associations to assist them with professional registration and CPD, and has developed a new CPD scientist and service provider website. SACNASP presented two sessions at the Science Forum South Africa 2017, namely, "Determining the competency of professional natural scientists" and

"The role of a professional registering body and its constituent voluntary associations in the national system of innovation". Both sessions were fully subscribed and stimulated lively debate.

The youth was prioritised in 2017/18, with SACNASP starting free student enrolment at higher education institutions. SACNASP visited the University of Johannesburg, the University of Pretoria, Tshwane University of Technology, the University of the Free State, the Central University of Technology, the University of Mpumalanga and North-West University. The programme will see students gaining access to science networks, information and the voluntary associations aligned to SACNASP. The organisation also participated in school science festivals, including the 4th Annual Rural Education Festival held at the Tivumbeni Multipurpose Centre in Nkowankowa, Limpopo, a P-STEM Foundation event in Rustenburg, and Scifest Africa in Grahamstown.

SACNASP has maintained strict financial control and prudent budgeting, and ended the financial year with a budget surplus. However, the downturn in the economy has resulted in some job losses in the scientific community, and some registered scientists have struggled to pay their annual registration fees. SACNASP started the process of writing off debt and removing from the database registered scientists who have not paid their fees for more than a year. The non-payment of annual fees is a concern that needs to be addressed going forward, as registration fees are SACNASP's principal source of income. However, the DST has provided substantial assistance with a R12,6 million grant over a three-year period (ending in February 2019), which is being used for DST-approved projects. One of the key projects that is nearing completion is a report on SACNASP and the voluntary associations, which has been prepared by the HSRC on behalf of SACNASP. The report highlights the role of the voluntary associations in skills development, knowledge production and transformation, explains challenges experienced in the STEM environment, and provides recommendations for SACNASP and the DST.



## 10. Entities reporting to the Minister (continued)

In terms of governance, SACNASP focused on ensuring that key policies were updated and put in place. The Council approved six policies in the 2017/18 financial year, introduced a document management system to ensure greater efficiency at meetings, and upgraded the database to create an improved system to comply with South African Qualifications Authority requirements for data for the National Learner Records Database.

One of the key mandates of SACNASP is to protect the public against unprofessional conduct. Natural scientists registered with SACNASP must adhere to a strict code of conduct which is enforced by the Council's Professional Conduct Committee. In the 2017/18 financial year, this committee dealt with 11 cases of alleged transgressions of the code of conduct by registered members. Of these, seven cases were investigated and concluded, one was referred to another council, two were not taken further after due consideration, and one was still under investigation.

### 10.7 South African National Space Agency



#### Overview of objectives

The South African National Space Agency (SANSA) is mandated to promote the peaceful use of space; support the creation of an environment conducive to industrial development in space technology; foster research in space science, communications, navigation and space physics; advance scientific, engineering and technological competencies and capabilities through human capital development, outreach programmes and infrastructure development; and foster international cooperation in space-related activities.

Some of the highlights for the period under review are set out below.

#### Space technology for socio-economic benefit

SANSA provides space weather knowledge, expertise, products and services through the SANSA Space Weather Centre, which is the only Regional Warning Centre for Africa under the International Space Environment Service.

SANSA is also the only organisation performing compass swings in South Africa, making it an invaluable service to the nation and ensuring the safety of thousands of planes every year. SANSA conducted 10 aircraft compass swing courses last year and calibrated 47 compasses for private aviation companies and the South African Air Force (SAAF) at the magnetically clean facility in Hermanus. The programme has produced excellent technicians, including SANSA's own course instructor, who today trains other technicians after 12 years of experience in the SAAF. The compass swing courses, which are accredited by the Civil Aviation Authority, form part of a contract that SANSA has with the SAAF to provide magnetic technology services. The courses contribute significantly to the training of defence personnel in South Africa, and result in the appropriate knowledge and skills being developed for the security of the nation.

An important part of the government's Nine-Point Plan is revitalising agriculture and the agroprocessing value-chain by increasing support for existing smallholder farmers, and exploring ways to substantially expand the number of agricultural producers. Lack of access to actionable information inhibits agricultural growth, and crop monitoring products (such as Crop Arable Land Fraction and Crop Anomalies) and biophysical products (such as Chlorophyll Content and Canopy Water Content) were therefore produced and distributed to stakeholders to support crop monitoring activities during the 2016/17 and 2017/18 summer growing seasons. The stakeholders included Mobbisurance, an SME that uses data obtained from satellites to insure smallholder farmers against weather-related risks, Senwes, an agricultural company, and the Grain Farmer Development Association. The Grain Farmer Development Association received crop monitoring products on a weekly basis for use in precision farming.

## 10. Entities reporting to the Minister (continued)

SANSA raised awareness of the value of Earth observation for agriculture through a policy brief titled "Earth Observation Technologies in Support of Agriculture and Food Security". SANSA worked with the National Disaster Management Centre, an entity of the Department of Cooperative Governance and Traditional Affairs, on a campaign aimed at creating disaster awareness across five district municipalities – in Limpopo, the North West, the Eastern Cape, Mpumalanga and the Northern Cape.

In April 2018, South Africa's latest F'SATI CubeSat, ZACube-2, was sent to the Netherlands to be integrated with other cube satellites before going to India for launch on an Indian Space Research Organisation PSLV flight in July 2018. ZACube-2 is a triple unit CubeSat which is three times the size of its predecessor, and will monitor marine traffic along the South African coast as part of the Oceans Phakisa. This will help to protect South Africa's exclusive economic zone and improve the safety of ships. ZACube-2 also has an advanced camera for detecting forest and veld fires. ZACube-2 was contracted through SANSA and developed through the French South African Institute of Technology (F'SATI) at the Cape Peninsula University of Technology, in collaboration with Stellenbosch University and the broader space industry.

### **Conducting cutting-edge research, development and innovation**

Nine conference papers were presented at the 37th International Symposium on Remote Sensing of Environment, which was hosted by SANSA in May 2017 under the theme "Earth Observation for Development and Adaptation to a Changing World". The papers covered areas such as satellite sensor design, ground segment development, human settlement mapping in support of sustainable development, food security and monitoring mining impacts.

The new, internationally accepted Landsat 8 and Landsat 5 processing software developed by SANSA scientists will significantly reduce software purchasing and licensing costs. It will help support near real-time Landsat applications, and fast-track the delivery of Landsat image products to stakeholders.

The 2017/18 financial year was SANSA's third year of observing sprites, first from Sutherland where the initial images were captured, and in 2018 in Carnarvon in the Northern Cape. Sprites are large-scale electrical discharges that occur above active thunderstorm systems and are associated with cloud-to-ground lightning strikes. The SANSA team observed sprites from two locations simultaneously, which allowed them to triangulate the position and height of the sprites, to determine how they relate to the position of the parent lightning strike. During February 2018, within three nights, the team recorded 150 sprites, which is an unusually high number. Future plans include setting up a low-frequency electric field array in the Karoo to record lightning strikes in real-time and with greater accuracy. This would help establish which types of lightning strikes cause different types of sprites, and shed light on the mechanisms of sprite formation.

SANSA also delivered policy support tools to advise government on space policy and global technology trends. In 2017/18, the topics covered were the size and health of the South African space sector and proposed growth; Earth observation and food security; and safety and security applications from a magnetically clean environment.

### **Building capacity and public engagement**

SANSA's science advancement programme reached approximately 23 000 learners in schools across the country in the year under review. Outreach teams visited schools and learners in all provinces to educate them about Earth observation, space science and space industry careers. The team conducted science experiments with learners in their school laboratories, or from the SANSA mobile lab, to provide them with first-hand experience of some of the science behind what is being done at SANSA. The programme aims to inspire young people to study science and technology with a clear view of how these fields impact society.

SANSA's bursary programme funds about 71 postgraduate students annually, to create the future capacity needed for the country's space programme and the broader knowledge economy. Of the students

## 10. Entities reporting to the Minister (continued)

supported, 78 per cent are classified as historically disadvantaged individuals. The success of the student development programme is to a great extent the result of strong recruitment campaigns and relationship management with local universities. SANSa partners with universities around South Africa to support space research, and collaborates internationally on various projects and initiatives to ensure that the agency has a global presence.

### Positioning SANSa as a space player

To remain up to date with the latest Global Navigation Satellite System (GNSS) technology and its applications, SANSa officials attended the European Navigation Conference in Switzerland in May 2017. The conference provided an opportunity for SANSa to meet with key GNSS stakeholders, including GMV from Spain, which introduced its satellite-based augmentation systems (SBAS) specifically aimed at nations requiring a low-cost implementation solution for SBAS. The system is currently deployed in Australia. GMV's implementation is similar to SANSa's implementation of SBAS-Africa. Subsequent meetings with Avanti PLC in London enabled the case for SBAS-Africa to be presented using the logic of the GMV proposal. The SBAS-Africa proposal is in the planning phase for submission when the International Partnership Programme of the UK Space Agency makes its next call for funding applications.

SANSa, in collaboration with the DST and Department of Trade and Industry, held a Space for National Development Week at the Hartebeesthoek facility. The objective of the week was to engage Earth observation, space science and space engineering stakeholders at all levels in a celebration of achievements of the South African space community, to forge new collaborative partnerships and to communicate to young people, policy and decision makers about the use of space for sustainable development.

SANSa representatives attended the 2017 AfriGEOSS Symposium held in Ghana in June 2017. This symposium took place under the theme "Delivering Earth observation for policy and sustainable societal impact in Africa" and was hosted by Ghana's University of Energy

and Natural Resources, which was established in 2011 and has a rapidly developing faculty in remote sensing and Earth observation (EO). AfriGEOSS is an initiative of the Group on Earth Observations African community aimed at providing a coordination and collaboration network for the development and uptake of EO systems, data, information and knowledge critical to improving the socio-economic status of Africa. The symposium was attended by representatives from space agencies, regional organisations, private research, academia and public institutions from 31 countries.

The partnership agreement between the New Partnership for Africa's Development (NEPAD) and SANSa provided a platform to demonstrate the value of EO science and technology on the African continent. SANSa is developing a web geoportal for NEPAD that will allow African countries to track development indicators towards the attainment of the African Union's Agenda 2063 goals and the United Nation's Sustainable Development Goals.

SANSa won the bid to host the 16th International Space Operations Conference in 2020 in South Africa for the first time. This prestigious global event has been held biennially since 1990. SANSa has actively pursued the opportunity to showcase South Africa's space capabilities for a number of years. SANSa participated in the 68th International Astronautical Congress in Australia in partnership with the Department of Trade and Industry, the DST and SKA SA, with a custom-built South African pavilion exhibition. South Africa's space industry players and the space engineering capability in South African universities was displayed, and SANSa participated in a key plenary session on the role of space agencies in support of emerging countries, as well as participating in the International Space Education Board Heads of Agency question-and-answer session with students.



## 10. Entities reporting to the Minister (continued)

### 10.8 Technology Innovation Agency



#### Overview of objectives

TIA is mandated to provide customer-centric technology development funding and support, to provide an enabling environment for technology innovation in collaboration with other role players, and to develop an effective and efficient internal environment for the execution of the strategy.

Some of the highlights for the period under review are set out below.

#### PST Sensors

PST Sensors is a spin-off company from the University of Cape Town which has been supported by TIA to develop printed electronics and temperature-sensing technology. The company attracted interest from the Industrial Development Corporation (IDC), which committed R15m to PST Sensors to upscale and commercialise its technology. A funding agreement in this regard was signed on 26 July 2017. Follow-on funding from another investor for a TIA-funded project is an important milestone, and illustrates TIA's role in the national system of innovation as an active funder, enabler, facilitator and connector. It also highlights the collaboration and cooperation among different funders in the country.

The requirements for determining and conveying temperature information are as diverse as the sectors in which this information is essential. The disadvantages of traditional temperature sensors, which can provide imprecise or inaccurate information because of poor thermal coupling owing to the small footprint and undesirable shape of the sensors, and self-heating, are overcome by the low power consumption and low thermal mass of the PST Sensors technology.

#### Enhancing South Africa's genomics capabilities

In June 2017, TIA and the University of Kwazulu-Natal concluded an agreement that resulted in the formation of the KwaZulu-Natal Research and Innovation Sequencing Platform (KRISP). This agreement demonstrates TIA's ongoing commitment to building South Africa's long-term strategic capabilities and supporting the Bioeconomy by investing in a genomics technology platform.

KRISP is a TIA-funded technology platform created to deliver services to its clients around three business areas:

- The Omics programme, which includes work on genomics, bioinformatics and epigenetic enablers, focuses on providing services to academic and R&D clients to generate scientific publications, innovations and intellectual property by deploying a professional team of grant managers, scientists and laboratory staff that can help to design, fund, generate and analyse omics data.
- The next-generation diagnostics programme focuses on providing DNA diagnostic testing to academic and commercial clients (such as pathology laboratories, pharmaceutical companies and clinicians). KRISP uses the latest technologies currently in the market, including next-generation sequencers and digital/nanodrop and direct polymerase chain reactions, to develop novel diagnostic solutions.
- The training and capacity building programme focuses on providing short specialised courses in genomics, bioinformatics and epigenetics that are designed for researchers and commercial clients.

#### Launch of Chemical Process Technologies Pharma

The Chemical Process Technologies (CPT) Pharma project contributes to the Bio-economy Strategy by supporting research, development and innovation in local pharmaceutical manufacturing, which is critical to enhance South Africa's competitiveness in the global pharmaceutical industry. The ongoing collaboration of

## 10. Entities reporting to the Minister (continued)

industry partners with science councils, universities and government is important in coordinating pharmaceutical initiatives in the national system of innovation, and CPT Pharma is an ideal partner for the development and commercialisation of innovative technologies from these organisations.

On 10 November 2017, Chemical Process Technologies (Pty) Ltd, in partnership with TIA and the IDC, launched a pilot plant facility in Waltloo, Pretoria. The pilot plant will be used to demonstrate and scale up innovative synthesis technologies developed by CPT for the manufacture of active pharmaceutical ingredients (the active components in drug formulations).

A pre-feasibility study under way includes the construction of a current Good Manufacturing Practice compliant pilot plant to scale up the production process, and the manufacture of batches for stability testing that are required for regulatory registration purposes. The pilot facility is an important step in developing a full-scale commercial plant that could contribute to national priorities to enable local manufacturing and job creation. Over and above the benefit of import replacement, the local supply of active pharmaceutical ingredients will provide local pharmaceutical manufactures with a shorter supply chain and lower quality control costs, as well as addressing security of supply issues.

### **Electric Vehicle Industry Association Conference 2017**

The annual Electric Vehicle Industry Association was held on 6 December 2017 in Sandton. This national platform brings together government departments and agencies, electric vehicle original equipment manufacturers, electricity suppliers, electric vehicle equipment suppliers and smart-grid service providers, as well as users, and aims to promote collaboration through a network of expertise to shape the future of electric mobility in South Africa.

Various stakeholders made presentations on developments in the electric vehicle industry in South Africa, electric mobility in Africa, tax reduction possibilities, and electric vehicle imports, and on

creating a favourable environment to enable the use of clean mobility in South Africa. The conference provided opportunities for engagement with new stakeholders wanting to commercialise their products and services, and for discussions on cooperation between the public and private sectors on technologies for electric mobility that could be integrated into smart cities in South Africa.

The event also provided an opportunity to present the uYilo eMobility Technology Innovation Programme's smart-grid project, which is piloting a second-life electric vehicle battery and supporting energy management system.

### **Novelquip Forestry**

Novelquip Forestry's unique plantation establishment systems are making significant progress internationally. The company's flagship product, known as the ProPlant, is a world first, fully mechanised and modernised tree-planting machine, complete with precision agriculture technologies that allow foresters to make operations more productive, efficient and environmentally friendly.

The ProPlant combines five planting operations (soil preparation, gel/water application, fertilizer application, seedling planting and the application of chemical weed killers which are currently performed separately, into one, safe, cost-effective solution. The ProPlant significantly reduces costs and increases yields.

Novelquip Forestry is an excellent example of how different government funding institutions like the IDC and TIA can complement one another and work together with industry to commercialise South African-developed innovations for the international market. Through collaboration between the IDC and TIA, Novelquip Forestry has been able to strategically align itself with Fibria Cellulose (one of the world's largest pulp producers) in Brazil to expedite the technology validation and market entry of this South African innovation.

### **Cardioflow**

Cardioflow is a portable, handheld, point-of-care screening device able to identify patients at risk of cardiovascular disease. It is envisaged that this device will

## 10. Entities reporting to the Minister (continued)

be an excellent screening tool in the primary health care sector, given its ease of use and rapid feedback process. Once completed, it will be adopted by the 4 200 primary health care clinics in South Africa, being of particular benefit to communities without access to advanced health care facilities.

The technology may in the future be applied more broadly to vascular ultrasound to allow screening for vascular disease in the abdomen (such as kidney arteries or abdominal aortic aneurysms) the identification of blood clots in the veins of the arms and legs (deep vein thrombosis), offering further value to the primary health care sector.

### **Contribution to the African agenda**

TIA has worked closely with the DST in the past years to host information exchange activities for many delegations from the continent. Many African countries have now embraced innovation as an important instrument in their economic development policy mix.

In addition, leveraging from the DST's arsenal of bilateral partnerships, TIA has established a landmark programme with Finland, the South African Innovation Support

programme. This programme aims to promote regional innovation in SADC, connecting the ecosystems of the countries in the region and building the capacity of many of South Africa's innovation support intermediaries such as incubators, technology parks and other enterprise development organisations throughout the country.

### **Using genomics to tackle blood disorders in Africa**

To date, registries across the world inadequately feature African donors in number and Human Leukocyte Antigen (HLA) typing resolution. For a blood disorder patient of African descent, this significantly diminishes his or her chance of finding a lifesaving donor. This problem can be addressed by recruiting many healthy African stem cell donors; creating adequate molecular profiles of these donors; and facilitating donor matchmaking through a proper African registry. In addition, genetic profiling of the immune system will enhance the success rate of cutting-edge new immunotherapies that are currently being tested or developed. This approach will make these applications available to people of African descent in an unprecedented manner.



# **PART B**

## PERFORMANCE INFORMATION

# PART B: PERFORMANCE INFORMATION

## 1. Auditor-General's Report: Predetermined objectives

The Auditor-General currently performs certain audit procedures on the performance information to provide reasonable assurance in the form of an audit conclusion. The audit conclusion on the performance against predetermined objectives is included in the report to management, with material findings being reported

under the Predetermined Objectives heading in the Report on other legal and regulatory requirements section of the auditor's report. Refer to page 142 for the Report of the Auditor-General, published in Part E: Financial Information.

## 2. Overview of departmental performance

### 2.1 Service delivery environment

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

The DST, as the custodial coordinator for the development of the NSI, influences the NSI through key strategies such as the 2002 National Research and Development Strategy and the 2008 Ten-Year Innovation Plan. The latter, particularly, seeks to contribute to transforming the South African economy into a knowledge-based economy, in which the production and dissemination of knowledge lead to economic benefits and enrich all fields of human endeavour. In this regard, the measure of success will be the level to which STI plays a driving role in enhancing productivity, economic growth and socio-economic development.

### 2.2 Alignment with broader government policies

The importance of STI is increasingly occupying government's developmental agenda. STI are now included in significant government initiatives such as Operation Phakisa, and recognised as cross-cutters in government's Nine-Point Plan. In planning for the 2017/18 financial year, the Department began communicating ways in which its work and the NSI could contribute to the realisation of broader government initiatives, such as those emphasised in the National Development Plan (NDP).

Internationally, science, technology and innovation are recognised as future sources of economic growth, with the potential to create new kinds of jobs and new solutions to challenges like poverty, disease and water shortages. The NDP highlights the centrality of STI in national development, and acknowledges that STI should play a vital role in addressing poverty, unemployment and inequality.

Research capacity is the fuel that drives the NSI. The DST has made substantial progress in enhancing knowledge production, growing and transforming the pool of knowledge workers, and exploiting knowledge for development. Increasing the number of researchers in

## 2. Overview of departmental performance (continued)

South Africa and enhancing research innovation outputs are vital to the country's international competitiveness. During the reporting period, the DST made substantial investments in instruments aimed at boosting human capital development (HCD) in priority areas. The key instruments in this regard are the Centres of Excellence Programme and the South African Research Chairs Initiative (SARCHI). The NDP sets a target of 100 000 PhDs by 2030 to improve research and innovation capacity; this translates into 5 000 PhD graduates per annum. The Annual Report provides more details in the programme performance section.

The NDP notes that developments in STI fundamentally alter the way people live, communicate and transact,

with profound effects on economic growth and development. STI is vital for equitable economic growth, underpinning economic advances and improvements in health systems, education and infrastructure. The NDP argues that countries able to tackle poverty effectively by growing their economies are characterised by strong STI. The NDP acknowledges that economic development takes time and that innovation should grow in years to come.

### 2.3 Service delivery improvement plan

The Department has completed a service delivery improvement plan. The table below highlights the achievements to date.

**Table 1: Main services and standards**

Main services	Beneficiaries	Current/actual standard of service	Desired standard of service	Actual achievement
Provide funding to institutions and agencies to support technology solutions in the areas of space science, energy and biosciences	Public research institutions, science councils, universities and entities	All funding transferred by the end of the financial year	All funding transferred by the end of March of each financial year	All funding transferred by the end of the financial year
Financially support offices of technology transfer (OTTs) located at higher education institutions and science councils	Recipients include 26 higher education institutions and 11 Schedule 1 institutions as per the Intellectual Property Rights from Publicly Financed Research and Development Act	OTTs financially supported by the end of the financial year	OTTs financially supported by the end of each financial year	OTTs financially supported by the end of the financial year

## 2. Overview of departmental performance (continued)

**Table 1: Main services and standards (continued)**

Main services	Beneficiaries	Current/actual standard of service	Desired standard of service	Actual achievement
Support uptake of space applications by government departments and agencies	Government departments (national, provincial and local) and agencies	<ul style="list-style-type: none"> <li>National geospatial decision-support tool</li> <li>Base maps for national land use and cover layer (human settlement layer, water bodies layer, disaster management and national vegetation maps)</li> <li>Coordination of national Earth observation activities and promotion of the uptake of Earth observation applications</li> </ul>	<ul style="list-style-type: none"> <li>Up-to-date national geospatial decision-support tool</li> <li>Up-to-date base maps for national land use and cover layer (human settlement layer, water bodies layer, disaster management and national vegetation maps)</li> <li>Better coordination and increased uptake of Earth observation applications</li> </ul>	National Space Development held in Gauteng at SANSA space operations for the coordination of national Earth observation activities and promotion of the uptake of Earth observation applications
Postgraduate bursary support	University students (honours, master's, doctoral) and postdoctoral researchers	Support provided to about 8% of total enrolled postgraduate students in universities	To double the percentage of postgraduate students supported	Total of 10 601 pipeline postgraduate students and 3 621 doctoral students supported in 2017/18
Placement of graduates and postgraduate students in SET institutions for workplace experience	Graduates and postgraduate students	Support provided to about 15% of qualifying graduates	To provide support to about 30% of qualifying graduates	Support provided to 823 graduates in 2017/18
Research grants to researchers	Researchers in universities, science councils and other national research facilities	Support provided to about three out of every 10 qualifying researchers	To double the support to about six out of 10 qualifying researchers	4 707 researchers supported in 2017/18
Financial and strategic support of R&D initiatives that will lead to publications, patents and prototypes	Universities, science councils, public-private partnerships	Ongoing support provided to R&D and demonstration of technology-based solutions with the intention of promoting their commercialisation and use	To facilitate knowledge generation and exploitation through R&D in key priority areas	The number of publications, patents and prototypes will be updated on the PIMS report



## 2. Overview of departmental performance (continued)

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

Current/actual arrangement	Desired arrangement	Actual achievement
Protection, Promotion, Development and Management of Indigenous Knowledge Bill (IK Bill)	Public awareness campaign on the Protection, Promotion, Development and Management of Indigenous Knowledge Bill prior to the public hearings, and awareness of the rights of beneficiaries after the Bill comes into force	During the period under review, the DST facilitated the approval of the National Assembly that the Protection, Promotion, Development and Management of Indigenous Knowledge Bill go the National Council of Provinces for concurrence.
Stakeholders and role players in STI awareness and engagement invited to submit project proposals	Grant funding awarded in response to proposals to organise activities throughout the country	93 organisations awarded grants to conduct the 2017 National Science Week and science festivals.
Institutions and agencies submit research and development (R&D) project proposals and business plans. These are evaluated and approved by the Department and funding is transferred once approval is obtained.	No change required	Institutions and agencies submitted R&D project proposals and business plans. These were evaluated and approved by the Department and funding was transferred once approval had been obtained.
Space awareness and advocacy	Public awareness campaigns to attract students, private companies and spin-offs to the benefits of space science and technology	One United Nations Basic Space Technology Initiative symposium was held in the Western Cape.
The administration process for the R&D tax incentive is being simplified and turnaround times for providing decisions on applications are being improved.	Actions should be reviewed and formulated on the basis of recommendations to improve incentive administration made by the government-industry task team	<ul style="list-style-type: none"> <li>• Actions taken in response to recommendations presented by the government-industry task team to improve the administration of the incentive</li> <li>• Awareness among applicants increased</li> <li>• Staff capacity for administering the incentive expanded</li> <li>• Consultations initiated with the National Treasury on actions that have tax policy implications</li> </ul>

## 2. Overview of departmental performance (continued)

**Table 3: Service delivery information tool**

Current/actual information tool	Desired information tool	Actual achievement
Advocacy communication strategy	Implementation plan for dissemination	Strategy approved by the DST Executive Committee (Exco)
Ministerial guidelines on awarding bursaries	A reporting framework on ministerial guidelines	Annual reporting on progress with implementation of ministerial guidelines
Communication strategy, including exhibitions and media	Implementation plan for dissemination, including exhibitions and media	<ul style="list-style-type: none"> <li>Strategy approved by Exco</li> <li>Exhibitions held at all public participation programmes, and media successfully used</li> </ul>

**Table 4: Complaints mechanism**

Current/actual complaints mechanism	Desired complaints mechanism	Actual achievement
The National Research Foundation (NRF) has an appeal process for postgraduate students who are not awarded bursaries.	Panel of experts	Appeal framework reviewed by NRF
The NRF does not have an appeal process for applicants who are not selected for internships, as the selection of interns is conducted by host institutions.	No change desired	As per the current/actual arrangement
The NRF has an appeal process for researchers who are not awarded grants.	Panel of experts	Appeal framework reviewed by NRF
Technology Innovation Agency	Appeals procedure	Appeals procedure in implementation
The National Intellectual Property Management Office (NIPMO) has a dispute mechanism for administrative decisions it takes that may adversely affect a recipient.	Dispute panel	Dispute panel in place, with approved terms of reference and rules of procedure, as mandated by the Intellectual Property Rights from Publicly Financed Research and Development Act

### 2.4 Organisational environment

The DST is operating within a changing environment that includes government fiscal constraints and low economic growth, caused principally by a global slow-down in the demand for resources, as well as various domestic factors. The outlook for a significant increase in public and private sector investment in research and development over the medium term remains poor. In line with the approved 2017/18 Annual Performance Plan and a budget of R7,6 billion, changes in the STI policy environment during the period under review were informed by priorities identified in the DST Strategic Plan 2015-2020, the Medium Term Strategic Framework, the Government Programme of Action and the Nine-Point Plan. These are the priorities of government to address

economic growth in South Africa as defined in the NDP. The DST supports the Nine-Point Plan, which is aimed at diversifying and stimulating the economy through a number of initiatives as articulated in the planning instruments.

### 2.5 Key policy developments and legislative changes

The DST initiated the following key policy developments during the 2017/18 financial year:

#### Indigenous Knowledge Bill

During the period under review, the DST facilitated the approval of the National Assembly that the Protection, Promotion, Development and Management of Indigenous Knowledge Bill go to the National Council

## 2. Overview of departmental performance (continued)

of Provinces for concurrence. The Bill puts in place mechanisms to facilitate economic growth through the Bio-economy Strategy in the form of economic spin-offs from the protection of intellectual property related to indigenous cultural heritage. The application of such knowledge can alleviate poverty in communities, ensuring the fair and equitable sharing of economic benefits arising from the use of indigenous knowledge. Various indigenous knowledge projects create business opportunities and uplift especially marginalised communities.

### **National Research Foundation Act Amendment Bill**

During the reporting period, the Portfolio Committee on Science and Technology processed the Bill, and approved its tabling in the National Assembly. The Bill was introduced to Parliament as the last step towards approval by the President and promulgation. The Bill amends the NRF Act to clarify the Minister's regulatory powers and broaden the mandate of the NRF to include science engagement.

### **Regulations to protect the Karoo Central Astronomy Advantage Areas**

The Minister published the final Regulations on the Protection of the Karoo Central Astronomy Advantage Areas in terms of the Astronomy Geographic Advantage Act on 15 December 2017, after extensive consultation with stakeholders and having obtained the concurrence of the Independent Communications Authority of South Africa and the Minister of Finance. These Regulations will become operational on a date to be determined by the Minister by notice in the *Government Gazette* within a year of the date of their publication.

During the reporting period, the South African Radio Astronomy Observatory and the South African Environmental Observation Network, which are national facilities under the National Research Foundation, signed a three-year memorandum of agreement to implement the soon-to-be-finalised Integrated Environmental Management Plan for the SKA project in South Africa. The plan will become effective as soon as the strategic environmental assessment has been completed.

### 3. Strategic outcome-oriented goals

The DST has the mandate to coordinate a responsive and efficient national system of innovation. In order to realise the mandate, the Department has five strategic outcome-oriented goals, set out in the 2015-2020 DST Strategic Plan, that guide departmental annual performance plans. During the year under review, the DST played a significant role in either leading or supporting the following Medium Term Strategic Framework outcomes:

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

**Outcome 4:** Decent employment through inclusive economic growth.

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

**Outcome 6:** An efficient, competitive and responsive economic infrastructure network.

**Outcome 7:** Vibrant, equitable, sustainable rural communities contributing towards food security for all.

**Outcome 10:** Protect and enhance our environmental assets and natural resources.

#### **Goal 1: A responsive, coordinated and efficient national system of innovation**

**Goal statement: Build on previous gains to create a responsive, coordinated and efficient national system of innovation**

In 2016, the Minister appointed a panel to review the Science, Technology and Innovation Institutional Landscape (STIIL). The purpose of the STIIL review was to advise the Minister on the need for new public research institutions, and to propose a model for how such institutions should function in support of national development imperatives. The STIIL panel submitted its report to the Minister early in the 2017/18 financial year. The report provided a helpful codification of fundamental disjunctures between the existing institutional landscape and the scale and scope of the national science enterprise. However, the report did not provide detailed recommendations on what new institutions to establish, what their nature should be, or how they ought to function. Consequently, the Department is taking the

STIIL initiative to the next step, taking into account the emerging imperatives of the new White Paper under development, and in anticipation of the new decadal plan for the national system of innovation.

The DST is in the final stages of developing a new White Paper on Science, Technology and Innovation. The DST has commissioned the National Advisory Council on Innovation to work on a framework for a new decadal plan. Most importantly, the White Paper recognises that inclusivity is central to the national system of innovation, both in terms of promoting social justice and in fostering a system in which creativity and learning can flourish.

The DST is committed to addressing the transformation issues facing the country, and has commissioned and completed several high-level investigations of issues related to the transformation of the postgraduate and researcher cohorts in (mainly) the higher education sector. The studies provide a better understanding of some of the challenges faced in driving demographic transformation towards sustainability and growth in the research system. In part, these insights enable the stakeholders in the sector to begin developing new policy approaches and programmes that address the shortcomings identified. The studies also indicate that in some cases further detail is required before evidence-based policy can be finalised.

The five-year review of the Intellectual Property Rights from Publicly Financed Research and Development Act, 2008 (IPR Act) and the National Intellectual Property Management Office (NIPMO) was delayed to allow a longer period for the implementation of the IPR Act. NIPMO was established in terms of the Act, but became operational only in 2011. The review commenced in 2017 with the Minister's appointment of a review panel of nine members, on 19 October 2017, representing government, small business, the private sector, academia and two international experts in the technology transfer and innovation sectors, and approval of the terms of reference governing the review. The review, which will be completed towards the end of 2018, is taking a comprehensive look at the impact of the IPR Act across the innovation value chain as far as it relates to publicly financed research and development. The review is also considering the balance between the enabling and compliance functions used by NIPMO in executing its

### 3. Strategic outcome-oriented goals (continued)

mandate; as well as the internal functioning and capacity of NIPMO.

Given the strategic alignment between the core functions of the National Zoological Gardens (NZG) and the mandate and activities of the South African National Biodiversity Institute (SANBI), the DST and the Department of Environmental Affairs agreed on the transfer of the NZG to SANBI. All the actions as per the transfer agreement were concluded during the 2017/18 financial year.

Cabinet has also approved a budget coordination instrument for improved budget coordination in relation to the national system of innovation that will be phased in over a period of three years.

#### Goal 2: Increased knowledge generation

##### **Goal statement: Maintain and increase the relative contribution of South African researchers to global scientific output**

Knowledge generation is crucial for science, technology and innovation. The DST acknowledges that without publications, research grants and research and innovation infrastructure, knowledge generation is not possible. Grants are provided through several instruments designed to strengthen research capacity at universities, including the South African Research Chairs Initiative and the Centres of Excellence Programme.

Over 8 300 research articles were published by DST/NRF-funded researchers and cited in the Thomson Reuters Web of Science Citation Database. In terms of supporting and promoting research that develops basic sciences through the production of new knowledge and relevant training opportunities, the DST awarded over 4 700 research grants through DST/NRF-managed programmes, 35% of which went to black researchers, and 38% to women.

A bibliometric analysis of the state of the basic sciences in South Africa progressed to an advanced stage in 2017/18, and a draft report reveals highly significant findings that will impact strongly on national research policy.

In an effort to coordinate and support high-end skills development in strategic and emerging STI areas such

as space science, energy and nanotechnology, the DST provided funding from the research budget to the University of KwaZulu-Natal for rocket engineering and to the Durban University of Technology for satellite communications, navigation and surveillance. Communications, navigation and surveillance will play a critical role in the Satellite-Based Augmentation System (SBAS). Durban University of Technology is earmarked as the lead institution in the positioning and navigation thematic area, and will be promoted to serve as a spoke for the Pan African University Institute for Space Sciences.

The Department is developing a policy framework for open science, having secured funding and in-kind support from the European Union for this initiative. The SA-EU Open Science Dialogue Project is an enabling platform that draws on South African and European expertise towards the development of a set of principles and guidelines to direct institutionalisation of open science in South Africa. Through this open science initiative, South African scientists have a growing appreciation of the potential of open science for scholarly research insofar as it is collaborative, transparent and reproducible, and whose outputs are publicly available.

The number of research chairs under the South African Research Chairs Initiative has increased to 226 from 199 in 2016. Most of the new chairs are co-funded research chairs, drawing funding from industry and government department partnerships in strategic scientific domains of mutual interest, such as the Department of Higher Education and Training; Nedbank; the Department of Agriculture, Forestry and Fisheries; the South African Medical Research Council (SAMRC); the Sugar Milling Research Institute; the National Commission on Research, Science and Technology of Namibia; and the CSIR. To create an environment for multi and transdisciplinary solution-oriented research, five communities of practice led by the research chair holders are responding to challenges raised and targets set in the National Development Plan, specifically focusing on poverty relief, biodiversity, the marine environment, industrialisation and health.

The implementation of the South African Research Infrastructure Roadmap (SARIR), which includes plans for the establishment of national infrastructure in the scientific domains of humans and society; health,

### 3. Strategic outcome-oriented goals (continued)

biological and food security; Earth and the environment; materials and manufacturing; and energy, continued in 2017/18. Seven research infrastructure projects were started in 2016/17 and one new one in 2017/18. The investment in the implementation of the SARIR research infrastructure and support for the NRF national facilities used a significant portion of the funds allocated for research infrastructure provision in 2017/18. The number of research infrastructure grants awarded annually had to be reduced significantly due to substantial cuts in the budget, and only 28 grants could be awarded in 2017/18.

The South African Research Infrastructure Roadmap (SARIR) includes plans for the establishment of national infrastructure for research in the domains of humans and society; health, biological and food security; Earth and the environment; materials and manufacturing; and energy. A new research infrastructure was started in 2017/18 in addition to the seven started in 2016/17. A significant portion of the funds allocated for research infrastructure in 2017/18 went to supporting this infrastructure and NRF national facilities. Only 28 research infrastructure grants could be awarded in 2017/18 owing to significant budget cuts.

With respect to the National Integrated Cyberinfrastructure System (NICIS) from South Africa to London, SANReN and TENET completed the implementation of the first 10 Gbps pathfinder connection of the Global Research and Education Network on the WACS undersea cable from South Africa to London. This 10 Gbps WACS-based global network architecture capacity provides the vital Africa-to-Europe leg of the Global Research and Education Network in the Atlantic Ocean. It can be accessed through the Open Exchange Point in Cape Town, and will in future be used to transport all MeerKAT/Square Kilometre Array (SKA) and European Organisation for Nuclear Research science data at almost no cost. It will also enable South African researchers to make use of global network architecture capacity to transport science data at no cost if necessary. SANReN has increased the total broadband capacity to about 3 292 Gbps through the addition and upgrade of sites on the national backbone and the upgrade of the WACS.

There has been significant progress in establishing NICIS, which integrates high-performance computing and data management services with each other and with the national research network for data-intensive research projects like the MeerKAT/SKA. NICIS and the South African Radio Astronomy Observatory have signed a memorandum of understanding to enable collaboration on cyberinfrastructure projects of common interest. The collaboration is intended to ensure the effective use of resources and avoid the duplication of efforts, as well as providing a basis for interaction and protocols to help position the country so that it can leverage the opportunities presented by co-hosting the SKA. .

The Lengau 1,029 petaflop high-performance system at the Centre for High Performance Computing (CHPC) was rated number 1 in Africa and 127 in the world on the Top 500 list of supercomputers during the International Supercomputing Conference held in Germany in June 2017, where the South African team (CHPC) took second prize in the prestigious International Student Cluster Competition. Every year a team of undergraduate students receives rigorous training locally and at the Dell Research Laboratories in Austin before participating in this competition. The programme is aimed at growing critical skills in high-performance computing across the country.

The development of a big data strategy progressed well in 2017/18. The strategy envisions a big data ecosystem extracting knowledge from large, diverse and real-time datasets, leading to innovation, supporting and accelerating growth, and positioning South Africa to participate competitively in the 21st century big data economy. A production version of the data management planning tool and the persistent identifier allocation service forming part of the national digital object architecture for Department of Telecommunications and Postal Services, was developed and deployed by the Data Intensive Research Initiative of South Africa.

The MeerKAT radio telescope was built through the NRF and the South African Square Kilometre Array Project Office at a cost of R3,2 billion. The cost of the entire SKA project, including the MeerKAT and South Africa's



### 3. Strategic outcome-oriented goals (continued)

contributions to the development of the global SKA project since its inception in 2003, is R4,4 billion. This funding also covered land acquisition; the resurfacing of 80 km of road to the site; the construction of 110 km of power lines; fibre rollout; the MeerKAT data centre; the precursor Karoo Array Telescope; and human capital development for the broader Square Kilometre Array project.

The 64 MeerKAT antennas were built within budget, on time, and beyond specification – a significant achievement. The MeerKAT was launched in July 2018.

This iconic scientific instrument, designed entirely by South Africans and comprising 75% local content, will be integrated into Phase 1 of the SKA project. To date, the SKA Bursary Programme has provided 961 grants, bursaries and fellowships to grow the pipeline from undergraduate degrees through to postdoctoral fellowships, research chairs, artisans and technicians.

#### Goal 3: Human capital development

##### **Goal statement: Increase the number of high-level graduates and improve their representivity**

Human capital development is a proxy indicator for human development, the process of expanding people's freedoms and opportunities and improving their well-being. In a developmental state like South Africa, skills acquisition is the greatest equaliser, reducing inequality, poverty and unemployment. During the 2017/18 financial year, the Department continued to invest in the development of skills needed for economic growth and development through the NRF, an agency mandated with developing high-level human capital in research. The Department supported a total of 14 222 students, comprising 4 956 honours, 5 645 master's and 3 621 doctoral students. With 78% of the postgraduate students supported being black students, and 57% women, the equity profile of the supported students closely matches the targets set in the DST Ministerial Guidelines for achieving equity in the distribution of bursaries, scholarships and fellowships.

The National Nanoscience Postgraduate Teaching and Training Platform, which operates across four institutions

(the University of the Western Cape, the University of the Free State, the University of Johannesburg and Nelson Mandela University), manages a master's degree in nanoscience, and three study field areas. The two-year degree programme registers a maximum of 35 new students per year, with students following a nine-month advanced training and teaching programme and a 15-month nanoscience-based research study, culminating in a thesis at their home institution. The programme introduces several novel concepts to South African postgraduate programmes. It is the first multi-institutional degree over three study fields with the same degree presented by all four institutions. During the training phase, the students are exposed to innovative knowledge from national and international lecturers, and have access to advanced research equipment at the four institutions, which is also available to them during their research study component.

A further novel outcome is that students develop contacts with their peers and researchers across the institutions and study fields, thus giving them an expanded network comparable to one built during doctoral or higher levels of research. Owing to its success in collaboration across different institutions and study fields, the operational concept of the platform has been presented as a role model for other, similar programmes in South Africa. The 2017/18 financial year was the sixth year of the programme, starting with 34 new students enrolling, and 35 students continuing with the second year of their studies. Twenty students completed their studies and graduated in 2017.

The DST-NRF Internship Programme is a workplace preparation programme that places students and postgraduates in work environments to gain experience. The programme makes a significant contribution to the absorption of postgraduate students in the job market, while also attracting them to research careers, thereby reducing unemployment levels and inequalities. This programme is complemented by the National Youth Service programme, which places students with degrees and diplomas as volunteer science communicators in the network of science centres across the country. The DST, through its programmes, supported a total of 823 graduates and interns during the 2017/18 financial year.



### 3. Strategic outcome-oriented goals (continued)

During the reporting period, the Department hosted two successful annual events, namely the Women in Science Awards on 17 August 2017 in Johannesburg, and the National Science Week launch from 5 to 9 August 2017 at Nelson Mandela University in Port Elizabeth.

The Women in Science Awards recognise and reward excellence by women scientists and researchers, and profile them as role models for younger women, towards a more inclusive science system.

National Science Week is a DST-led initiative that takes place annually in August. The primary goal of this campaign is to promote science and technology literacy, as well as awareness of the value of science, technology, engineering, mathematics and innovation in people's daily lives. Various stakeholders and interest groups conduct activities, and in 2017/18 over 2,5 million participants were reached through science awareness and engagement programmes.

Both the Women in Science Awards and National Science Week attracted significant public and media interest. The Women in Science Awards gala dinner was followed by a television broadcast featuring some of the winners on SABC 2's Morning Live.

The DST collaborated with the Department of Basic Education in Mpumalanga to popularise indigenous knowledge systems (IKS) among young people (particularly those with an interest in physical science and mathematics) by running an essay competition aimed at Grade 10 and 11 learners in the area. The results of the competition were announced at the 2017 IKS Expo and the winning learners received prizes in March 2018. The initiative unearthed talent in schools like Reggie Masuku Secondary in Ermelo, Vukuzenzele Secondary in KwaMhlanga and Shanke Senior Secondary in Hazyview. Njabulo Thomas Matsana from Reggie Masuku Secondary wrote the winning essay.

The DST and its partners, the CSIR, Google, the University of the Witwatersrand, Standard Bank, ABSA and IBM, jointly funded the first South African Deep Learning Indaba, which was held from 11 to 15 September 2017. The indaba's principal aims are to increase African

participation in and contribution to advances in artificial intelligence and machine learning, and to address issues of diversity in these fields. The indaba activities included a series of master classes on deep learning and machine learning for South African researchers and technologists. The DST supported the participation of 20 MSc and PhD students at the event. There are plans to make the indaba an annual event.

To promote e-skills and e-research capacity development, and to build cyberinfrastructure capability at universities, a National e-Science Postgraduate Teaching and Training Platform, with a focus on the development of a multi-institutional and multidisciplinary master's degree in e-Science (led by the University of the Witwatersrand) and a Regional Tier 2 Data Node (led by the University of Cape Town) were successfully established in collaboration with the DST, and became operational in 2017/18. Thirty students were registered in January 2018 for the master's degree in e-Science.

A Centre of Excellence Directors' Forum, held from 31 August to 1 September 2017, was an opportunity for stakeholders from universities, government, industry and civil society to discuss the interlinked role of people, research, and engagement with society in knowledge advancement.

#### Goal 4: Using knowledge and innovation for economic development

**Goal statement: Derive a greater share of economic growth from R&D-based opportunities and partnerships**

##### *Industry innovation partnerships*

The DST continues to encourage industry innovation partnerships as part of a broader government effort to support industry competitiveness. The main objective is to create an environment in which government can effectively collaborate with industry and support co-investments in research, development and innovation (RDI) in key strategic sectors of the economy, encouraging the private sector to invest more in RDI.

### 3. Strategic outcome-oriented goals (continued)

The DST supports the Industry Innovation Partnerships facilities at the CSIR. During the 2017/18 financial year, the DST and the CSIR launched the Biorefinery Industry Development Facility (BIDF) in Durban. The BIDF is aimed at innovation-led industry development and competitiveness, encouraging increased private sector investment in RDI activities and promoting job creation.

The facility aims to make it easier and less risky for existing and new industry players to develop, test and adapt biorefinery technologies for South African biomass sources, and socio-economic and environmental conditions. The facility is currently focused on the forestry and paper and pulp sectors, as these sectors are under financial strain both nationally and internationally, and technology innovations can help to prevent job losses and enable renewed growth. These two sectors will be the initial focus while the capability of the facility is demonstrated, but it is envisaged that the focus will broaden to include other organic biomass.

The DST has secured Cabinet approval for a Sovereign Innovation Fund as a strategic public-private partnership to enhance investment levels further along the innovation chain. Furthermore, the DST has been working with the National Treasury and the Departments of Trade and Industry and Economic Development to finalise the concept.

The DST, National Treasury and Department of Small Business Development have also worked together towards development of the SME Innovation Fund. The Government Technical Advisory Centre (GTAC) was commissioned to develop a technical business case for the establishment of the SME Innovation Fund. The SME Innovation Fund incorporates the early-stage funding function that was part of the SolF concept (including the support of pre-commercial, seed, start-up and fledgling companies), as well as larger-scale R&D technology development initiatives. In the 2018 State of the Nation Address and 2018 Budget Speech, government committed itself to establishing an “SME Innovation Fund specifically focusing on start-ups”, and the National Treasury indicated a provision of R2,1 billion over the Medium-Term Expenditure Framework period to support the Fund.

#### **Local production and firm competitiveness**

##### ***Firm technology assistant package***

During the 2017/18 financial year, the Enterprise and Supplier Development Division of General Electric signed a contract with the DST’s Technology Localisation Implementation Unit for the development of suppliers. This first contract is valued at R3,8 million for one year, with the possibility of renewal. This contract is in addition to the investment of R5 million that General Electric has committed for the nine identified suppliers, most of which are small, black-owned businesses.

##### **Supported small-scale agroprocessing enterprises**

Small-scale agroprocessing initiatives in South Africa are still facing major challenges. The structural constraints of such initiatives have been linked to and exacerbated by historical, natural and financial factors. The challenge is to co-design ways to manage these constraints effectively through innovation.

To address some of these challenges, the DST, in collaboration with TIA, established the Agricultural Bio-economy Innovation Partnership Programme (ABIPP) for facilitating agricultural initiatives. The ABIPP funds, co-funds, coordinates, facilitates and actively manages multidisciplinary, multi-institutional research programmes focusing on agricultural bioinnovation, product processes and services contributing to increased productivity, food security and sustainable rural development. It also encourages local collaboration on national priorities, and promotes global competitiveness of the agriculture sector. Current co-funding is received from the Winter Cereal Trust, Sasol Trust, the Maize Trust, GrainSA, and the Oil and Protein Seed Development Trust. Key project partners include GrainSA, Sensako, Pannar, the Agricultural Research Council, Stellenbosch University, the University of Pretoria, North-West University, Agri Technovation, Eden Social Development Foundation, the Vaal University of Technology and the University of the Free State. ABIPP’s initiatives will be aligned with TIA’s, providing a value chain approach that supports a pipeline of products from the early technology

### 3. Strategic outcome-oriented goals (continued)

readiness levels through to commercialisation. Further measures to strengthen this through TIA's bio-economy workplan will be initiated, and there is potential to grow emerging portfolios such as innovation for food and nutrition security in communities.

During the reporting period, several initiatives were undertaken to promote co-operatives and agroprocessing initiatives. Five honeybush co-operatives and agroprocessing facilities were assisted by the DST during the period under review, including with their branding. The cooperatives have 42 beneficiaries, more than 50% of which are women. The honeybush projects will provide two seed orchards, two nurseries and one plantation. The building of the facilities is on track.

To date, the projects have created two permanent jobs at the Sonskyn Heuningbos project, and temporary and seasonal jobs other projects. Ad hoc and unskilled workers, mainly young people, are benefiting at the building sites.

The following are some of the other activities that the DST is supporting:

- The Wheat Breeding Platform. This focuses on developing drought-tolerant and pest-resistant varieties.
- The Maize Breeding Programme. This focuses on developing drought-tolerant and heat-tolerant varieties for smallholders.
- The Soybean Plant Improvement Programme. This screens for soil-borne and seed-borne diseases with a view to developing and managing an early warning system for disease outbreak.
- The Soybean Food and Nutrition Project. This is aimed at developing appropriate technologies and disseminating them to farmers and communities for promoting production and processing of soybean. The project is championed by Grain SA and has the potential to support economic growth for emerging farmers.

- The Bio-Innovation Aquaculture Programme. This seeks to support national priorities through aquaculture, including the Oceans Economy Phakisa. Priorities will mainly be on the development and commercialisation of new technologies, feed formulation, and optimisation of new species.
- Agroprocessing for niche commodities. The DST has been engaging with AfricaBio, the IDC, the Agricultural Research Council, the CSIR and other government departments for immediate piloting of the niche commodities. Marula, honeybush and Cape Aloe have been prioritised for piloting to determine market sizes as well as the feasibility of processing these crops into various value-added products. A marula community development programme in Hoedspruit, aimed at expanding the marula market, and co-funded by the IDC and TIA, was initiated during the 2017/18 financial year.
- Agri-Parks initiatives. The DST is co-funding GrainSA's farmer development support initiative (currently also supported by the Jobs Fund) to provide additional innovation incentives and alternative sources of nutrition (and revenue) in communities through crops such as beans and maize. The Soybean Food and Nutrition Project is also targeting increased reach to communities within Agri-Parks.

The DST's Commercialisation Framework Initiative serves as an overarching policy guideline for actions to be taken in respect of the commercialisation activities of the DST. Through various implementation protocols, the Commercialisation Framework Initiative will enable the systematic gathering of relevant evidence to support the DST's decision-making on its R&D investments and the realisation of any commercialisation opportunities in this regard.

### 3. Strategic outcome-oriented goals (continued)

The National Intellectual Property Management Office (NIPMO) continues to play an enabling role in the utilisation of knowledge for economic and social development through support provided to offices of technology transfer (OTTs) for human capacity as well as the costs of the protection and maintenance of intellectual property (IP) rights. NIPMO has received 1 494 actionable disclosures from institutions for IP developed from publicly financed R&D, of which 277 have been granted an IP right. The high cost of obtaining IP protection is ameliorated through the IP Fund, with a maximum of 24 institutions finding support annually. It is worth noting that 7,5% of the actionable disclosures have been commercialised (including through the granting of 45 licences to SMEs and BBBEE entities), with institutions receiving revenue of over R15,4 million. These statistics are encouraging and show the potential for publicly financed R&D to contribute towards economic development.

The second Innovation Bridge Technology Showcase and Matchmaking Event, hosted at the Gallagher Convention Centre in Gauteng on 15 September 2017, attracted more than 1 000 delegates. The Innovation Bridge is different to other South African innovation matchmaking events owing to its focus on technologies developed in publicly funded South African research and development institutions and by companies receiving government support. The 2017 Innovation Bridge had 76 exhibitors with 175 technologies on display. Potential funders and business partners had the opportunity to evaluate a range of new local innovations on show, including new industrial isotope technology, construction polymers, higher-yield wind turbines, smart water-metering systems and additive manufacturing technology for prosthetics and medical devices. The event also saw the launch of the Innovation Bridge Portal, which serves as an online technology innovation market. The event culminated in an Innovation Awards

ceremony, which saw the Zizon Circumcision Device (Hlomuka Holdings) win the prize for best innovation, Fieldlab, a solar-powered mobile lab-in-a-box (Rhodes University) win in the best prototype category, and the Agricultural Research Council win for the best exhibit. The award for the innovation most likely to find markets nationally or internationally went to 3D Medical Devices (University of Cape Town), and Zenzeleni community WiFi network (University of the Western Cape) was judged the best innovation with social impact.

#### **Creating innovative industries of the future**

##### ***Renewable Energy Hub and Spoke Programme***

SolarTurtle, a spin-out company of the Renewable Energy Hub-and-Spokes Programme at Stellenbosch University, has built on the success of the Technology for Rural Education and Development programme in the Eastern Cape village of Cofimvaba by expanding its footprint to other rural areas of South Africa and Southern Africa.

In partnership with Nedbank, the SolarTurtle team has provided a 100% renewable-energy-powered mobile bank in a shipping container, which was launched in Mncwasa village (60 km from Umtata) on 16 September 2017. As shown in the picture below, this cashless, wireless-enabled branch is a pilot that seeks to understand the feasibility of switching away from both Telkom and Eskom networks, which are vulnerable to cable theft, unscheduled downtimes, etc. The lessons learnt from the pilot will be used to guide possible roll-out in South Africa and the rest of the continent.

The SolarTurtle initiative also received support from the European Union. They secured a contract for the roll-out of the initiative in Lesotho to empower women entrepreneurs with access to clean energy to support economic activities.

### 3. Strategic outcome-oriented goals (continued)



*The 64-dish MeerKAT outside Carnarvon in the Northern Cape*



*SolarTurtle launched in Mncwasa village in the Eastern Cape*



*Manganese precursor pilot facility in Nelspruit in Mpumalanga*

#### **Manganese precursor programme**

Energy storage, which includes batteries and other systems that store energy for later use, is rapidly becoming a major focus area globally. South Africa is endowed with an abundance of high quality manganese ore and, through research, development and innovation, has the opportunity to turn this comparative advantage into a competitive advantage. The manganese precursor pilot facility in Nelspruit was launched on 11 October 2017. This was a first step in efforts to find potential partners to fast-track the establishment of a precursor manufacturer in South Africa.

#### **Aeroswift industrialisation and commercialisation**

The Aeroswift is a “next generation”<sup>1</sup> additive manufacturing or 3D printing machine. The Aeroswift is a collaborative partnership, funded by the DST, between the National Laser Centre at the CSIR and the Aerosud Innovation and Training Centre. The second phase of the project has been successfully completed, and interactions and preparatory work around the commercialisation of the technology are under way, with the Aeroswift project being subjected to a commercialisation assessment by

<sup>1</sup> There are two classes of metal-based additive manufacturing (AM) systems currently available on the market. Powder-bed AM systems can produce very complex parts at a high resolution or accuracy, but these systems tend to be slow. Wire deposition AM systems can produce large parts quickly, but the complexity of parts is limited and the resolution is poor, requiring much post-machining work. The Aeroswift project aims to develop a metal powder-bed system that is about five times faster than current machines, with a possible printing volume about 10 times greater than existing machines.



### 3. Strategic outcome-oriented goals (continued)

an independent panel as part of a pilot initiative of the DST to formalise the commercialisation protocol framework for all DST-funded initiatives. The Aeroswift project was profiled on the popular Sunday current affairs television programme, Carte Blanche, and positive responses were received from the NSI community. Currently, preparations are being made to implement the third phase of the project over a period of three years. In addition, the industry partner participating in the Aeroswift project is fine-tuning the commercialisation plan. Both these activities are expected to be finalised in the next financial year.

#### Titanium metal powder

The strategic objective of the Titanium Centre of Competence is to develop a new industry based on a fundamentally disruptive technology, which is intended to reduce the cost associated with conventional titanium powder production. The titanium powder acceleration team has successfully met, and in some instances exceeded, the targets for the stage-gate at 31 December 2017. The production target of 50 kg of titanium powder was exceeded when a total of 68 kg of titanium powder was produced in the CSIR-Titanium

pilot plant. Furthermore, the production target of 20 kg of a higher quality titanium powder via a batch process was achieved in two separate campaigns.

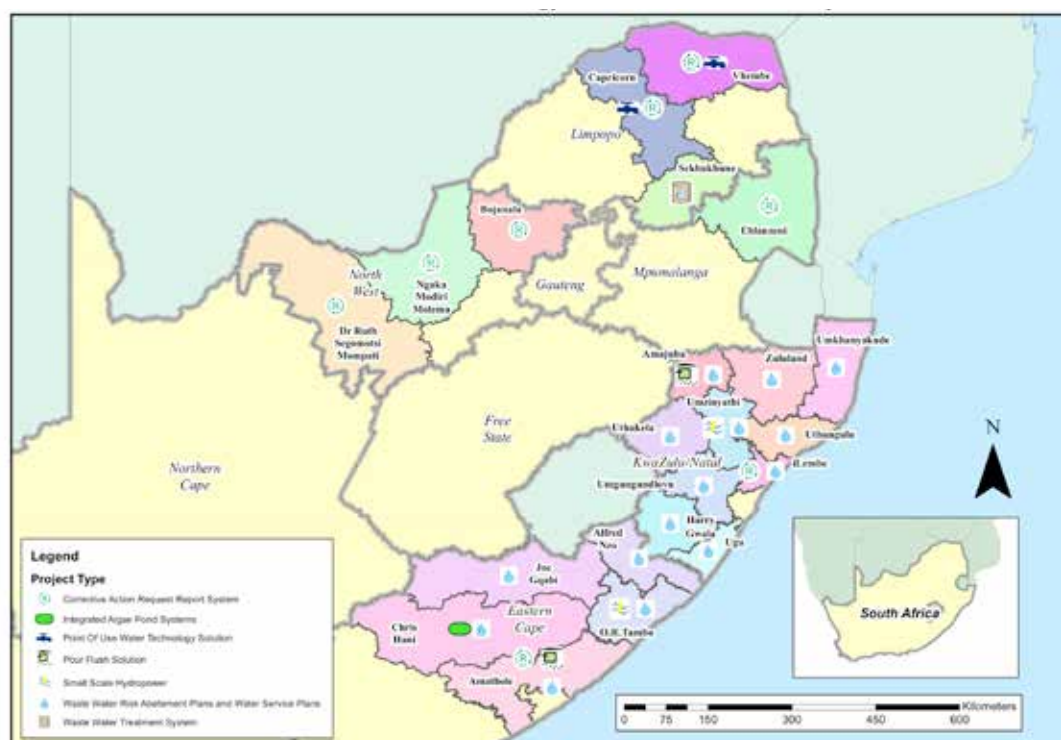
Five metallurgical processes were investigated for the production of spherical titanium alloy (Ti6Al4V) powder. The free-forming process was scaled up to produce 30 kg of alloy powder. An in-house techno-economic analysis of the processes was conducted based on absorptive capacity to produce 100 tons per annum. All five processes were shown to be economically viable, if ASTM standards can be met in terms of powder quality.

#### Goal 5: Using knowledge and innovation for inclusive development

**Goal statement: Accelerate inclusive development through scientific knowledge, evidence and appropriate technology**

##### Support for service delivery

In contributing towards promoting access to basic services, the DST's Innovation Partnership for Rural Development Programme strengthened its existing initiatives in the Eastern Cape, KwaZulu-Natal, Limpopo and the North West.



Map indicating Service Delivery for Human Settlement Projects

### 3. Strategic outcome-oriented goals (continued)

In this regard, innovative technology solutions were deployed and piloted in a manner that provided access to basic services, e.g. water, sanitation and energy, to previously unserved and underserved rural communities. Access to these technologies also has multiplier effects for the state, e.g. access to clean drinking water and appropriate sanitation reduces vulnerability to health risks such as cholera, diarrhoea, dysentery, hepatitis A and typhoid.

#### Improved access to sanitation

Providing access to water and sanitation in South Africa is a challenge, particularly in rural areas, and there are growing service delivery backlogs. To contribute to addressing these challenges, the DST, in collaboration with the Bill & Melinda Gates Foundation, invested in a programme to pilot innovative sanitation technologies. This programme has enabled access to decent and appropriate sanitation services to previously underserved rural communities. It is also contributing to technology localisation and unlocking industrialisation opportunities for South Africa. Furthermore, an innovative water-efficient sanitation technology solution from the University of Loughborough in the UK is being localised in South Africa. The South African team spearheaded by the DST has developed and constructed a local prototype, which went for testing during the reporting period. Once the prototype has been tested and optimised, a model for mass production will be developed.

#### Health initiatives

##### *South African human genome initiatives*

The South African Human Genome Programme was initiated to conduct, enhance, and promote health-related genome research among the Southern African population. The study sequenced 24 human genomes from a diverse group of South African individuals. It was reported that approximately 16 million unique variants were identified from the cohort through genome sequencing. These variants may underlie differences in susceptibility to disease and the severity of illness, as well as the way humans respond to medical treatments. The study, the results of which were published in *Nature Communication*, is a step towards unlocking the unique genetic character of the South African population for a better understanding of human genetic diversity, and provides critical information that could inform future investments in precision medicine.

#### Tshwane Khulelwe project

The clinical development of the Umbiflow™ device (Tshwane Khulelwe project) continued during the year under review. The primary objective of the project was to evaluate the clinical significance and benefit of routine screening with Umbiflow™, a portable umbilical artery Doppler device developed by the South African Medical Research Council and the CSIR, in an unselected population in a low-resource primary health care setting. The device is meant to assist in detecting foetuses at risk of stillbirth. The first phase of the project has been completed. An economic impact analysis demonstrated that Umbiflow™ is cost-effective when compared with similar neonatal life-saving interventions. The clinical study has been expanded to nine districts across South Africa, and the project has secured funding from the World Health Organization for an expanded study in Ghana, India, Kenya and Rwanda.

#### Multi-African States Foot-and-Mouth Disease Rapid Response

Another ground-breaking initiative for using knowledge and innovation for inclusive development is the Multi-African States Foot-and-Mouth Disease Rapid Response programme, which focuses on livestock disease management through the development of diagnostics and technologies to support and inform policies that will assist in managing notifiable diseases such as foot-and-mouth disease. The programme is implemented by the CSIR and aims to develop a coordinated emergency point-of-care diagnostic that will respond to foot-and-mouth disease outbreaks in livestock, and ultimately build human capacity by giving formal and informal training related to foot-and-mouth disease control and management to South African and non-South African participants. The Agricultural Research Council, Onderstepoort Veterinary Institute, the University of Pretoria and North-West University are also partners in the initiative.

#### Clinical Health Guidelines Application

In the health domain, the Clinical Health Guidelines App, which was successfully launched by the DST, has now been downloaded over 65 000 times, demonstrating its relevance and quality. The app has been updated to include adult and paediatric hospital guidelines. It has been downloaded mostly in South Africa, but is



### 3. Strategic outcome-oriented goals (continued)

gaining popularity in other countries. In addition to the guidelines, the app allows reporting on adverse drug reactions and drug stock outs, which, after 24 months, has generated some startling data. This has resulted in the spinning out of a company called EMG (Essential Medical Guidance), which currently employs about 20 people.

#### **Agricultural innovation systems for small-scale farmers**

The DST on 19 September 2017 hosted an expert from the Science and Technology Policy Research Unit and the School of Business, Management and Economics at the University of Sussex at a seminar on knowledge transfer and the inclusion of small-sized (or smallholder) agricultural producers in agri-food clusters in developing economic clusters. The expert, Dr Matias Ramirez, presented a typology of inclusion built around concepts of bonding, bridging, and network governance that helps to explain diverse patterns of inclusion, which have important implications for small-scale agricultural producers – based on examples from agricultural clusters in Peru, Colombia and Chile. Lecturers, researchers and students of agriculture, rural development and innovation from universities and science councils had the opportunity to learn from the methodology presented, and to explore future relations to continue the knowledge exchange.

#### **Targeted decision support**

Through innovation for inclusive development initiatives, the DST continued in its endeavours to engage policymakers and relevant stakeholders in advancing the integration of innovation in the inclusive development agenda through policy seminars.

The DST hosted a policy dialogue on 9 November 2017 to advance the discourse on the role of science, technology and innovation in local economic development (LED). The DST policy dialogue formed a critical part of the National LED Conference hosted by the Ministers of Cooperative Governance and Traditional Affairs and Small Business. The policy dialogue presented a rare opportunity to engage local government officials, academics, students, researchers and other local stakeholders on the important role of knowledge, technological solutions and all forms of innovation in building strong local economies that

support job creation, inclusive development and poverty alleviation. Following the DST revision of the National LED Framework, in partnership with the Department of Cooperative Governance and Traditional Affairs, the conference saw the launch of the Framework and set the tone for the agenda for innovation-driven LED.

Another DST contribution to empower small-scale producers in agriculture, forestry and fisheries, is a review of existing information and communication technology (ICT) agricultural platforms. For example, there has been engagement with the KwaZulu-Natal Provincial Government to secure cooperation and co-funding in the implementation of an ICT-enabled agriculture model.

#### **Rural Innovation Assessment Tool**

The Department continued to lead the demonstration of targeted decision support through innovative technology solutions to improve the delivery of basic services. During the reporting period, the DST and the HSRC brought together over 70 local economic development (LED) officials from selected rural municipalities and rural-based universities under the banner of “Owning tools for local innovation assessments: Benefits for local municipalities”. The seminar provided a platform for RIAT participants to share their experiences in using the tool, which enables users to detect rural innovations and identify interventions that have the potential to be high impact catalysts. This provides a valuable opportunity for the DST to showcase the importance of the relationship between municipalities and universities in relation to LED. One of the important outcomes of the seminar was an agreement to establish a community of practice involving all RIAT participants, in order to continue expanding the gains of RIAT in those municipalities.

#### **Municipal Innovation Maturity Index**

To improve the integration of innovation into the delivery of basic services, the DST introduced the Municipal Innovation Maturity Index, which is being implemented to diagnose innovation integration challenges and measure the innovation maturity of a municipality. This is critical for municipalities to adopt and employ innovative technology solutions in the delivery of basic services. The Municipal Innovation Maturity Index supports the NDP goal of an innovative and capable state.

### 3. Strategic outcome-oriented goals (continued)

#### International cooperation and resources

Increasing opportunities for the NSI to access international resources and support, including through sharing the experience and expertise of the DST's global partners, was a significant factor in the achievement of all five of the Department's strategic outcome-oriented goals. The Department succeeded in improving the coordination of participation by different South African organisations, especially in ensuring alignment with strategic national priorities. In this regard, the DST has been implementing strategic frameworks to guide the participation of the NSI in partnership initiatives with other African partners, as well as in efforts to attract STI-oriented foreign investment to South Africa.

#### Science, technology and innovation support for Africa

The African partnership portfolio has once again been especially active, with 76 research and innovation projects jointly supported by the DST and African partner governments during the financial year. The DST also supported 16 African Union and Southern African Development Community (SADC) STI initiatives, making it possible for these initiatives to progress. Through diverse international partnerships, the DST enabled an investment of R477 million by these partners in other African countries' STI capacity.

#### Resources and access to expertise for the South African NSI

During the period under review, the DST ensured a greater focus on achieving socio-economic impact through its international partnerships, with special attention being paid to fostering cooperation with industry partners and developing collaboration with an innovation focus. Many initiatives to bolster the DST's ability to address poverty, unemployment and inequality in South Africa were also fostered, especially with development partners.

Focused on the leveraging of global support for the use of knowledge production in South Africa, for both economic and inclusive development, the Department facilitated international investment of R448 million in the NSI during the year under review.

A diverse portfolio of bilateral and multilateral programmes coordinated by the DST during the financial year afforded South African researchers opportunities to collaborate in joint knowledge-generation activities with 678 international partner organisations, of which the private sector represents 17% of the partner organisations reported. This collaboration saw an investment of more than R1,1 billion by the DST's international partners in support of collaboration with South Africa. These relationships and investments were invaluable in expanding and enriching South Africa's knowledge-generation outputs.

Support for South African HCD through international partnerships remains a cross-cutting strategic priority and saw, among other things, 241 South African students participating in international postgraduate training programmes, as part of the creation of the Global Knowledge Partnerships platform to support South African students accessing opportunities abroad. Of these students, 77% were black South Africans and 44% women. Sixty-seven technical exchanges aimed at building and reinforcing South Africa's capacity in key science and technology domains were facilitated with international partners.

#### Science diplomacy

Science diplomacy and the promotion of South Africa as a preferred international partner for STI partnership initiatives remained a major aspect of the DST's work, with the outstanding achievements in the reporting period including the Minister of Science and Technology's visit to Leiden University in the Netherlands as honorary Oort Visiting Professor of Astronomy for Development, and the successful South African participation in the Astana Expo in Kazakhstan. The third Science Forum South Africa attracted more than 2 600 participants from over 80 countries. The DST also secured seven tactical leadership positions for South Africa in global science decision and policy-making structures, and influenced five multilateral outcomes, which had the objective of positioning the DST and its key priorities strategically for international support.

### 3. Strategic outcome-oriented goals (continued)

#### Overseas Bilateral Cooperation

During the year under review, the Minister formalised engagements with Sri Lanka.

The Minister's visit to New Zealand in the previous financial year unlocked cooperation on SKA, big data, indigenous knowledge systems, agricultural biotechnology and climate change.

Norway signed a new cooperation agreement with South Africa on oceans research, including the blue economy, climate change, the environment and sustainable energy.

The United Kingdom renewed its Newton Fund cooperation commitment with South Africa, extending it to 2021. Relationships with other bilateral partners like Italy, Jamaica, Japan, the Netherlands and the United States of America were consolidated through agreement on jointly beneficial activities to be undertaken.

Engagements through the year with South Korea and Malaysia provided renewed impetus for bilateral cooperation with strategic partners, including the Global South, especially within the framework of Brazil, Russia, India, China and South Africa (BRICS). Extensive preparations were made for the South African BRICS Presidency in 2018, focusing on initiatives such as disruptive technologies and big data in order to provide BRICS countries with a competitive advantage in the 4th Industrial Revolution.

#### International Resources

During the year under review, the Minister formalised engagements with USAID on general cooperation, as well as with France on the French South African Institute in Agriculture (F'SAGRI) programme, which is focused on capacity development in agriculture and veterinary science at three of the country's historically disadvantaged tertiary institutions.

South Africa and Brazil launched the South-South Framework for Scientific and Technical Cooperation in the South and Tropical Atlantic and Southern Oceans. The Minister signed the Belém Statement on Atlantic Research and Innovation Cooperation with the European Union and Brazil towards a better understanding of marine ecosystems and climate. The three partners launched the South Atlantic Research and Innovation Flagship Initiative and signed a joint Statement on Atlantic Ocean Research and Innovation Cooperation.

Further engagement with the European Union resulted in the implementation of two new programmes, namely, LEAP-Agri (a long-term EU-Africa research and innovation partnership on food and nutrition security and sustainable agriculture) and ERA-MIN 2 (a pan-European network of research funding organisations that aims to support the European Innovation Partnership on Raw Materials).

#### Multilateral Cooperation

Continuing with the implementation of South African foreign policy, the DST prioritised the advancement of the African STI agenda. The Minister approved the implementation of a continental flagship programme, the Oliver Tambo Research Chairs Programme, which was established with South African support at leading African universities under the oversight of the National Research Foundation and the Open Science Platform. The programme is hosted by the Academy of Science of South Africa. In partnership with the African Union and NEPAD Business Foundation, the DST hosted the 9th AU Private Sector Forum and assisted with the successful conclusion and adoption of the African Space Agency statutes, which contributed to the final decision for South Africa to host the Pan African University Institute for Space Sciences.

The DST supports regional programmes such as the Southern African Development Community Industrialisation Strategy. The DST has led in a number of SADC initiatives including the SADC Cyberinfrastructure Framework and the SADC STI Climate Change Framework and Implementation Plan. At the same meeting, the SADC ministers agreed to the South African recommendation that the region adopt the AU target of expenditure on research and development equal to 1% of GDP.

In preparation for the South African Chairpersonship of the SADC, the DST has worked towards the implementation of initiatives such as the SADC energy foresight exercise, the SADC Cyberinfrastructure Framework, and the Nutri-drink initiative in partnership with Botswana.

Bilateral relationships with African countries, including Botswana, Egypt, Ethiopia, Ghana, Lesotho, Mozambique, Tanzania and Uganda, were consolidated in the year under review.

## 4. Performance information by Programme

### Programme 1: Administration

#### Purpose

To provide strategic policy and planning alignment, ensure effective governance, risk management, monitoring and evaluation, and provide strategic science communication with stakeholders about the activities of the DST and the national system of innovation.

#### Chief directorates

##### **The Ministry and Office of the Director-General**

support the Minister, Deputy Minister and Director-General by providing professional and executive support. The component is responsible for the development of systems and mechanisms for handling parliamentary questions and replies, Cabinet matters, correspondence, submissions and memoranda. It also coordinates activities within the Department to assist in steering the NSI towards the development of a knowledge-intensive economy with higher productivity levels.

**Enterprise Risk Management** ensures that a risk management culture is embedded within the Department, by creating risk management awareness, and elevating risk management to a strategic level in the Department in order to improve the DST's risk maturity level. The component's secondary role is to ensure that countering fraud is made an integral part of strategy, operations and administration in the Department (i.e. to promote a fraud risk management culture in the DST).

**Policy, Planning, Governance, Monitoring and Evaluation** supports the DST leadership in steering the NSI.

**Internal Audit Activity** performs internal appraisal activities to improve the effectiveness of control and governance processes to help the Department achieve its strategic, operational, and financial and compliance objectives.

**Human Resources** ensures that the Department is able to (i) provide a professional service through accurate, consistent and best employment practices in all its activities, which are aimed at supporting the

achievement of the DST's strategic and operational objectives; (ii) attracting and retaining employees who share the same organisational vision; (iii) championing change and transition, with a view to being a catalyst in the transition of people and the organisation to embrace and implement change; (iv) setting performance standards and managing performance against them; and (v) promoting an environment that supports the personal and career development of all employees so that they can reach their full potential and contribute better to the achievement of the Department's strategic objectives, instilling a culture of service excellence.

**Finance** ensures the effective, efficient and economic use of financial resources in line with financial prescripts through the development and effective implementation of financial systems, policies, frameworks and procedures. This includes budget planning and expenditure monitoring, and the management of procurement, acquisition, logistics, assets and financial transactions.

##### **Information System and Knowledge Management**

is responsible for the delivery of services that support the Department's strategic plan and individual unit's objectives through the effective use of information technology. Its purpose is to align the Department's Information Technology Strategy with its business strategy to ensure that the organisation achieves optimum use of its resources.

**Science Communication** 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 component raises the profile of the work done by the 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.

**Legal Services** 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. The component ensures that the Department complies with relevant legislation and takes

## 4. Performance information by Programme (continued)

a proactive approach to dealing with matters that have the potential to give rise to conflict or legal challenges.

### Strategic objectives

- To coordinate the identification, formulation and implementation of strategic initiatives, and ensure that the priorities of the DST and its entities are aligned to national priorities.
- To develop and maintain good corporate governance systems for the Department and its entities.
- To provide strategic communication for the DST and its entities through marketing, media and branding initiatives, and the Science Engagement Strategy.
- To make the DST an employer of choice and acquire and retain appropriately skilled personnel.
- To provide an efficient and effective information technology service.
- To ensure effective and efficient financial and procurement services.

## 4. Performance information by Programme (continued)

**Table 5: Programme 1 – Administration**

Not achieved			Partially achieved		Achieved		
Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
To coordinate the identification, formulation and implementation of strategic initiatives and ensure that the priorities of the DST and its entities are aligned to national priorities	DST public entities' annual performance plans and annual reports approved by the Minister and the CSIR shareholder compact signed by the Minister and the chairperson of the boards	DST public entities' 2017/18 strategic and annual performance plans approved by the Minister and shareholder compacts signed by the Minister and chairpersons of the boards by 31 March 2017	DST public entities' 2018/19 annual performance plans and CSIR shareholder compact signed by the Minister and the chairperson of the board and annual reports approved by the Minister by 31 March 2018	DST public entities' 2018/19 annual performance plans and CSIR shareholder compact signed by the Minister and the chairperson of the board by 31 March 2018	None	Achieved	None
To make the DST an employer of choice and recruit and retain appropriately skilled personnel	Vacancy rate retained at 6% by 31 March 2020	Vacancy rate retained at 6% by 31 March 2017	Vacancy rate capped at 10% by 31 March 2018	Vacancy rate capped at 11%	-1%	Not achieved	Implementation of public service wage bill containment measures
To develop and maintain good corporate governance systems for the Department and its entities	Combined assurance annual report on the status of combined assurance presented to the Risk and Audit Committees	New indicator	1 combined assurance annual report on the status of combined assurance presented to the Risk and Audit Committees by 31 March 2018	1 combined assurance report was presented to the Audit Committee on 23 March 2018	None	Achieved	None

#### 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
To provide strategic communication for the DST and its entities through marketing, media and branding initiatives, and the Science Engagement Strategy	Number of media articles written to raise the DST's public profile	16 media articles written to raise the DST's public profile	24 media articles written to raise the DST's public profile by 31 March 2018	77 media articles written to raise the DST's public profile by 31 March 2018	+ 53 media articles	<b>Achieved</b>	Additional articles were written by external stakeholders and science councils as efforts to scale up science communication continue
	Number of public participation programmes held	10 public participation programmes held by 31 March 2017	10 public participation programmes held by 31 March 2018	11 public participation programmes held by 31 March 2018	+1	<b>Achieved</b>	An additional opportunity to engage with stakeholders arose as part of a DST meeting with business on the research and development (R&D) tax incentive programme on 2 March 2018
To ensure effective and efficient financial procurement services	Unqualified audit (clean audit) opinion with no financial matters in the audit report	Unqualified audit (clean audit) opinion with no financial matters in the audit report	Unqualified audit (clean audit) opinion with no financial matters in the audit report	Unqualified audit (clean audit) opinion with no financial matters in the audit report	None	<b>Achieved</b>	None



## 4. Performance information by Programme (continued)

### Programme 2: Technology Innovation

#### Purpose

To enable research and development (R&D) in space science and technology (S&T), energy security and the bioeconomy, and in the emerging and converging areas of nanotechnology, robotics, photonics and indigenous knowledge systems (IKS), and to promote the realisation of commercial products, processes and services from these R&D initiatives. In addition, through the implementation of enabling policies and interventions along the entire innovation value chain, to promote the protection and utilisation of intellectual property, technology transfer and technology commercialisation.

#### Chief directorates

**Bioinnovation** was previously known as Biotechnology and Health Innovation. The name change is a better reflection of its core mandate, and factors in the recent incorporation of the Indigenous Knowledge-based Technology Innovation unit into the component. Bioinnovation leads the DST's implementation of the Bio-economy Strategy, which focuses more on socio-economic outcomes, and the strengthening of research and innovation competencies that form the strategic base of the bio-based NSI, rather than merely on the development of technologies. It is a national strategy, incorporating the innovation needs of other departments and industry.

**Hydrogen and Energy** provides policy leadership in RDI initiatives in the energy sector that are crosscutting and have long-term impact. It plays a key role in developing a sustainable and globally competitive South African energy knowledge base and industry, especially as this relates to the nascent global hydrogen economy, by informing and co-shaping the national energy policy in coordination with the Department of Energy and other key stakeholders. In particular, the Department plays an advisory role in the broader energy landscape, specifically in the Integrated Energy Plan and Integrated Resource Plan, with special emphasis on the technologies to be used in addressing the country's energy needs, their deployment and the incentives required to facilitate the successful deployment of these technologies.

**Space Science and Technology** is a crosscutting and user-driven component that supports the creation of an environment conducive to the implementation of the National Space Strategy and the South African Earth Observation Strategy, under the overarching guidelines of the National Space Policy led by the Department of Trade and Industry. The National Space Strategy was a response to the Ten-Year Innovation Plan, which identified key outcomes that had to be realised over the long term in order for South Africa to leverage the opportunities that the space value chain presents.

**Innovation Priorities and Instruments** supports and strengthens the innovation policy package (and related interventions) aimed at creating and sustaining an enabling environment for innovation, technology development, and the commercialisation of publicly funded R&D initiatives. This includes the identification, development, creation and support of policy and institutional structures that facilitate technology development and its progression into national and international markets. The Emerging Research Areas focus includes the development of nanotechnology, photonics, robotics, and the South African Biodesign Initiative, through the roll-out of approved strategies and implementation plans.

The **National Intellectual Property Management Office** is the national implementing office for the Intellectual Property from Publicly Financed Research and Development Act (IPR Act), and is currently located in the Department as a specialised service delivery unit. It was established to provide for the more effective utilisation of intellectual property (IP) emanating from publicly financed R&D. It provides support to offices of technology transfer at universities and science councils, develops capacity in IP management, provides incentives for IP creators to encourage them to disclose, protect and commercialise their creations, provides funding through the IP Fund for the protection and maintenance of IP emanating from publicly financed R&D, and provides incentives, support, capacity development, funding and compliance services. NIPMO also ensures compliance with the IPR Act and Regulations by recipients of publicly financed R&D.

## 4. Performance information by Programme (continued)

### Strategic objectives

- To facilitate and resource investments in space S&T, energy, bioinnovation, nanotechnology, robotics, photonics, indigenous knowledge systems (IKS), intellectual property (IP) management, technology transfer and technology commercialisation.
- To oversee, monitor and regulate key policy initiatives, including institutions/agencies and support interventions in the key strategic areas of space S&T, energy, bioinnovation, nanotechnology, robotics and photonics.
- To coordinate and support high-end skills development in –
  - the strategic and emerging S&T areas of synthetic biology, structural biology, systems biology and functional genomics (collectively the South African Biodesign Initiative), space S&T, energy, bioinnovation, nanotechnology, robotics, photonics and IKS.
  - IP management, technology transfer and technology commercialisation.
- To support, promote, and advocate the development and translation of scientific research and development outputs into commercial products, processes and services that will contribute towards economic growth and a better quality of life.

## 4. Performance information by Programme (continued)

**Table 6: Programme 2 – Technology Innovation**

Not achieved			Partially achieved			Achieved	
Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviations
To facilitate resource investments in space science, energy, bioinnovation, nanotechnology, robotics, photonics, indigenous knowledge systems, intellectual property management, technology transfer and technology commercialisation	Number of instruments <sup>2</sup> funded in <sup>3</sup> support of knowledge utilisation	25 instruments funded in support of knowledge utilisation by 31 March 2017	19 instruments funded in support of knowledge utilisation by 31 March 2018	19 instruments funded in support of knowledge utilisation by 31 March 2018	None	Achieved	None
	Number of knowledge outputs <sup>4</sup> generated	168 knowledge products generated by 31 March 2017	148 knowledge outputs generated	165 knowledge outputs generated	+17	Achieved	The number of knowledge outputs are beyond the DST's control as they are dependent on students' progress, the availability of, and demands on, researchers and supervisors, and the editorial review of publications. In some instances, the work of a student or researcher may advance to allow for more publications.
	Number of strategic policy directives <sup>5</sup> in designated areas in support of economic sectors	5 strategic policy directives in designated areas in support of economic sectors developed by 31 March 2017	7 strategic policy directives in designated areas in support of economic sectors by 31 March 2018	8 strategic policy directives in designated areas in support of economic sectors developed by 31 March 2018	+1	Achieved	There were more requests made to the programme for policy advice, and the Programme was able to provide more policy directives.

<sup>2</sup> Instrument means a formally established (by contract) entity/initiative (also virtual) that is used towards support for increased localisation, competitiveness, R&D-led industry development and service delivery support.

<sup>3</sup> Instruments funded in support of knowledge utilisation are inclusive of the initiatives that were included in the 2015/16 Annual Performance Plan under the 'number of innovation-enabling programmes' indicator, namely, the hosting of the Innovation Bridge technology showcase and matchmaking event, the implementation of the Innovation Bridge portal, the implementation of public-private sector initiatives such as the industry internship programme, the implementation of the Commercialisation Framework (and any associated strategies that emerge as a consequence), the Emerging Industries Action Plan and initiatives in support of offices of technology transfer activities. The target has increased because the scope has been broadened to include other initiatives.

<sup>4</sup> Knowledge outputs include filings/applications or registration/granting of intellectual property rights (IPRs) and peer-reviewed scientific articles published in scientific publications and journals, books, book chapters and community-reviewed articles in space science, energy, emerging research areas, and the bioeconomy. (IPRs include the categories of IPR that were included in the 2014/15 Annual Performance Plan, namely, patents and trademarks. The concept has been broadened to include other IPRs, such as copyright, designs, plant breeders' rights or geographical indications.)

<sup>5</sup> Policy directives include policy briefs, implementation plans, concept documents, position papers, strategies, policy recommendations, cabinet memoranda and chapter contributions towards key policy documents.

## 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviations
To oversee, monitor and regulate <sup>6</sup> key policy initiatives, including institutions/agencies and support interventions <sup>7</sup> in the key strategic areas of space science, energy, bioinnovation, nanotechnology, robotics, photonics and indigenous knowledge systems	Number of new disclosures reported by publicly funded institutions	251 new disclosures reported by publicly-funded institutions by 31 March 2017	280 new disclosures reported by publicly-funded institutions by 31 March 2018	239 new disclosures reported by publicly-funded institutions by 31 March 2018	-41	<b>Not achieved</b>	One reason for the decreased number of disclosures was increased capacity in the offices of technology transfer (OTTs), which enabled them to distinguish better between an actionable and a non-actionable disclosure, with the result that fewer disclosures were reported to NIPMO. Disclosures are also dependent on researchers disclosing their new IP creations to the OTTs.
	Number of regulatory recommendations <sup>8</sup> for decision support by government	33 regulatory recommendations for decision support by government by 31 March 2017	27 regulatory recommendations for decision support by government by 31 March 2018	28 regulatory recommendations for decision support by government by 31 March 2018	+1	<b>Achieved</b>	The Department has no control over the number of requests it receives for decision support.

<sup>6</sup> This includes the monitoring, evaluation, verification, coordination and, where applicable, the regulation of the performance of institutional arrangements and support interventions in line with various plans and laws.

<sup>7</sup> Support interventions are institutional arrangements such as coordinating committees, partnerships, joint ventures and other strategic arrangements undertaken to drive the implementation of national, and specifically DST policies and strategies.

<sup>8</sup> Regulatory recommendations are recommendations made to support the work of other government departments as mandated by specific laws, regulations, guidelines and specifications.

## 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviations
To oversee, monitor and regulate key policy initiatives, including institutions/agencies and support interventions in the key strategic areas of space science, energy, bioinnovation, nanotechnology, robotics, photonics and indigenous knowledge systems	Number of decision-support interventions <sup>9</sup> developed and maintained	3 decision-support interventions maintained by 31 March 2017	2 decision-support interventions maintained by 31 March 2018	3 decision-support interventions maintained by 31 March 2018	+1	<b>Achieved</b>	The improvements to and deployment of the National Oceans and Coastal Information Management System were planned for 2018/19 as part of the DST's contribution to Operation Phakisa (Oceans Economy).
To coordinate and support high-end skills development in the strategic and emerging S&T areas of space science, energy, bioinnovation, nanotechnology, robotics, photonics, synthetic biology, structural biology and functional genomics (collectively the South African Biodesign Initiative), IP management, technology transfer and technology commercialisation	Number of postgraduate students (master's and doctoral) funded in designated areas <sup>10</sup>	414 postgraduate students (master's and doctoral) supported through DST-funded research and development initiatives by 31 March 2017	355 postgraduate students (master's and doctoral) funded in designated areas	266 postgraduate students (master's and doctoral) funded in designated areas by 31 March 2018	-89	<b>Not achieved</b>	The contract with the NRF was terminated owing to the poor quality of data and reporting.

<sup>9</sup> Decision-support interventions help people think about choices they face; they describe where and why there is a choice, and provide information about options, including, where reasonable, the option of taking no action. These interventions aim to help people to deliberate about options, independently or in collaboration with others, by considering relevant attributes to help them consider short, intermediate and long-term outcomes with relevant consequences. Decision-support interventions assist the process of constructing preferences and eventual decision making in a particular situation.

<sup>10</sup> Designated areas include space science, energy, bioinnovation, emerging research areas, IP management, technology transfer and technology commercialisation.

## 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviations
To coordinate and support high-end skills development in the strategic and emerging S&T areas of space science, energy, bioinnovation, nanotechnology, robotics, photonics, synthetic biology, structural biology and functional genomics (collectively the South African Biodesign Initiative), IP management, technology transfer and technology commercialisation	Number of trainees <sup>11</sup> attending training initiatives <sup>12</sup> in designated areas	307 trainees attending training initiatives in designated areas by 31 March 2017	240 trainees attending training initiatives in designated areas by 31 March 2018	256 trainees attending training initiatives in designated areas by 31 March 2018	+16	<b>Achieved</b>	Training programmes continue to attract more trainees than anticipated. Training has become popular among students, OTT employees and community members with interest in IP, innovation, entrepreneurship and business skills.
	Number of technology products, processes and/or services developed.	4 knowledge application products funded in designated areas by 31 March 2017	6 knowledge application products funded in designated areas by 31 March 2018	13 knowledge application products funded in designated areas by 31 March 2018	+7	<b>Achieved</b>	Whether a knowledge application product is produced or not is wholly dependent on the rate of research and technology developments, which are difficult to predict.
	Number of commercial outputs <sup>13</sup> in designated areas <sup>14</sup>	8 commercial outputs in designated areas by 31 March 2017	4 commercial outputs in designated areas by 31 March 2018	5 commercial outputs in designated areas by 31 March 2018	+1	<b>Achieved</b>	Commercial outputs are highly dependent on third-party negotiations and are therefore characteristically hard to predict.

<sup>11</sup> Trainees include interns, technicians, mentors, academics, researchers, innovators, entrepreneurs and IP candidates.

<sup>12</sup> Training initiatives include internships, workshops, conferences, seminars, webinars and work integration programmes.

<sup>13</sup> Commercial outputs: These include licences, assignments, options, new companies, products, processes and services.

<sup>14</sup> Designated areas: These include space science, energy, bioinnovation, emerging research areas, IP management, technology transfer and technology commercialisation.

## 4. Performance information by Programme (continued)

### Programme 3: International Cooperation and Resources

#### Purpose

To strategically develop, promote and manage international relationships, opportunities and S&T agreements that strengthen the NSI and enable an exchange of knowledge, capacity and resources between South Africa and its regional and international partners. International Cooperation and Resources also supports South African foreign policy through science diplomacy.

#### Chief directorates

**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.

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

**Overseas Bilateral Cooperation** promotes and facilitates collaborative activities and leverages resources

in support of the NSI from countries outside Africa, with a specific focus on developing a knowledge-driven economy.

#### Strategic objectives

- To secure international funds to complement South Africa's national investments in STI, including resources for DST initiatives requiring external investment.
- To access international knowledge, capacities and resources, to enhance South Africa's national STI capabilities, and to contribute to the attainment of the DST's targets for human capital development, especially for international PhD training.
- To strengthen cooperation in STI in Africa, to build capacities and support initiatives of the SADC and AU, for the advancement of both South Africa and Africa's growth and development agenda.
- To maximise South Africa's strategic interests in international cooperation in STI, in support of South Africa's foreign policy objectives, and international trade and investment partnerships, creating a better South Africa, and contributing to a better and safer Africa in a better world.



## 4. Performance information by Programme (continued)

**Table 7: Programme 3 – International Cooperation and Resources**

Not achieved			Partially achieved			Achieved	
Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
To secure international funds to complement South Africa's national investments in STI, including resources for DST initiatives requiring external investments	Amount (expressed in rand millions) of international funds directly invested in research, innovation and STI HCD programmes, as well as research infrastructure investments in South Africa accounted for as part of cooperation initiatives implemented by the DST	R689m in international funds directly invested in research, innovation and STI HCD programmes, including research infrastructure investment in South Africa as part of cooperation initiatives implemented by the DST by 31 March 2017	R420m in international funds directly invested in research, innovation and STI HCD programmes as well as research infrastructure investments in South Africa accounted for as part of cooperation initiatives implemented by the DST by 31 March 2018	R448m in international funds directly invested in research, innovation and STI HCD programmes including research infrastructure investment in South Africa as part of cooperation initiatives implemented by the DST by 31 March 2018	+R28 million	Achieved	There was an increase in funding from international partners because of the success of NSI partners in competitive STI initiatives, specifically the EU Horizon 2020 programme, which saw greater South African participation than was anticipated.
	Amount (expressed in rand millions) of funds invested by international partners in their own organisations and initiatives, but targeted at cooperation in research, innovation and STI HCD with South African partners as part of cooperation initiatives implemented by the DST	Total of R1,253 billion invested by international partners in their own organisations and initiatives, but targeted at cooperation in research, innovation and STI HCD with South African partners as part of cooperation initiatives implemented by the DST by 31 March 2017	R250m invested by international partners in their own organisations and initiatives, but targeted at cooperation in research, innovation and STI HCD with South African partners as part of cooperation initiatives implemented by the DST by 31 March 2018	Total of R1,199 billion invested by international partners in their own organisations and initiatives, but targeted at cooperation in research, innovation and STI HCD with South African partners as part of cooperation initiatives implemented by the DST by 31 March 2018	+R949 million	Achieved	The overachievement was due to an increase in funding from international partners because of the success of NSI partners in competitive STI initiatives, especially the EU Horizon 2020 programme, which saw greater South African participation than anticipated.

## 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
To access international knowledge, capacities and resources, to enhance South Africa's national STI capabilities, and to contribute to the attainment of the DST's targets for human capital development, especially for international PhD training	Number of South African students accepted into international training programmes offering a postgraduate qualification as part of cooperation initiatives facilitated by the DST	210 more South African students participating in international training programmes offering a postgraduate qualification as part of cooperation initiatives facilitated by the DST by 31 March 2017	350 South African students participating in international training programmes offering a postgraduate qualification as part of cooperation initiatives facilitated by the DST by 31 Mar. 2017	241 South African students participating in international training programmes offering a postgraduate qualification as part of cooperation initiatives facilitated by the DST by 31 March 2017	-109	<b>Not achieved</b>	Although international partners responded positively to the Department's efforts to promote South African students' access for to international opportunities, in some instances confidentiality policies prevented international partners from providing the evidence required for performance reporting. The establishment of the proposed programme to widen access to global knowledge partnerships and research and innovation exchange platforms will assist in this regard.

## 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
To access international knowledge, capacities and resources, to enhance South Africa's national STI capabilities, and to contribute to the attainment of the DST's targets for human capital development, especially for international PhD training	Number of international partner organisations (i.e. legal entities) collaborating with South African partners within the framework of formalised collaborative research, innovation or STI HCD projects as part of cooperation initiatives facilitated by the DST	668 international partner organisations collaborating with South African partners within the formalised framework of collaborative research innovation or STI HCD projects as part of cooperation initiatives facilitated by the DST by 31 March 2017	500 international partner organisations (i.e. legal entities) collaborating with South African partners within the framework of formalised collaborative research, innovation or STI HCD projects as part of cooperation initiatives facilitated by the DST by 31 March 2018	678 international partner organisations collaborating with South African partners within the formalised framework of collaborative research innovation or STI HCD projects as part of cooperation initiatives facilitated by the DST by 31 March 2018	+178	<b>Achieved</b>	SA participants in the EU Horizon 2020 programme had a higher than anticipated success rate, and there was an increase in cooperation with various bilateral partners.
	Number of international technical exchanges (such as workshops, seminars or training programmes) to build or reinforce South Africa's capacities in key STI domains specifically referenced in the DST Strategic Plan, undertaken with the support of international partners facilitated by the DST	51 international technical exchanges to build or reinforce South Africa's capacities in key STI domains specifically referenced in the DST Strategic Plan, undertaken with the support of international partners and facilitated by the DST by 31 March 2017	20 international technical exchanges to build or reinforce South Africa's capacities in key STI domains specifically referenced in the DST Strategic Plan, undertaken with the support of international partners facilitated by the DST by 31 March 2018	67 international technical exchanges to build or reinforce South Africa's capacities in key STI domains specifically referenced in the DST Strategic Plan, undertaken with the support of international partners and facilitated by the DST by 31 March 2018	+47	<b>Achieved</b>	Activities with bilateral and multilateral partners increased, resulting in a higher than anticipated number of exchanges being recorded.

## 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
To strengthen cooperation in STI in Africa, to build capacities and support initiatives of the SADC and AU, for the advancement of both South Africa and Africa's growth and development agenda	Number of research, innovation and STI HCD cooperation projects, co-funded or supported in kind, by DST and at least one other African partner	54 research, innovation and STI HCD cooperation projects co-funded or supported in kind by the DST and at least one other African government by 31 March 2017	50 research, innovation and STI HCD cooperation projects co-funded by DST and at least one other African government by 31 March 2018	76 research, innovation and STI HCD cooperation projects co-funded or supported in kind by the DST DST and at least one other African government by 31 March 2018	+26	<b>Achieved</b>	There was increased success in the Department's bilateral partnerships with other African countries.
	Amount (expressed in rand millions) of international funds directly invested in African regional and continental research, innovation, STI HCD or research infrastructure programmes as a result of DST facilitation	Total of R388m in international funds directly invested in African regional and continental research, innovation, STI HCD or research infrastructure programmes as a result of DST facilitation by 31 March 2017	R80m in international funds directly invested in African regional and continental research, innovation, STI HCD or research infrastructure programmes as a result of DST facilitation by 31 March 2018	Total of R477 million in international funds directly invested in African regional and continental research, innovation, STI HCD or research infrastructure programmes as a result of DST facilitation by 31 March 2018	+R397 million	<b>Achieved</b>	The participation by other African countries in the EU Horizon 2020 programme was much higher than anticipated owing to the Department's efforts to promote the Programme.
	Number of approved AU or SADC STI initiatives, including programmes, projects or governance frameworks, endorsed at AU or SADC ministerial level supported (financially or in kind) by DST	15 AU or SADC STI initiatives, including programmes, projects or governance frameworks, endorsed at AU or SADC ministerial level supported (financially or in kind) by DST by 31 March 2017	16 AU or SADC STI initiatives, including programmes, projects or governance frameworks, endorsed at AU or SADC ministerial level supported (financially or in kind) by DST by 31 March 2018	16 AU or SADC STI initiatives, including programmes, projects or governance frameworks, endorsed at AU or SADC ministerial level supported (financially or in kind) by DST by 31 March 2018	None	<b>Achieved</b>	None

## 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
To maximise South Africa's strategic interests in international cooperation in STI, in support of South Africa's foreign policy objectives, and international trade and investment partnerships, creating a better South Africa, and contributing to a better and safer Africa in a better world	Number of formally recorded decisions made in intergovernmental STI forums, such as multilateral organisations with a direct bearing on resource allocation to support priorities of government's Programme of Action following specific DST intervention	5 formally recorded decisions made in an intergovernmental STI forum, such as a multilateral organisation, with a direct bearing on resource allocation to support priorities of government's Programme of Action following specific DST intervention by 31 March 2017	4 formally recorded decisions made in intergovernmental STI forums, such as multilateral organisations, with a direct bearing on resource allocation to support priorities of government's Programme of Action following specific DST intervention by 31 March 2018	5 formally recorded decisions made in an intergovernmental STI forum, such as a multilateral organisation, with a direct bearing on resource allocation to support priorities of government's Programme of Action following specific DST intervention by 31 March 2018	+1	<b>Achieved</b>	The overachievement is a result of intensive engagement with the AU and SADC in preparation for South Africa taking over as SADC Chair.
	Number of leadership positions occupied by South Africa in international STI governance structures relevant to influencing resource allocation to support priorities of government's Programme of Action following specific DST intervention	4 leadership positions occupied by South Africa in international STI governance structures relevant to influencing resource allocation to support priorities of government's Programme of Action following specific DST intervention by 31 March 2017	4 leadership positions occupied by South Africa in international STI governance structures relevant to influencing resource allocation to support priorities of government's Programme of Action following specific DST intervention by 31 March 2018	7 leadership positions occupied by South Africa in international STI governance structures relevant to influencing resource allocation to support priorities of government's Programme of Action following specific DST intervention by 31 March 2018	+3	<b>Achieved</b>	The continued promotion of South Africa as a preferred and capable STI partner has resulted in more South African individuals being recognised for their leadership capabilities.

## 4. Performance information by Programme (continued)

### Programme 4: Research Development and Support

#### Purpose

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

#### Chief directorates

**Human Capital and Science Promotion** formulates and implements policies and strategies that address the availability of human capital for STI, and that provide fundamental support for research activities. The chief directorate provides strategic direction and support to institutions mandated to develop human capital and increased knowledge production, as well as interfacing with relevant stakeholders in this regard. In addition, the chief directorate is responsible for supporting the development of a society that is scientifically literate and critically engaged with science through public engagement in STI and the enhancement of the youth's access to STI.

**Basic Sciences and Infrastructure** facilitates the strategic implementation of research and innovation equipment and infrastructure to promote knowledge production in areas of national priority and to sustain R&D-led innovation. The component also promotes the development and strengthening of basic or foundational sciences, such as physics, chemistry, biological and life sciences, geographic and geological sciences, and human and social sciences.

**Science Missions** promotes the development of research, the production of scientific knowledge, and human capital in science areas in which South Africa enjoys a geographic advantage. These areas include the dynamics of climate change and its impact on Earth systems, Antarctic and marine research, the palaeosciences and indigenous knowledge systems.

**Astronomy** supports the development of astronomical sciences around a new multiwavelength astronomy strategy, and provides guidance and support to relevant astronomy institutions in the implementation of strategic astronomy programmes. Of particular relevance are the Southern African Large Telescope, the MeerKAT, the High Energy Stereoscopic System, and the African Very Long Baseline Interferometry Network and Square Kilometre Array (SKA) projects.

#### Strategic objectives

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

## 4. Performance information by Programme (continued)

**Table 8: Programme 4: Research Development and Support**

Not achieved					
Partially achieved			Achieved		
Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18
To contribute to the development of representative, high-level human capital able to pursue locally relevant, globally competitive research and innovation activities	Total number of PhD students awarded bursaries as reflected in the reports from the NRF and relevant entities	3 454 PhD students awarded bursaries through NRF and DST-managed programmes as reflected in the NRF and DST project reports by 31 March 2017	No fewer than 3 100 PhD students awarded bursaries through Programme 4 funds as reflected in the reports from the NRF and relevant entities by 31 March 2018	3 621 PhD students awarded bursaries through Programme 4 funds as reflected in the reports from the NRF and relevant entities by 31 March 2018	+521
				<b>Achieved</b>	
					The target was overachieved by 17% due to the high uptake of awarded bursaries. Moreover, annual performance cannot be predicted or managed within closer margins because it depends on the pool of applicants and the grant values, which cannot be perfectly predicted.



## 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
To contribute to the development of representative, high-level human capital able to pursue locally relevant, globally competitive research and innovation activities	Total number of pipeline of postgraduate (BTech, honours and master's) students awarded bursaries annually as reflected in the reports from the NRF and relevant entities	10 268 pipeline postgraduate students awarded bursaries through NRF and DST-managed programmes as reflected in the NRF and DST project reports by 31 March 2017	No fewer than 10 800 pipeline postgraduate students awarded bursaries through Programme 4 funds as reflected in the reports from the NRF and relevant entities by 31 March 2018	10 601 (4 956 honours/BTech students and 5 645 master's) pipeline students awarded bursaries through Programme 4 funds as reflected in the reports from the NRF and relevant entities by 31 March 2018	-199	<b>Not achieved</b>	Since pipeline and doctoral students are funded from the same budget, the overachievement in the number of doctoral students supported contributed to the marginal underachievement (2%) in the number of pipeline students funded. It should be noted that the total number of students funded at doctoral, master's and honours levels (10 601 + 3 621) is higher than the joint target (10 601 + 3 621). Moreover, annual performance cannot be predicted or managed more precisely because it depends on the pool of applicants and the grant values, which cannot be perfectly predicted.

## 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
To contribute to the development of representative, high-level human capital able to pursue locally relevant, globally competitive research and innovation activities	Total number of graduates and students placed in DST-funded work preparation programmes in science, engineering, technology and innovation (SETI) institutions	962 graduates and students placed in DST-funded work preparation programmes in SETI institutions by 31 March 2017	800 graduates and students placed in DST-funded work preparation programmes in SETI institutions by 31 March 2018	823 graduates and students placed in DST-funded work preparation programmes in SETI institutions 31 March 2018.	+23	<b>Achieved</b>	Target overachieved by 2,9% due to the large number of quality applicants. The target cannot be set with greater accuracy because it depends on the pool of applicants, which cannot be predicted perfectly.
To ensure availability of and access to internationally comparable research and innovation infrastructure in order to generate new knowledge and train new researchers	Number of research infrastructure grants awarded as per award letters annually  Total available broadband capacity provided by SANReN per annum	72 research infrastructure grants awarded as per award letters by 31 March 2017  3 537 Mbps average bandwidth available per SANReN site by 31 March 2017	30 research infrastructure grants awarded as per award letters by 31 March 2018  3 200 Gbps total available broadband capacity provided by SANReN by 31 March 2018	28 research infrastructure grants awarded as per award letters by 31 March 2018  3 292 Gbps total available broadband capacity provided by SANReN by 31 March 2018	-2  +92	<b>Not achieved</b>	The contracts were issued for 30 grants, but award letters were only issued for 28 of these.  The variance (3%) of 92 Gbps is due to a combination of the following variables taken into account when calculating the total available broadband capacity: sites added; sites removed; sites upgraded; new links added; links removed; links upgraded; and West Africa Cable System capacity activated.

## 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
To support and promote research that develops basic sciences through the production of new knowledge and relevant training opportunities	Total number of researchers awarded research grants through NRF-managed programmes as reflected in the NRF project reports	4 520 researchers were awarded research grants through NRF-managed programmes as reflected by the NRF project reports by 31 March 2017	No fewer than 4 500 researchers awarded research grants through NRF-managed programmes as reflected in the NRF project reports by 31 March 2018	4 707 researchers awarded research grants through NRF-managed programmes as reflected in the NRF project reports by 31 March 2018	+207	<b>Achieved</b>	In general, annual performance cannot be predicted or managed within closer margins because it depends on the pool of applicants and the grant values, which cannot be perfectly predicted.
	Number of research articles published by NRF-funded researchers and cited in the Thomson Reuters Web of Science Citation Database as reflected in the NRF project reports	8 156 research articles published by NRF-funded researchers and cited in the Thomson Reuters Web of Science Citation Database as reflected in the NRF project reports by 31 March 2017	No fewer than 7 000 research articles published by NRF-funded researchers and cited in the Thomson Reuters Web of Science Citation Database as reflected in the NRF project reports by 31 March 2018	8 384 research articles published by NRF-funded researchers and cited in the Thomson Reuters Web of Science Citation Database as reflected in the NRF project reports by 31 March 2018	+1 384	<b>Achieved</b>	The number of research articles published per researcher was higher than anticipated. This fluctuates from year to year.
To strategically develop priority science areas in which South Africa enjoys a competitive advantage, by promoting internationally competitive research and training activities and outputs	Number of antennas commissioned for a single polarisation array	32-antenna single polarisation array commissioned by 31 March 2017 (original target was amended from 64 MeerKAT antennas installed by 31 March 2017)	64 antennas commissioned for a single polarisation array by 31 March 2018	64 antennas installed and commissioned as per engineering specifications for a single polarisation array by 31 March 2018	None	<b>Achieved</b>	None

## 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
To strategically develop priority science areas in which South Africa enjoys a competitive advantage, by promoting internationally competitive research and training activities and outputs	A climate change research network in place	A report on existing climate change research networks was submitted to the DDG by 31 March 2017	A climate change research network formalised in South Africa through memoranda of understanding by 31 March 2018	A climate change research network in South Africa was formalised through memoranda of understanding by 31 March 2018.	None	Achieved	None
	Number of biennial reports on the state of climate change S&T in South Africa submitted to Cabinet	One (first biennial report) on the state of climate change S&T in South Africa was approved by Cabinet by 31 March 2017	A plan for compiling the second biennial report on the state of climate change S&T in South Africa approved by Exco by 31 March 2018	A plan for compiling the second biennial report on the state of climate change S&T in South Africa was approved by Exco by 31 March 2018	None	Achieved	None
To promote public engagement on science, technology and innovation	Approximate number of participants in science awareness and engagement programmes annually as reflected in the project reports of the NRF and other service providers	2 066 134 participants reached in science awareness and engagement programmes	Approximately 2m participants (learners and members of the public) in science awareness and engagement programmes annually as reflected in the project reports of the NRF and other service providers by 31 March 2018	2 575 839 people participated in DST-supported science engagement programmes by 31 March 2018	+575 839	Achieved	Increased access to public spaces that provided additional infrastructure for hosting National Science Week activities led to a significant increase in the number of people drawn into science awareness and engagement initiatives.

## 4. Performance information by Programme (continued)

### Programme 5: Socio-economic Innovation Partnerships

#### Purpose

To enhance the growth and development priorities of government through targeted S&T-based innovation interventions and the development of strategic partnerships with other government departments, industry, research institutions and communities.

#### Chief directorates

**Technology Localisation, Beneficiation and Advanced Manufacturing** funds technology and innovation development programmes to advance strategic medium and long-term sustainable economic growth and sector development priorities, as well as government service delivery, through the following value-adding functions:

- Investing in the medium and long-term knowledge-generation capabilities of the NSI in targeted innovation areas.
- In partnership with other government departments and economic actors, spearheading focused efforts that exploit knowledge capabilities for economic benefit. Economic benefit includes the development of advanced technologies and industries, improved government service delivery, improved productivity and competitiveness, and technology transfer and support to SMEs and manufacturing firms in the supply chains of large-scale public procurement programmes.

**Sector Innovation and Green Economy** provides policy, strategy and direction setting support for the R&D-led growth of strategic sectors of the economy and to enhance S&T capacity to support a transition to a green economy. The component does this through the following:

- Facilitating the implementation of high-impact S&T interventions.

- Identifying and initiating S&T programmes that support the growth of the environmental technologies and services sector in South Africa.
- Facilitating policy and strategy development on R&D interventions that support the growth of the ICT sector (excluding the ICT retail sector).
- Providing innovation policy and planning support to economic actors in priority economic sectors and provincial and local governments.

**Innovation for Inclusive Development** supports the experimentation of S&T-based innovations for tackling unemployment, poverty and inequality through the creation of sustainable job and wealth opportunities, building sustainable human settlements, and enhancing the delivery of basic services. The component focuses on supporting the widespread adoption and use of S&T-based innovation by supporting the demonstration of promising innovative technologies that do not yet have widespread application, but are seen as having the potential to achieve government's broad development objectives. In its interventions, the component prioritises the generation of practical knowledge and insights to support evidence-based policy and decision-making, introducing decision-support tools to enhance service delivery, and building capacity in relevant state institutions and communities.

**Science and Technology Investment** leads and supports the development of indicators and instruments for measuring and monitoring investments in S&T and the performance of the NSI, and ways of strengthening the NSI and innovation policy. This includes an annual R&D survey, innovation measurement, the development of S&T indicators, the development of databases and information systems such as the Research Information Management System and the national S&T expenditure tables, and the implementation of section 11D of the Income Tax Act, 1962, to promote private-sector R&D investment.

## 4. Performance information by Programme (continued)

### Strategic objectives

- Through knowledge, evidence and learning, to inform and influence how S&T can be used to achieve inclusive development.
- To identify, grow and sustain niche high-potential STI capabilities for sustainable development and the greening of society and the economy.
- To identify, grow and sustain niche high-potential STI capabilities that –
  - improve the competitiveness of existing industries with growth potential in aerospace, advanced manufacturing, chemicals, advanced metals, mining, ICTs and sector innovation funds;
  - facilitate the development of R&D-led new-targeted industries.
- To enhance understanding and analysis that support improvements in the functioning and performance of the NSI.
- To strengthen provincial and rural innovation and production systems through analysis and catalytic interventions.
- To introduce and manage interventions and incentive programmes that increase the level of private sector investment in scientific or technological research and development.

## 4. Performance information by Programme (continued)

**Table 9: Programme 5: Socio-economic Innovation Partnerships**

Not achieved			Partially achieved		Achieved		
Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
Through knowledge, evidence and learning, to inform and influence how science and technology can be used to achieve inclusive development	Number of knowledge products on innovation for inclusive development published	5 knowledge products on innovation for inclusive development published on the DST website by 31 March 2017	6 knowledge products on innovation for inclusive development published on the DST website by 31 March 2018	6 knowledge products on innovation for inclusive development published on the DST website by 31 March 2018	None	Achieved	None
	Number of decision-support interventions introduced and maintained	7 decision-support interventions maintained and improved by 31 March 2017	8 decision-support systems maintained and improved by 31 March 2018	10 decision-support systems maintained and improved by 31 March 2018	+2	Achieved	RIAT GIS mapping and Ntabelanga. These two were introduced based on opportunities arising from existing DST activities, e.g. the RIAT tool and participation in the Ntabelanga project, led by the Department of Environmental Affairs.



#### 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
Through knowledge, evidence and learning, to inform and influence how science and technology can be used to achieve inclusive development	Number of learning interventions (seminars) generated	10 learning interventions generated by 31 March 2017	9 learning interventions (seminars) generated by 31 March 2018	13 learning interventions (seminars) generated by 31 March 2018	+4	<b>Achieved</b>	The DST took advantage of global experts visiting South Africa during the period under review to arrange learning interventions interrogating agricultural innovation systems from small farmers' perspectives, and the framework for measuring Innovation for Inclusive Development. Additionally, the DST's support to Operation Phakisa (Oceans Economy) led to the hosting of a session on aquaculture.

## 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
To identify, grow and sustain niche high-potential STI capabilities for sustainable development and the greening of society and the economy	Number of honours, master's and doctoral students fully funded or co-funded in designated niche areas that support the greening of society and the economy and sustainable development	102 honours, master's and doctoral students fully funded or co-funded in designated niche areas that support the green economy and sustainable development by 31 March 2017	90 honours, master's and doctoral students fully funded or co-funded in designated niche areas that support the green economy and sustainable development by 31 March 2018	106 honours, master's and doctoral students fully funded or co-funded in designated niche areas that support the green economy and sustainable development by 31 March 2018	+16	<b>Achieved</b>	Additional students were funded through the Sector Innovation Fund programme.
	Number of knowledge and innovation products (patents, prototypes, technology demonstrators or technology transfer packages) added to the innovation product portfolio through fully funded or co-funded research	4 knowledge and innovation products (patents, prototypes, technology demonstrators and technology transfer packages) added to the innovation product portfolio through fully funded or co-funded research by 31 March 2017	4 knowledge and innovation products (patents, prototypes, technology demonstrators and technology transfer packages) added to the innovation product portfolio through fully funded or co-funded research by 31 March 2018	5 knowledge and innovation products added to the innovation product portfolio	+1	<b>Achieved</b>	A greenhouse toolkit that resulted from the Sector Innovation Fund programme was assessed as a qualifying innovation.

#### 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
<p>To identify, grow and sustain niche high-potential STI capabilities that –</p> <ul style="list-style-type: none"> <li>improve the competitiveness of existing industries with growth potential in aerospace, advanced manufacturing, chemicals, advanced metals, mining, ICTs and sector innovation funds;</li> <li>facilitate the development of R&amp;D-led new targeted industries.</li> </ul>	<p>Number of high-level research graduates (master's and doctoral students) fully funded or co-funded in designated niche areas (advanced manufacturing, aerospace, chemicals, mining, advanced metals and ICTs) by 31 March 2017</p>	<p>334 master's and doctoral students fully funded or co-funded in designated niche areas (advanced manufacturing, aerospace, chemicals, mining, advanced metals and ICTs) by 31 March 2017</p>	<p>288 master's and doctoral students fully funded or co-funded in designated niche areas (advanced manufacturing, aerospace, chemicals, mining, advanced metals, ICTs and sector innovation funds) by 31 March 2018</p>	<p>291 master's and doctoral students fully funded or co-funded in designated niche areas (advanced manufacturing, aerospace, chemicals, mining, advanced metals, ICTs and sector innovation funds) by 31 March 2018</p>	+3	<b>Achieved</b>	Co-funding of students made it possible to fund more students.

## 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
<p>To identify, grow and sustain niche high-potential STI capabilities that –</p> <ul style="list-style-type: none"> <li>improve the competitiveness of existing industries with growth potential in aerospace, advanced manufacturing, chemicals, advanced metals, mining, ICTs and sector innovation funds;</li> <li>facilitate the development of R&amp;D-led new targeted industries.</li> </ul>	Number of interns fully funded or co-funded in R&D related to design, manufacturing and product development	216 interns fully funded or co-funded in designated niche areas related to design, manufacturing and product development by March 2017	100 interns fully funded or co-funded in R&D related to design, manufacturing and product development by 31 March 2018	195 interns fully funded or co-funded related to design, manufacturing and product development by 31 March 2018	+95	<b>Achieved</b>	Co-funding of students made it possible to fund more students. In addition, some interns secure employment before they complete their internship and the unused funds are then reallocated to a new intern, thereby increasing the total number of interns funded or co-funded.
	Number of knowledge and innovation products (patents, prototypes, technology demonstrators or technology transfer packages) added to the innovation products portfolio through fully funded or co-funded research initiatives	36 knowledge and innovation products (patents, prototypes, technology demonstrators or technology transfer packages) added to the innovation product portfolio through fully funded or co-funded research initiatives by 31 March 2017	17 knowledge and innovation products (patents, prototypes, technology demonstrators or technology transfer packages) added to the innovation product portfolio by 31 March 2018	38 knowledge and innovation products (patents, prototypes, technology demonstrators or technology transfer packages) added to the innovation product portfolio by 31 March 2018	+21	<b>Achieved</b>	As a result of placing substantial emphasis on the generation and codification of valuable IP in engagements with implementing agencies, there was an increase in the number of innovation products submitted to the DST for consideration as additions to the industrial innovation product portfolio.

#### 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
<p>To identify, grow and sustain niche high-potential STI capabilities that –</p> <ul style="list-style-type: none"> <li>improve the competitiveness of existing industries with growth potential in aerospace, advanced manufacturing, chemicals, advanced metals, mining, ICTs and sector innovation funds;</li> <li>facilitate the development of R&amp;D-led new targeted industries.</li> </ul>	<p>Number of Instruments funded in support of increased localisation, competitiveness and R&amp;D-led industry development</p>	<p>9 instruments funded in support of increased localisation, competitiveness and R&amp;D-led industry development in aerospace, advanced manufacturing, chemicals, mining, advanced metals and ICTs by 31 March 2017</p>	<p>6 instruments funded in support of increased localisation, competitiveness and R&amp;D-led industry development in aerospace, advanced manufacturing, chemicals, advanced metals, mining, ICTs and sector Innovation funds by 31 March 2018</p>	<p>6 instruments funded in support of increased localisation, competitiveness and R&amp;D-led industry development in aerospace, advanced manufacturing, chemicals, advanced metals, mining, ICTs and sector Innovation funds by 31 March 2018</p>	None	<b>Achieved</b>	None

## 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
To strengthen provincial and rural innovation and production systems through analysis and catalytic interventions	Number of innovation-support interventions funded or co-funded that strengthen provincial or rural innovation systems	7 innovation-support interventions funded or co-funded that strengthen provincial or rural innovation systems by 31 March 2017	2 innovation-support interventions funded or co-funded that strengthen provincial or rural innovation systems by 31 March 2018	5 innovation-support interventions funded or co-funded that strengthen provincial or rural innovation systems by 31 March 2018	+3	<b>Achieved</b>	The big and small data project was initially not part of the plan because it had not been conceptualised. Given its importance and potential impact, it was prudent to ensure that it was financed in the 2017/18 financial year. The SA-China science park collaboration (previously the Gauteng Science and High Technology Special Economic Zone) has been a very dynamic initiative, the evolving nature of which has resulted in it being kept on the list.
To enhance understanding and analysis that support improvements in the functioning and performance of the NSI	Number of statistical reports and policy briefings submitted to Cabinet	2015/16 Science and Technology Activities Report finalised. Report disseminated to clusters (Social Protection, Community and Human Development; and the Economic Sectors, Employment and Infrastructure Development)	6 statistical reports and policy briefings submitted to Cabinet by 31 March 2018	3 statistical reports and policy briefings submitted to Cabinet by 31 March 2018	-3	<b>Not achieved</b>	Data gathering and analysis is under way for 4 topics identified for policy briefs.

#### 4. Performance information by Programme (continued)

Strategic objective	Performance indicator	Actual achievement 2016/17	Planned target 2017/18	Actual achievement 2017/18	Deviation between planned target and actual achievement for 2017/18	Status	Comment on deviation
To introduce and manage interventions and incentive programmes that increase the level of private sector investment in scientific or technological R&D	Turnaround time for providing preapproval decisions on applications for the R&D tax incentive	By 31 March 2017, only 13 applications had received decision letters within 120 days. The average number of days for providing decisions was reduced from 266 days (applications received in 2015) to 147 days (applications received in 2016).	Preapproval decisions provided within 90 days of date of receipt of application for the R&D tax incentive by 31 March 2018	Preapproval decisions provided within 101 days (on average)	-11	<b>Not achieved</b>	Capacity challenges continued. The available capacity was used largely to clear the backlog, which was more time-consuming than initially anticipated due to the complexity of the applications.

##### Changes to planned targets

There were no changes to planned targets.

##### Approval

This is to confirm that the Executive Committee (Exco) of the Department of Science and Technology discussed the Department's performance information report for the 2017/18 financial year at its meeting of 23 May 2018, and that Exco made inputs into the content of the report, which reflects the DST's performance for the period covered in the report.



**Dr Phil Mjwara**  
Director-General  
31 May 2018



## 5. Transfer payments

### Transfer payments

The Department transfers funds to various entities in pursuit of its mandate. These entities assist the Department to achieve its objectives. The table below indicates the entities and the reasons transfers were made. The detailed information regarding the entities to which the transfers were made is disclosed fully in the Annexures to the Annual Financial Statements in Part E.

#### Programme 1: Administration

Organisation/theme	Budget R'000	Actual expenditure R'000	Reasons for transfer payment
Institutional and programme support	17 503	16 642	Assistance for research activities
<b>Total</b>	<b>17 503</b>	<b>16 642</b>	

#### Programme 2: Technology Innovation

Organisation/theme	Budget R'000	Actual expenditure R'000	Reasons for transfer payment
Biotechnology Strategy	35 459	35 459	Implementation of the Biotechnology Strategy
Energy Grand Challenge	32 677	32 677	Support R&D in the renewable energy sector
Health innovation	44 673	44 673	R&D for new health products and services
HIV/Aids prevention and treatment technologies	23 711	23 711	Research into technologies to combat and prevent HIV/Aids
Hydrogen Strategy (Capital)	67 080	67 080	Support research infrastructure in the hydrogen and energy sector
Hydrogen Strategy (Current)	33 510	33 510	Support R&D in the hydrogen and energy sector
Indigenous knowledge systems	9 604	9 604	Implementation of indigenous knowledge systems initiatives
Innovation projects	29 231	29 231	To promote intellectual property management, regulation and commercialisation
International Centre for Genetic Engineering and Biotechnology	33 672	33 077	R&D of new health products
South African National Space Agency	131 226	131 226	To support the creation of an environment conducive to industrial development and space technology
Space science	48 455	48 455	R&D to support space science initiatives
Technology Innovation Agency	396 732	396 732	To stimulate and intensify technology innovation and commercialisation output

## 5. Transfer payments (continued)

Organisation/theme	Budget R'000	Actual expenditure R'000	Reasons for transfer payment
Biofuels	5 100	5 100	Biofuels research
Emerging Research Areas	37 344	37 344	R&D into emerging research areas
National Nanotechnology Centre	63 504	63 504	R&D into nanotechnology initiatives
Offices of technology transfer – Support	68 479	68 479	Intellectual Property Fund and capacitating offices of technology transfer
South African National AIDS Council	15 000	-	HIV and Aids research
Technology Top 100	2 494	1 754	Technology Top 100 Awards
<b>Total</b>	<b>1 077 951</b>	<b>1 061 616</b>	

### Programme 3: International Cooperation and Resources

Organisation/theme	Budget R'000	Actual expenditure R'000	Reasons for transfer payment
Global science: Bilateral cooperation	14 130	13 979	Growing international partnerships with the aim of leveraging resources for R&D and human capital development
Global science: International resources	75 606	44 482	Growing international partnerships with the aim of leveraging resources for R&D and human capital development
Global science: Multilateral cooperation	8 872	7 743	Growing international partnerships with the aim of leveraging resources for R&D and human capital development
<b>Total</b>	<b>98 608</b>	<b>66 204</b>	

## 5. Transfer payments (continued)

### Programme 4: Research Development and Support

Organisation/theme	Budget R'000	Actual expenditure R'000	Reasons for transfer payment
Academy of Science of South Africa	25 261	25 261	To promote innovative and independent scientific thinking
Astronomy	29 348	29 348	Support to radio and optical astronomy
Human and Social Development Dynamics	26 012	26 012	Policy and institution building (10-year plan and centres of excellence)
Human resource development	884 944	884 934	Implementation of human capital development initiatives
National Research Foundation	925 964	925 964	To support and promote research through funding human resource development
Science awareness	73 018	73 018	Research and initiatives towards youth involvement in the science arena
Square Kilometre Array (Capital)	693 931	693 931	Infrastructure for the SKA project
South African Research Chairs Initiative	453 875	447 595	To fund research chairs in higher education institutions
Strategic science platforms	198 321	198 321	Support for human capital development and knowledge generation policy implementation and infrastructure development.
Cyberinfrastructure	223 273	223 273	Operation and management of CHPC initiatives and connectivity of research institutions
Research and development infrastructure	718 701	718 580	Infrastructure development
<b>Total</b>	<b>4 252 648</b>	<b>4 246 237</b>	

## 5. Transfer payments (continued)

### Programme 5: Socio-economic Innovation Partnerships

Organisation/theme	Budget R'000	Actual expenditure R'000	Reasons for transfer payment
Advanced Manufacturing Technology Strategy	53 164	53 163	Implementation of the Advanced Manufacturing Technology Strategy
Council for Scientific and Industrial Research	915 645	915 645	This is a parliamentary grant as per the Estimates of National Expenditure, to be used to provide science and technology services and solutions, and identify opportunities for new technologies to be further developed and exploited in the private and public sectors for commercial and social benefit.
Environmental innovation	21 895	21 894	Identifying and initiating S&T programmes that support the growth of the environmental technologies and services sector in South Africa
Human Sciences Research Council	304 656	304 656	Parliamentary grant as per the Estimates of National Expenditure. To conduct large-scale policy-relevant social science research
Information and communication technology	26 883	26 883	Implementation of the South African ICT RDI Roadmap Facilitating policy and strategy development on R&D interventions that support the growth of the ICT sector (excluding the ICT retail sector)
Mining research and development	27 000	27 000	Mining research and development
Local manufacturing capacity	91 716	91 716	Support for technology localisation. Assistance for local companies to develop their technology capabilities to enable them to leverage procurement opportunities under the infrastructure build programmes of the state-owned enterprises. Funding for technology stations to render technology support to small and medium enterprises.

## 5. Transfer payments (continued)

Organisation/theme	Budget R'000	Actual expenditure R'000	Reasons for transfer payment
Local systems of innovation	30 215	30 215	Support for local innovation interventions and science parks. Support for industry innovation partnerships.
Research Information Management System	3 781	3 781	Information access for decision making – continued development and maintenance of the Research Information Management System
Resource-based industries	45 996	45 996	S&T policy strategy and direction-setting support to harness value from South Africa's natural resources
Innovation for Inclusive Development	43 140	43 140	Development of indicators and instruments for measuring and monitoring investments in S&T and the performance of the NSI. Supports experimentation with S&T-based innovations for tackling poverty, inequality and unemployment through the creation of sustainable job and wealth opportunities and enhancing the delivery of basic services.
Science and technology indicators	3 172	3 172	Development of indicators and instruments for measuring and monitoring investment in S&T and the performance of the NSI
<b>Total</b>	<b>1 567 263</b>	<b>1 567 261</b>	

## 6. Conditional grants

None

## 7. Donor funds

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

Name of donor	European Union
<b>Full amount of the funding (R'000)</b>	143 500
<b>Period of the commitment</b>	3 years
<b>Purpose of the funding</b>	ICT innovation programme to support development and government delivery
<b>Expected outputs</b>	To achieve high-end results in the area of ICT with a focus on the knowledge economy in order to create a better South Africa, a better Africa and a better world
<b>Actual outputs achieved</b>	<p>Projects supported by the funds are implemented at the CSIR's Meraka Institute.</p> <p><b>1. Mobile Health Integrated Platform</b></p> <p>The EU General Budget Support project funded the research and capability development for interoperability in digital health, including research and development towards a standardised national identification number for health records, enabling the integration of key health systems (e.g. WC PMI, TIER.net, Meditech, VEMR and DHIS) through the Health Patient Registration System. These health systems were piloted and are now implemented by the national Department of Health in partnership with the CSIR. In addition, the project also funded the establishment of the interoperability lab (housed at the CSIR), which acts a national asset to promote interoperability in health information systems.</p> <p><b>2. Mobile IPTV Youth Employment Project Review</b></p> <p>The purpose of the project was to gainfully employ the youth of South Africa to boost economic growth through RDI in new Pan-African-appropriate media technologies that stimulate the growth of SMEs in the television and film industry. Support was given to five SMEs. Twenty-one media and 18 technology jobs were created. A learning tool was integrated into a film school (Big Fish Studio). Micro-enterprise Media Engine Workflow (MEM-W) platform licences were launched for three SMMEs and one corporate in 2017/18.</p> <p><b>3. Human Language Technology (HLT) speech-enabled service delivery platform</b></p> <p>The purpose of the project was to provide a multi-channel, speech-enabled, ICT-based service delivery enhancement platform. Speech technologies were deployed in real-world applications aimed at showcasing the potential of HLT to enable equitable access to information for all citizens, and support equitable government service delivery. The work undertaken to develop the core technologies and applications has provided a multi-channel (i.e. fit-for-purpose channel, which can be mobile, fixed line or web-based), speech enabled, ICT-based service delivery enhancement platform (i.e. HLTs that run on multiple operating systems, including Windows, Linux and Android). Much of the work funded by the project will have continued impact as it is built on in current projects, for example, Mburisano (a system-to-system communication system with uses in education and health); augmented e-books (digital disruption of the publishing industry); and Qfrenzy (a local text-to-speech offering with multiple applications).</p>
<b>Amount received in current period (R'000)</b>	3 006
<b>Amount spent by the department (R'000)</b>	2 985
<b>Reasons for the funds unspent</b>	Not applicable
<b>Monitoring mechanism by the donor</b>	These funds are audited by the Auditor-General or external auditors at the request of the donor.

## 7. Donor funds (continued)

Name of donor	Finland
Full amount of the funding (R'000)	80 000
Period of the commitment	4 years
Purpose of the funding	BioFISA II
Expected outputs	To develop a skilled and capable work force
Actual outputs achieved	<p><b>1. Functional and sustainable Southern Africa Network for Biosciences (SANBio) in place</b></p> <p>As a result of the awareness campaigns conducted, the number of stakeholders (including the youth and the private sector) involved in SANBio activities and those interacting with the various social media platforms has increased. As a result, the network has diversified the stakeholder base, with students making up 10% of stakeholders in April 2018 (up from 4% in March 2017) and the private sector 13% (up from 1%). Moreover, in March 2016 the Programme recorded five SANBio member states in the top 10 countries contributing to the total of new users on the SANBio website and, to date, two more countries, Zambia and Mauritius are also part of the top 10 countries.</p> <p><b>2. Human capacity strengthened in areas of the bioscience innovation value chain that will result in more end-user impact and innovation</b></p> <p>Thus far, BIOFISA II has trained over 600 participants in 19 modules, 496 of which were trained in this reporting period. At least 63% of the participants in this financial year were women. Some of the participants received training at several courses, for example, project teams were trained in proposal writing and developing business models using the Business Model Canvas (BMC), then in PRINCE2 project management methodology, followed by training in intellectual property and commercialisation, and then customer and business strategy development. Women in the FemBioBiz Acceleration Programme were trained to understand their business models using the BMC, their finances and growth strategy using a growth wheel, and how to pitch their businesses to different audiences. These interventions at multiple points for individuals enable the programme to provide targeted support that can strengthen both the individual and the institution that they work for.</p> <p><b>3. Sustainable funding structures and instruments in place to support SANBio activities</b></p> <p>To date, seven projects have been supported in developing prototypes. Five of these are conducting market testing and are expected to conduct pilot-scale production and launch the product on the market at the end of the funding period. An additional three projects are being supported to validate their products in the relevant environments and to conduct market testing with all three projects expected to launch their products on the market at the end of the BioFISA II funding. The remaining three projects have conducted bench-scale production and the seed grant provided for them from BioFISA will assist them to conduct pilot and commercial scale production.</p>
Amount received in current period (R'000)	20 000
Amount spent by the department (R'000)	20 000
Reasons for the funds unspent	Not applicable.
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.



## 7. Donor funds (continued)

Name of donor	European Union
Full amount of the funding (R'000)	5 000
Period of the commitment	3 years
Purpose of the funding	ESASTAP 2
Expected outputs	Advancement of South Africa-European Union collaboration
Actual outputs achieved	<p><b>1. Promotion of SA participation in H2020 and European Research Council opportunities (DST)</b></p> <p>A number of Horizon 2020 roadshows/information days were organised in in the 2017/18 financial year, including at the Central University of Technology and the University of Cape Town. The H2020 work programme for 2018-2020 was presented, and potential flagship initiatives highlighted.</p> <p><b>2. Analysis of SA Horizon 2020 participation (ASSAf)</b></p> <p>The DST provided support to ASSAf for an analysis of South African participation in the H2020 Framework Programme. ASSAf is currently updating the report for final submission to the coordinator.</p> <p><b>3. Promotion of South African research and innovation programmes in Europe to enhance SA-EU bilateral cooperation activities of the Reciprocity Forum (DST)</b></p> <p>The DST finalised preparations for its participation in the EuroScience Open Forum 2018 in France, as one of the ESASTAP project deliverables of showcasing South African programmes at events in Europe.</p> <p><b>4. Supporting the SA national contact points (DST)</b></p> <p>DST completed consultations with the SA national contact point network and completed two training sessions with the network as per the project schedule.</p> <p><b>5. Support the bilateral EU-SA S&amp;T policy dialogues and contribute to the implementation of the EU-SA Joint S&amp;T Cooperation Committee (JSTCC) and the SA-EU National Innovation Policy Dialogues recommendations (DST)</b></p> <p>The recommendations of the 2017 SA-EU JSTCC held in December 2017 in South Africa were implemented. This included planning the international technology transfer exchange programme for South African participants with European organisations.</p>
Amount received in current period (R'000)	960
Amount spent by the department (R'000)	649
Reasons for the funds unspent	<p>The DST was responsible for the hosting and management of the ESASTAP 2020 website on behalf of the project consortium. The DST published a call for expressions of interest/quotations for the hosting and management of the ESASTAP 2020 website until February 2019 (the end of the project). The quotations received exceeded R500 000 and the DST would therefore have had to go through a tender process to appoint a service provider. The project coordinator advised the DST to stop the process and the website responsibility was allocated to a European partner. This meant that the funding originally allocated for the website was redirected to be used for project deliverables in 2018.</p>
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

## 7. Donor funds (continued)

Name of donor	European Union
Full amount of the funding (R'000)	636
Period of the commitment	3 years
Purpose of the funding	SAccess
Expected outputs	Provision of access for European researchers to South African innovation programmes, and promotion of collaborations with South African researchers
Actual outputs achieved	South Africa became a member of the European platform called Science Business. Through the DST's membership of the EU's Science Business network, the Director-General was invited to participate in the annual conference held on 5 June 2018 in Brussels, Belgium. The conference was an opportunity to promote South Africa as the preferred research, development and innovation partner for European stakeholders. Strategic bilateral meetings with European Directors-General were also held on the margins of the conference.
Amount received in current period (R'000)	253
Amount spent by the department (R'000)	253
Reasons for the funds unspent	Not applicable
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

Name of donor	Portugal
Full amount of the funding (R'000)	231
Period of the commitment	2 years
Purpose of the funding	Bridging Actions for Global Monitoring for Environment and Security (GMES) and Africa
Expected outputs	Bridging Actions for GMES and Africa (BRAGMA)
Actual outputs achieved	<p><b>1. Support the development and endorsement of the GAAP (Work Packages 2 and 4)</b></p> <p>Three of the nine thematic chapters of the GMES &amp; Africa Action Plan (GAAP) were developed and the process of analysing two of the five cross-cutting issues (Governance and Infrastructure) and outputs from the four pan-African workshops BRAGMA hosted was started.</p> <p><b>2. Support Coordination (Work Package 2)</b></p> <p>Throughout the duration of the project, the BRAGMA team was present at all the various levels of coordination of the process, reporting to the 8th Joint Africa-EU Strategy Partnership, conveying proposals and requests from the Space Troika and supporting the implementation of the GMES &amp; Africa Action Plan. BRAGMA's role included ensuring information flow and supporting proper technical coordination between the different entities responsible for steering the process.</p> <p><b>3. Support a coherent strategy between the EU and Africa (Work Package 3)</b></p> <p>BRAGMA devoted effort to developing strategic deliverables that will contribute to a better-planned strategy for EU-Africa cooperation on Earth observation activities.</p> <p><b>4. Raise awareness (Work Package)</b></p> <p>The BRAGMA project contributed to raising awareness of the GMES &amp; Africa initiative, not only through the GMES &amp; Africa workshops, but also at other BRAGMA and other African events such as the African Association of the Remote Sensing of the Environment.</p>

## 7. Donor funds (continued)

Name of donor	Portugal
Amount received in current period (R'000)	216
Amount spent by the department (R'000)	216
Reasons for the funds unspent	Not applicable
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

Name of donor	USAID
Full amount of the funding (R'000)	R3 600
Period of the commitment	3 years
Purpose of the funding	Indigenous knowledge systems standards development and capacity building
Expected outputs	Indigenous knowledge systems standards development and capacity building in order to develop skills and knowledge related to IKS
Actual outputs achieved	<p>A feasibility study was completed and a functioning expert network in information society development-related research, development and innovation established among universities and other marginalised research institutions in the SADC member countries.</p> <p>A virtual research, development and innovation network for information society development for rural and marginalised regions in the SADC was constructed and a network of researchers from under-resourced institutions was created and strengthened through capacity-building initiatives and strategic workshops in South Africa and Tanzania.</p>
Amount received in current period (R'000)	1 354
Amount spent by the department (R'000)	1 354
Reasons for the funds unspent	Not applicable
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

## 8. Capital investment, maintenance and asset management plan

The Department has an asset management policy in place. The policy has assisted in ensuring that assets are maintained and accounted for appropriately and, where new assets are required, are procured on time. In the year under review, the Department conducted two asset verifications, thus ensuring that all redundant, obsolete and damaged assets were disposed of and replaced.

During the year under review, the Department procured additional servers and blade switches to minimise the

risks of interruptions to its operations due to failures associated with information technology-related equipment. In 2018/19, the Department will procure additional IT equipment that could not be procured in 2017/18 owing to budgetary constraints.

The Department also procured new vehicles, replacing the old ones that were no longer economical to maintain.



# PART C

## GOVERNANCE

# PART C: GOVERNANCE

## 1. Introduction

The Department is committed to maintaining the highest standards of corporate governance, which are fundamental to the management of public finances and resources. The frameworks below are main pillars of the Department's corporate governance arrangements.

## 2. Risk management

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

There are various processes to ensure the commitment of the entire Department to ERM, for example, awareness

sessions, the publication of articles in the Department's internal newsletter, regular risk assessments and subsequent follow-ups, and the definition of clear risk management roles and responsibilities.

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

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

Name	Member status	Meetings attended	Notes
C Boltman	Independent member (Chairperson)	4 of 4	Reappointed as member and Chair on 1 Feb. 2018
L Kaplan	Independent member	3 of 3	Term of office ended on 31 January 2018
J Fick	Independent member	3 of 3	Term of office ended on 31 December 2017
M Karedi	Independent member	3 of 3	Term of office ended on 31 January 2018
C Marais	Independent member	1 of 1	Appointed as member on 1 Feb. 2018
F Kobo	Independent member	1 of 1	Appointed as member on 1 Feb. 2018
M Ramataboe	Independent member	1 of 1	Appointed as member on 1 Feb. 2018
T Makhode	Ex officio member	2 of 4	DDG: Institutional Planning and Support
N Mokoena	Ex officio member	4 of 4	DDG: Corporate Services
N January	Ex officio member	4 of 4	Head: Legal Services
P Makukule	Ex officio member	4 of 4	CFO
R Marcus	Audit Committee Chairperson – Standing invitee	3 of 4	Resigned from the Audit Committee during the 2017/18 financial year
L Konar	Acting Audit Committee Chairperson – Standing invitee	0 of 2	

## 2. Risk management (continued)

In February 2018, the Department appointed three new independent members for a three-year term. The new appointees replaced the members whose terms had ended and who were no longer eligible for reappointment, or chose not to be reappointed. The ERM Chairperson was reappointed for a second and final three-year term. The reappointment ensures continuity in the Committee.

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

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

In the period under review, risk assessments were conducted for key projects. These included projects managed on behalf of the Department by its entities.

In the period under review, the ERM Chairperson briefed the Director-General every quarter, and the Minister on an annual basis, on the effectiveness and adequacy of ERM across the Department. The annual briefing to the Minister was introduced in the 2016/17 financial year.

At the start of the 2017/18 financial year, the Department implemented deputy director-general-level performance standards for ERM.

## 3. Fraud and corruption

The Department has in place an effective system for fraud risk management, including a framework, a strategy, whistle-blowing policies, and an annual fraud prevention and detection plan.

The Department's fraud risk profile was finalised at the start of the period under review. This was used as the basis for the formulation of the annual fraud prevention and detection plan. The implementation of the plan is driven by the Directorate: ERM and progress is monitored quarterly by the ERM and Audit Committee.

Using various mediums of communication, the Department actively promotes awareness of fraud and corruption, and the use of the National Anti-Corruption Hotline. The Department has designated mid-November to mid-December of each year as Anti-Corruption Month and hosts its annual Anti-Corruption Day within this period. In the year under review, the Department's programme focused on raising staff awareness of cybercrime.

The veracity of allegations of fraud and corruption are thoroughly investigated using internal and/or external resources. The outcome of an investigation guides the Accounting Officer on the steps to be taken to finalise the matter (e.g. disciplinary action, recovery of state resources or criminal investigation). If warranted, the Department will report a matter to the appropriate law enforcement authority (e.g. the South African Police Service, the Special Investigating Unit or the Office of the Public Protector) for further investigation. However, in the period under review, this was not necessary. The progress of investigations is reported on in closed sessions at all ERM meetings.

In the period under review, no new matters were referred to the Department by the Public Service Commission for investigation.

## 4. Minimising conflict of interest

Investigation is conducted to establish the nature of the conflict and to determine the cause of action.

## 5. Code of conduct

This document seeks to promote and maintain a high standard of professional ethics throughout the Public Service. If an employee breaches the Code of Conduct, he or she is subjected to a disciplinary process in terms of the Disciplinary Code and Procedures for the Public Service to correct his or her behaviour.



## 6. Health, safety and environmental issues

The Department's Occupational Health and Safety (OHS) Strategy focused on four objectives, which are (i) to create a healthy and safe working environment through the identification, recognition and evaluation of hazards, and the proactive implementation of appropriate risk control measures; (ii) to implement OHS risk management strategies in order to manage and reduce OHS risks effectively and efficiently; (iii) to reduce the frequency and severity of risks affecting employees' health and safety; (iv) to create OHS awareness by providing information and education in order to generate and maintain a vigilant OHS culture; and (v) to comply with OHS legislation and relevant standards.

Various inspections, a ventilation assessment and a biological assessment have been conducted and the findings are being addressed. The Department has a functional Health and Safety Committee in place.

The Committee has been educated about OHS legal obligations to equip them to execute their responsibilities.

OHS incidents such as injuries and narrowly avoided injuries were analysed and addressed quarterly. Notices were placed at various points in the Department to heighten awareness of OHS risks and the need for compliance with guidelines. These included notices on the Department's OHS policy, procedures for working at heights, the incident management guide, the guide on the management of medical emergencies, and the evacuation procedure.

In-house training was provided to the Emergency Response Team and the Health and Safety Committee so that they could respond effectively in case of emergency. Emergency evacuation drills were conducted as required.

## 7. Portfolio Committee

Information on briefings to the Portfolio Committee on Science and Technology and the Select Committee on Communications and Public Enterprises between 1 April 2017 and 31 March 2018.

Date	Subject	Matters raised by the Portfolio Committee (highlights of high-level issues)	How the matters were addressed/resolved
3 May 2017	Briefing by the National Advisory Council on Innovation on its 2017/18 Annual Performance Plan and budget	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
3 May 2017	Briefing by the South African National Space Agency on its 2017/18 Annual Performance Plan and budget	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
3 May 2017	Briefing by the National Research Foundation on its 2017/18 Annual Performance Plan and budget	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
3 May 2017	Briefing by the Technology Innovation Agency on its 2017/18 Annual Performance Plan and budget	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).

## 7. Portfolio Committee (continued)

Date	Subject	Matters raised by the Portfolio Committee (highlights of high-level issues)	How the matters were addressed/resolved
3 May 2017	Briefing by the Human Sciences Research Council on its 2017/18 Annual Performance Plan and budget	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
4 May 2017	Briefing by the Academy of Science of South Africa (ASSAf) on its 2017/18 Annual Performance Plan and budget	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
4 May 2017	Briefing by Council for Scientific and Industrial Research (CSIR) on its 2017/18 Annual Performance Plan and budget	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
10 May 2017	Briefing by the Department of Science and Technology (DST) on its 2017/18 Annual Performance Plan and budget	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
24 May 2017	Briefing by the Department of Science and Technology on space science issues.	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
31 May 2017	Briefing by the DST on its 2017/18 Annual Performance Plan	All questions were addressed.	The Portfolio Committee noted the presentation.
31 May 2017	Briefing by the DST on the Square Kilometre Array/ MeerKAT projects	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
7 June 2017	Briefing by the DST on the Research and Development Tax Incentive Programme	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
7 June 2017	Briefing on discussions held with the Department of Trade and Industry about the Protection, Promotion, Development and Management of Indigenous Knowledge Bill	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
14 June 2017	Briefing by the DST on its contribution to the Nine-Point Plan	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).

## 7. Portfolio Committee (continued)

Date	Subject	Matters raised by the Portfolio Committee (highlights of high-level issues)	How the matters were addressed/resolved
14 June 2017	Briefing by the Technology Innovation Agency on its 2017/18 Annual Performance Plan	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
28 June 2017	Briefing by the Council of Scientific and Industrial Research on their 2017/18 shareholder compact	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
16 Aug. 2017	Briefing on the IK Bill by legal advisers regarding the special nature of the protection needed	All questions were addressed.	The Portfolio Committee noted the presentation.
23 Aug. 2017	Briefing by the Parliamentary legal team and the DST on the proposed amendments to the IK Bill	All questions were addressed.	The Portfolio Committee noted the presentation.
6 and 13 Sept. 2017	Briefing on the Protection, Promotion, Development and Management of Indigenous Knowledge Bill	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
13 Sept. 2017	Briefing by the DST on its performance for the third quarter of 2017/18 against its Annual Performance Plan and budget	Members asked what corrective measures were taken when targets were not achieved.	The DST indicated that the executive met every quarter to discuss any problems and the reasons for them, after which the DDGs responsible were asked to formulate and report on corrective measures.
4 Oct. 2017	Briefing by the DST on its 2016/17 Annual Report	Members asked when the Committee would see the biennial report submitted to Cabinet on The State of Climate Change Science and Technology in South Africa.	The DST indicated that the report had been approved by the Cabinet and the Department was trying to find to meet with the Committee about it.
4 Oct. 2017	Briefing by the National Advisory Committee on Innovation (NACI) on its 2016/17 Annual Report	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
4 Oct. 2017	Briefing by the Council for Scientific and Industrial Research on its 2016/17 Annual Report	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
4 Oct. 2017	Briefing by the Technology Innovation Agency on its 2016/17 Annual Report	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).

## 7. Portfolio Committee (continued)

Date	Subject	Matters raised by the Portfolio Committee (highlights of high-level issues)	How the matters were addressed/resolved
4 Oct. 2017	National Research Foundation (NRF) on its 2016/17 Annual Report	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
5 Oct. 2017	Briefing by the Human Sciences Research Council on its 2016/17 Annual Report	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
5 Oct. 2017	Briefing by South African Council for Natural Scientific Professions (SACNASP) on its 2016/17 Annual Report	Members wanted to know if the total number of scientists currently registered was 2 507? If so, it would take a quantum leap to register 25 000 scientists by 2022.  Members asked what sources of funding SACNASP had.	SACNASP indicated that the 2 507 scientists mentioned was an annual registration target. The organisation had 10 470 registered scientists in South Africa at the end of 2016/17.  SACNASP explained that it received registration, application and evaluations fees from members and applicants. It also received a grant of R12,6m from the DST for specific projects.
5 Oct. 2017	Briefing by the Academy of Science of South Africa (ASSAf) on its 2016/17 Annual Report	Members asked if there was a record of how much irregular expenditure there was, and whether the entity had a plan to recover the debt.  Members wanted to know to what extent ASSAf's non-compliance with the Public Finance Management Act (PFMA) had affected the organisation's audit outcomes.	ASSAf suggested that the irregular expenditure might be where three quotations had not been obtained. It indicated that irregular expenditure was below R1m, and that it was mainly in relation to an IT provider who was not on the Central Supplier Database. Efforts were being made to eliminate that kind of situation. Most of the debts related to membership fees, but in spite of all ASSAf's efforts, most members simply did not pay, even though the fee was only R200 a year.  ASSAf stated that, although ASSAf was not a listed entity in the PFMA, it was being audited as if it was. However, this contradiction was being addressed.

## 7. Portfolio Committee (continued)

Date	Subject	Matters raised by the Portfolio Committee (highlights of high-level issues)	How the matters were addressed/resolved
11 Oct. 2017	Briefing by the South African National Space Agency (SANSA) on its 2016/17 Annual Report	<p>Members asked for a breakdown in terms of gender for 52 direct jobs that were supported, and whether the jobs were permanent or contract.</p> <p>Members asked for breakdown of the R13 million that went to SMEs.</p> <p>Members asked if progress had been made to formalise land use rights in the area that SANSA currently occupied.</p> <p>Members asked if SANSA had any information about Ghana in relation to the EOSat-1 programme.</p>	<p>SANSA indicated that it would submit a breakdown in writing.</p> <p>SANSA indicated that it would submit a breakdown in writing.</p> <p>SANSA indicated that it would have to check with Earth observation colleagues who worked with land reform matters and would report back to the Committee.</p> <p>SANSA had had a fruitful conversation with Ghana the previous week. However, the country did not have political support for its space programme, so South Africa had been asked to assist it in building support.</p>
12 Oct. 2017	Briefing on the DST budget review and recommendations	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
25 Oct. 2017	Briefing by the DST on its contribution to the transition to a greener economy.	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
1 Nov. 2017	Briefing by the Academy of Science of South Africa on South Africa's technical readiness to support the Shale Gas Industry.	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
1 Nov. 2017	Briefing by the Council for Scientific and Industrial Research (CSIR) on Strategic Environmental Assessment for Shale Gas Development in South Africa	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
15 Nov. 2017	Briefing by NACI on the 2017 South African Science, Technology and Innovation Indicators Report	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
22 Nov. 2017	Briefing by the DST on the Research and Development Tax Incentive Programme	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).

## 7. Portfolio Committee (continued)

Date	Subject	Matters raised by the Portfolio Committee (highlights of high-level issues)	How the matters were addressed/resolved
22 Nov. 2017	Briefing by the DST on National Research Foundation Amendment Bill	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
14 Feb. 2018	Briefing by the DST on its financial and non-financial performance in the second quarter of the 2017/18 financial year	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
21 Feb. 2018	Public hearing: National Research Foundation Amendment (NRF) Bill	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
28 Feb. 2018	Briefing on issues emanating from public hearings on the NRF Amendment Bill	All questions were addressed.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website ( <a href="http://www.pmg.org.za/minutes">www.pmg.org.za/minutes</a> ).
14 Mar. 2018	Briefing by the DST on its financial and non-financial performance in the third quarter of the 2017/18 financial year	<p>Members ask for clarity on the "ineffectiveness of implementers" indicated as a reason for underperformance.</p> <p>The Portfolio Committee raised the following for the DST's attention:</p> <ol style="list-style-type: none"> <li>1. The Department needed to disaggregate the beneficiaries of the following: <ul style="list-style-type: none"> <li>• The SKA SA project</li> <li>• Research grants awarded</li> <li>• Student bursaries awarded</li> <li>• Interns</li> <li>• 10 science festivals and 19 science, technology, engineering, mathematics and innovation Olympiads</li> </ul> </li> <li>2. Why was Stellenbosch University chosen to run the Wheat Breeding Programme?</li> <li>3. The Overseas Bilateral Cooperation programme needed to provide the Portfolio Committee with information (DST submissions) on visits made to Jamaica, Japan and South Korea</li> </ol>	<p>The DST explained that, while it was responsible for the development of STI policies, it used the science councils to implement projects. Unforeseen delays in the delivery of some projects by the science councils affected the DST's ability to meet its quarterly targets.</p> <p>To be addressed by Programme 4 through the DG's office.</p> <p>To be addressed by Programme 2 through the DG's office.</p> <p>To be addressed by Programme 3 through the DG's office.</p>

## 8. SCOPA resolutions

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

## 9. Prior modifications to audit reports

There were no prior modifications to the audit reports of the Department.

## 10. Internal control unit

There is no internal control unit in the Department. All internal control functions are performed by the Internal Audit Activity.

## 11. Internal audit and Audit Committee

### Key activities and objectives of Internal Audit Activity

Senior management and the Audit Committee rely on Internal Audit Activity for independent objective assurance and insight on the effectiveness and efficiency of the Department's governance, risk management and internal control processes.

Internal Audit Activity focuses primarily on providing professional audit services to management and the Audit Committee, and conducting activities efficiently and effectively in accordance with professional standards for internal auditors.

In assisting the Audit Committee in their oversight role, Internal Audit Activity developed a three-year risk-based internal audit plan, guided by the Department's strategic documents and risk profile, for the Committee's approval.

Emerging risks and issues were considered when completing the audit plan. Internal Audit Activity conducted a follow-up of audit recommendations to ensure that value was derived from the auditing performed. Internal Audit Activity also performed a review of the combined assurance plan to assess whether the combined assurance received was appropriate for addressing all significant risks facing the Department.

## Summary of audit work done

The Internal Audit Activity completed the risk-based audit plan during the year under review. The plan covers internal audits, project audits and consulting engagements. Internal Audit Activity selected and prioritised the audit engagements for the year based on risk exposure, external audit reports, Management Performance Assessment Tool (MPAT) results, the complexity of the areas concerned, management priority and lack of previous coverage, as well as ad hoc audit requests.

Audit work focused on control weaknesses identified in the areas of performance information, procurement processes, IT audits, risk management and financial statements. Internal Audit Activity also provided consulting services on the verification of MPAT evidence, the Auditor-General Dashboard and certain performance information focus areas. The Department implemented numerous projects and initiatives to ensure achievement of its planned outcomes, and project audits were a key component of the audit plan.

### Key activities and objectives of the Audit Committee

The Audit Committee is constituted to fulfil the Department's statutory obligations in terms of section 77 of the Public Finance Management Act, 1999, and the Treasury Regulations issued in terms of the Act. The Audit Committee is an oversight body, providing independent oversight over governance, risk management and control processes of the Department. The Committee's mandate and responsibilities are clearly defined in the Audit Committee Charter, in accordance with which four Audit Committee meetings were convened in the year under review.



## 11. Internal audit and Audit Committee (continued)

### Attendance of Audit Committee meetings by Audit Committee members

Name	Qualifications	Internal or external	Date appointed	Date contract ended	Number of meetings attended
Shirley Machaba	CA(SA), CD(SA), CRMA, CCSA and Certificate in Corporate Governance	External	1 Oct. 2012	n/a	3 of 4
Roy Marcus	MSc (Mechanical Engineering) and PhD	External	1 May 2013	12 Feb. 2018	2 of 3
Len Konar	DCom, MAS (Illinois, USA), CA(SA), CRMA	External	1 Oct. 2016	n/a	4 of 4
Nicolette Middleton	MBA, CIA, BCom Hons (Informatics)	External	1 Mar. 2018	n/a	1 of 1

## 12. Audit Committee report

We are pleased to present our report for the financial year ended 31 March 2018.

### 1. Audit Committee responsibility

The Audit Committee has fulfilled its responsibilities in terms of section 38(1)(a)(ii) of the Public Finance Management Act and Treasury Regulation 3.1.13. The Committee has adopted formal terms of reference as its Audit Committee Charter, and has regulated its affairs and discharged all its responsibilities in compliance with the Charter, except that it has not reviewed changes to accounting policies and practices.

### 2. The effectiveness of Internal Audit Activity

Internal Audit Activity reports functionally to the Audit Committee. The Audit Committee approves the internal audit charter and annual audit plan of Internal Audit Activity to maintain its independence. A quality assurance and improvement programme is implemented annually and the results are presented to the Audit Committee. Under the guidance of the Audit Committee and the Enterprise Risk Management Committee, the combined assurance plan was reviewed to assess whether the combined assurance received was appropriate for addressing all significant risks facing the Department.

All assurance providers carried out their responsibilities as indicated in the combined assurance plan. The Audit Committee is satisfied that Internal Audit Activity is operating effectively and has addressed pertinent risks to the Department by implementing the annual audit plan.

### 3. The effectiveness of internal controls

Our review of the significant audit findings, which was informed by the risk assessments conducted in the Department, revealed certain weaknesses which were then raised with the Department.

Areas selected for audit included –

- performance information;
- procurement processes;
- financial statement reviews;
- contract management;
- information technology audits;
- risk management;
- follow-up of internal and external audit findings;
- projects funded by the Department;
- the Management Performance Assessment Tool.

An area of concern is the quality of evidence submitted to support the performance information reported by the Department.

## 12. Audit Committee report (continued)

### 4. In-year management and monthly/quarterly reports

The Department submits monthly reports on departmental expenditure and quarterly reports on its interim financial statements to the Treasury, as required by the Public Finance Management Act. The Department also reports quarterly to the Department of Planning, Monitoring and Evaluation on performance against predetermined objectives. During the year under review, the Audit Committee monitored these reports, which were prepared and issued by the Accounting Officer and management.

### 5. Evaluation of financial statements

The Audit Committee –

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

Overall, the Audit Committee is satisfied with the submission and quality of both the interim and annual financial statements prepared by the Department.

### 6. Enterprise risk management

Enterprise risk management is a structured process that focuses on the identification, assessment, management and monitoring of risk. A fully functional Enterprise Risk Management Committee supports the Executive Authority and Accounting Officer by providing oversight, reviewing information presented by management, and reporting on the adequacy and effectiveness of the Department's risk management system. The Committee

monitored significant risks and is satisfied that they were reduced to an acceptable level. Comprehensive strategies for enterprise risk management and fraud risk management were developed and implemented. The fraud risk management strategy includes a fraud prevention and detection plan. For the purposes of coordination and fostering relationships, the Chairperson of the Audit Committee and the Chief Audit Executive are standing invitees to the Enterprise Risk Management Committee, and the Chairperson of the Enterprise Risk Management Committee and the Chief Risk Officer are standing invitees to the Audit Committee.

### 7. Annual performance review

The Committee has considered the performance information reports submitted to the AGSA for review.

### 8. Auditor-General's report

We have reviewed the Department's commitments identified in the AGSA status of review document for audit issues raised in the previous year and we are satisfied that the matters are being adequately addressed. However, the following area of concern requires management intervention: The implementation of controls to ensure that performance information reported is corroborated by valid evidence.

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



**Dr Len Konar**

Acting Chairperson of the Audit Committee

Department of Science and Technology

27 July 2018



## PART D

### HUMAN RESOURCE MANAGEMENT

# PART D: HUMAN RESOURCE MANAGEMENT

## 1. Introduction

The Minister of Public Service and Administration has instructed all departments in the Public Service to provide the information contained in this part of the Annual Report.

## 2. Overview of human resources

The objectives of the Strategic Human Resource Plan (HR Plan) for the Department are as follows:

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

Identified human resource priorities are set out in the table below:

Priority area	Approach to mitigate risks and achieve targets
Recruitment/staffing	Address recruitment and staffing methods to widen the pool of potential candidates, particularly for scarce skills and mission-critical positions
Talent management	Develop a comprehensive approach to managing and retaining current talent, particularly in mission-critical and scarce skills positions
Employment equity	Address targets for women and people with disabilities at SMS level
Training and development	Develop a comprehensive approach to developing current staff to fill mission-critical and scarce skills positions
Employee-employer relations	Create harmonious relationships through engagement
Ethics management	Provide ongoing training in ethics management
Health and wellness management	Provide health and wellness support and interventions to help employees identify and manage their health risks

## Human resource challenges

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

- (a) The current systems for managing HR planning information are inadequate, and Persal is generally seen as a system that is not ideal for this purpose. It is envisaged that the Department of Public Service and Administration (DPSA) will develop an integrated HR Information Management System that will ease this burden. In the short term, however, not all the data required to execute HR planning effectively is freely available and this may affect the ability of the Department to plan effective interventions.
- (b) The environment in which the Department operates is constantly changing, which means that the Department has to be prepared to effect key strategic changes, including decisions related to human resources, very quickly. The capacity to collect and analyse relevant data and its implications for HR requirements is therefore critical. The Department will thus, in addition to improving its information management capability, have to adopt a more robust system for identifying and managing risks, challenges and opportunities that may arise from these environmental changes.

## 2. Overview of human resources (continued)

- (c) Employment equity issues (specifically related to gender and disability) continue to be addressed by the Department through a number of initiatives, policies and strategies. Creating an enabling environment for women and disabled people is key to managing diversity.
- (d) Much of the Department's workforce is young, which places particular pressure on the Department to consider and adopt robust institutional knowledge management practices to mitigate the risks associated with a generally young, and therefore more mobile, workforce.
- (e) The compensation budget cuts by National Treasury in 2016/17 led to a moratorium on the filling of vacancies. The vacancy rate is growing and staff are increasingly required to perform additional duties. It is important to monitor the impact of this on the quality of the Department's performance, as well as on employees' health and wellness.

### Employee health and wellness

As employee wellness issues significantly affect the productivity of the workforce, as well as the retention of potentially critical skills, it is imperative that these are addressed during HR planning interventions. In the year under review, the Department made a variety of interventions to assist employees manage their health risks, including the following:

- (a) An employee assistance programme, which offers quarterly health screenings, access to online health professionals, access to legal and financial advisors, and an executive wellness programme.
- (b) Access to health and wellness information.
- (c) Sport initiatives.

## 3. Human resources oversight statistics

### 3.1 Personnel-related expenditure

The following tables summarises the final audited personnel related expenditure by programme and by salary bands.

**Table 3.1.1: Personnel expenditure by Programme for the period 1 April 2017 to 31 March 2018**

Programme	Total expenditure (R'000)	Personnel expenditure (R'000)	Training expenditure (R'000)	Professional and special services expenditure (R'000)	Personnel expenditure as % of total expenditure	Average personnel cost per employee (R'000)
Corporate Services	338 195	161 488	338 222	3 274	47,75%	711
Technology Innovation	1 122 282	41 912	0	0	3,73%	822
International Cooperation and Resources	156 057	46 331	0	32	29,69%	827
Research Development and Support	4 285 823	35 206	0	342	0,82%	800
Socio-economic Innovation Partnerships	1 612 646	39 133	0	0	2,43%	783
<b>Total</b>	<b>7 515 003</b>	<b>324 070</b>	<b>338 222</b>	<b>3 648</b>	<b>4,31%</b>	<b>757</b>

### 3. Human resources oversight statistics (continued)

**Table 3.1.2: Personnel costs by salary band for the period 1 April 2017 to 31 March 2018**

Salary band	Personnel expenditure (R'000)	% of total personnel cost	No. of employees	Average personnel cost per employee (R'000)
Lower skilled (Levels 1-2)	0	0,00%	0	0
Skilled (Levels 3-5)	3 717	1,15%	13	286
Highly skilled production (Levels 6-8)	43 672	13,48%	110	397
Highly skilled supervision (Levels 9-12)	140 864	43,47%	197	715
Senior and top management (Levels 13-16)	135 817	41,91%	108	1 258
<b>Total</b>	<b>324 070</b>	<b>100,00%</b>	<b>428</b>	<b>757</b>

**Table 3.1.3: Salaries, overtime, home owner's allowance and medical aid by Programme for the period 1 April 2017 to 31 March 2018**

Programme	Salaries		Overtime		Home owner's allowance (HOA)		Medical aid	
	Amount (R'000)	Salaries as % of personnel costs	Amount	Overtime as % of personnel costs	Amount	HOA as % of personnel costs	Amount	Medical aid as % of personnel costs
Corporate Services	161 488	49,83%	610	0,38%	2433	1,51%	13873	8,59%
Technology Innovation	41 912	12,93%	0	0,00%	647	1,54%	538	1,28%
International Cooperation and Resources	46 331	14,30%	13	0,03%	487	1,05%	1034	2,23%
Research Development and Support	35 206	10,86%	44	0,12%	695	1,97%	576	1,64%
Socio-economic Innovation Partnerships	39 133	12,08%	15	0,04%	448	1,14%	540	1,38%
<b>Total</b>	<b>324 070</b>	<b>100,00%</b>	<b>682</b>	<b>0,21%</b>	<b>4710</b>	<b>1,45%</b>	<b>16 561</b>	<b>5,11%</b>

### 3. Human resources oversight statistics (continued)

**Table 3.1.4: Salaries, overtime, home owner's allowance and medical aid by salary band for the period 1 April 2017 to 31 March 2018**

Salary band	Salaries		Overtime		Home owner's allowance (HOA)		Medical aid	
	Amount (R'000)	Salaries as % of personnel costs	Amount	Overtime as % of personnel costs	Amount	HOA as % of personnel costs	Amount	Medical aid as % of personnel costs
Lower skilled (Levels 1-2)	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Skilled (Levels 3-5)	3 717	1,15%	67	0,02%	150	1,20%	3 894	1,20%
Highly skilled production (Levels 6-8)	43 672	13,48%	247	0,08%	2 851	2,44%	7 894	2,44%
Highly skilled supervision (Levels 9-12)	140 864	43,47%	368	0,11%	1 709	0,53%	4 773	1,47%
Senior and top management (Levels 13-16)	135 817	41,91%	0	0	0	0,00%	0	0,00%
<b>Total</b>	<b>324 070</b>	<b>100,00%</b>	<b>682</b>	<b>0,21%</b>	<b>4 710</b>	<b>1,45%</b>	<b>16 561</b>	<b>5,11%</b>

### 3.2 Employment and vacancies

**Table 3.2.1: Employment and vacancies by Programme as at 31 March 2018**

Programme	Number of posts on approved establishment	Number of posts filled	Vacancy rate	Number of employees additional to the establishment
Corporate Services	265	227	14,34%	0
Technology Innovation	58	51	12,07%	0
International Cooperation and Resources	63	56	11,11%	0
Research Development and Support	49	44	10,20%	0
Socio-economic Innovation Partnerships	57	50	12,28%	0
<b>Total</b>	<b>492</b>	<b>428</b>	<b>13,01%</b>	<b>0</b>

**Note:** Departments have identified critical occupations that need to be monitored. In terms of current regulations, it is possible to create a post on the establishment that can be occupied by more than one employee. Therefore, the vacancy rate reflects the percentage of posts that are not filled.



### 3. Human resources oversight statistics (continued)

**Table 3.2.2: Employment and vacancies by salary band as at 31 March 2018**

Salary band	Number of posts on approved establishment	Number of posts filled	Vacancy rate	Number of employees additional to the establishment
Lower skilled (Levels 1-2)	0	0	0,00%	0
Skilled (Levels 3-5)	13	13	0,00%	0
Highly skilled production (Levels 6-8)	124	110	11,29%	0
Highly skilled supervision (Levels 9-12)	230	197	14,35%	0
Senior and top management (Levels 13-16)	125	108	13,60%	0
<b>Total</b>	<b>492</b>	<b>428</b>	<b>13,01%</b>	<b>0</b>

**Table 3.2.3: Employment and vacancies by critical occupations as at 31 March 2018**

The Department does not have any CORE employees.

**Note:** CORE refers to the DPSA Codes of Remuneration (CORE) classification.

Critical occupations are defined as occupations or subcategories within an occupation –

- (a) in which there is a scarcity of qualified and experienced persons currently or anticipated in the future, either because such skilled persons are not available or because they are available but do not meet the applicable employment criteria;
- (b) for which persons require advanced knowledge in a specified subject area, science or learning field and such knowledge is acquired by a prolonged course of study and/or specialised instruction;
- (c) where the inherent nature of the occupation requires consistent exercise of discretion and is predominantly intellectual in nature;
- (d) in respect of which a department experiences a high degree of difficulty in recruiting or retaining the services of employees.

### 3. Human resources oversight statistics (continued)

#### 3.3 Filling of Senior Management Service posts

**Table 3.3.1: SMS post information as at 31 March 2018**

SMS level	Total number of funded SMS posts	Total number of SMS posts filled	% of SMS posts filled	Total number of SMS posts vacant	% of SMS posts vacant
Director-General/Head of Department	1	1	100,00%	0	0,00%
Salary Level 16	0	0	0,00%	0	0,00%
Salary Level 15	9	8	88,89%	1	11,11%
Salary Level 14	27	22	81,48%	5	18,52%
Salary Level 13	88	77	87,50%	11	12,50%
<b>Total</b>	<b>125</b>	<b>108</b>	<b>86,40%</b>	<b>17</b>	<b>13,60%</b>

**Table 3.3.2: SMS post information as at 30 September 2017**

SMS level	Total number of funded SMS posts	Total number of SMS posts filled	% of SMS posts filled	Total number of SMS posts vacant	% of SMS posts vacant
Director-General/Head of Department	1	1	100,00%	0	0,00%
Salary Level 16	0	0	0,00%	0	0,00%
Salary Level 15	9	8	88,89%	1	11,11%
Salary Level 14	27	24	88,89%	3	11,11%
Salary Level 13	88	80	90,91%	8	9,09%
<b>Total</b>	<b>125</b>	<b>112</b>	<b>89,60%</b>	<b>12</b>	<b>10,6%</b>

**Table 3.3.3: Advertising and filling of SMS posts for the period 1 April 2017 to 31 March 2018**

SMS level	Total number of funded SMS posts	Total number of SMS posts filled	% of SMS posts filled	Total number of SMS posts vacant	% of SMS posts vacant
Director-General/Head of Department	1	1	100,00%	0	0,00%
Salary Level 16	0	0	0,00%	0	0,00%
Salary Level 15	9	8	88,89%	1	11,11%
Salary Level 14	27	22	81,48%	5	18,52%
Salary Level 13	88	77	87,50%	11	12,50%
<b>Total</b>	<b>125</b>	<b>108</b>	<b>86,40%</b>	<b>17</b>	<b>13,60%</b>

**Table 3.3.4: Reasons for not having complied with time frames for the filling of funded vacant SMS posts – advertised within 6 months and filled within 12 months after becoming vacant – for the period 1 April 2017 to 31 March 2018**

<b>Reasons for vacancies not being advertised within six months</b>
Owing to National Treasury cuts to the Department's compensation budget, no vacant posts could be advertised.
<b>Reasons for vacancies not being filled within six months</b>
Owing to National Treasury cuts to the Department's compensation budget, the only vacant post that could be filled was the critical post of Head: National Advisory Council on Innovation. The appointment process is under way.

### 3. Human resources oversight statistics (continued)

**Table 3.3.5: Disciplinary steps taken for not complying with the prescribed time frames for filling SMS posts for the period 1 April 2017 to 31 March 2018**

Vacancies not advertised within six months
No disciplinary steps were taken. Programmes work closely with Human Resources, which submits a quarterly report to Exco. However, owing to National Treasury cuts to the Department's compensation budget, no vacant posts could be advertised or filled. Acting appointments were made where appropriate.
Vacancies not filled within six months
No disciplinary steps were taken. Programmes work closely with Human Resources, which submits a quarterly report to Exco. However, owing to National Treasury cuts to the Department's compensation budget, no vacant posts could be advertised or filled. Acting appointments were made where appropriate.

**Note:** In terms of the Public Service Regulations, Chapter 1, Part VII C.1A.2, departments must indicate good cause or reason for not having complied with the filling of SMS posts within the prescribed time frames. In the event of non-compliance with this regulation, the relevant executive authority or head of department must take appropriate disciplinary steps in terms of section 16A(1) or (2) of the Public Service Act.

#### 3.4 Job evaluation

**Table 3.4.1: Job evaluation by salary band for the period 1 April 2017 to 31 March 2018**

Salary band	Number of posts on approved establishment	Number of jobs evaluated	% of posts evaluated by salary band	Posts upgraded		Posts downgraded	
				Number	% of posts evaluated	Number	% of posts evaluated
Lower skilled (Levels 1-2)	0	0	0	0	0	0	0,00%
Skilled (Levels 3-5)	13	0	0	0	0	0	0,00%
Highly skilled production (Levels 6-8)	124	15	12,00%	0	0	0	0,00%
Highly skilled supervision (Levels 9-12)	230	10	4,34%	0	0	1	10,00%
Senior Management Service Band A	88	3	3,40%	0	0	0	0,00%
Senior Management Service Band B	27	1	3,70%	0	0	0	0,00%
Senior Management Service Band C	9	1	11,11%	0	0	0	0,00%
Senior Management Service Band D	1	1	100%	0	0	0	0,00%
<b>Total</b>	<b>492</b>	<b>31</b>	<b>6,30%</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3,22%</b>

**Note:** Within a nationally determined framework, an executive authority may evaluate or re-evaluate any job in his or her organisation. In terms of the Public Service Regulations, all vacancies on salary level 9 and above must be evaluated before they are filled.

**Table 3.4.2: Profile of employees whose positions were upgraded due to their posts being upgraded for the period 1 April 2017 to 31 March 2018**

No employees had their positions upgraded owing to their posts being upgraded.

### 3. Human resources oversight statistics (continued)

**Table 3.4.3: Employees with salary levels higher than those determined by job evaluation by occupation for the period 1 April 2017 to 31 March 2018**

Occupation	Number of employees	Job evaluation level	Remuneration level	Reason for deviation
Chief Director	0	0	0	n/a
Deputy Director-General	1	15	-	Personal notch
Deputy Director	1	11	12	Personal notch
Assistant Director	2	9	10	Personal notch
Total number of employees whose salaries exceeded the level determined by job evaluation				4
Percentage of total employed				0,47%

**Table 3.4.4: Profile of employees with salary levels higher than those determined by job evaluation for the period 1 April 2017 to 31 March 2018**

Category	African	Asian	Coloured	White	Total
Female	0	0	0	0	0
Male	3	0	0	1	4
Employees with a disability	0	0	0	0	0
<b>Total</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>4</b>

### 3.5 Employment changes

**Table 3.5.1: Annual turnover rates by salary band for the period 1 April 2017 to 31 March 2018**

Salary band	Number of employees as at 1 April 2017)	Appointments and transfers into the Department	Terminations and transfers out of the Department	Turnover rate
Lower skilled (Levels 1-2)	0	0	0	0,00%
Skilled (Levels 3-5)	13	0	0	0,00%
Highly skilled production (Levels 6-8)	110	0	2	1,82%
Highly skilled supervision (Levels 9-12)	197	0	13	6,60%
Senior Management Service Band A	76	0	2	2,63%
Senior Management Service Band B	22	0	1	4,55%
Senior Management Service Band C	8	0	0	0,00%
Senior Management Service Band D	1	0	0	0,00%
Contracts	1	0	1	100,00%
<b>Total</b>	<b>428</b>	<b>0</b>	<b>19</b>	<b>4,44%</b>

**Table 3.5.2: Annual turnover rates by critical occupation for the period 1 April 2017 to 31 March 2018**

The Department does not have any CORE employees.

See note on CORE employees under Table 3.2.3.

### 3. Human resources oversight statistics (continued)

**Table 3.5.3: Reasons why staff left the Department in the period 1 April 2017 to 31 March 2018**

Termination type	Number	% of total resignations/ terminations
Death	1	5,26%
Resignation	14	73,68%
Expiry of contract	1	5,26%
Dismissal – operational changes	0	0,00%
Dismissal – misconduct	0	0,00%
Dismissal – inefficiency	0	0,00%
Discharged due to ill-health	0	0,00%
Retirement	1	5,26%
Transfer to other Public Service departments	2	10,53%
Other	0	0,00%
<b>Total</b>	<b>19</b>	<b>100,00%</b>
<b>Total number of employees who left as a percentage of total employment</b>		<b>9,11%</b>

**Table 3.5.4: Promotions by critical occupation in the period 1 April 2017 to 31 March 2018**

The Department does not have any CORE employees.

See note on CORE employees under Table 3.2.3.

**Table 3.5.5: Promotions by salary band for the period 1 April 2017 to 31 March 2018**

Salary band	Employees at 1 April 2017	Promotions to a higher salary level	Salary bands promotions as % of employees by salary level	Progressions to a higher notch within a salary level	Notch progression as % of employees by salary band
Lower skilled (Levels 1-2)	0	0	0,00%	0	0,00%
Skilled (Levels 3-5)	13	0	0,00%	12	92,31%
Highly skilled production (Levels 6-8)	110	0	0,00%	84	76,36%
Highly skilled supervision (Levels 9-12)	197	0	0,00%	177	89,85%
Senior Management (Levels 13-16)	108	0	0,00%	92	85,19%
<b>Total</b>	<b>428</b>	<b>0</b>	<b>0,00%</b>	<b>365</b>	<b>85,28%</b>

### 3. Human resources oversight statistics (continued)

#### 3.6 Employment equity

**Table 3.6.1: Total number of employees (including employees with disabilities) in each of the following occupational categories as at 31 March 2018**

Occupational category	Male				Female				Total
	African	Coloured	Asian	White	African	Coloured	Asian	White	
Legislators, senior officials and managers	40	4	4	7	30	3	6	9	103
Professionals	78	2	3	4	96	3	2	7	105
Technicians and associate professionals	27	2	0	0	68	5	0	3	107
Clerks	7	0	0	0	5	0	0	0	13
Service and sales workers	0	0	0	0	0	0	0	0	0
Skilled agriculture and fishery workers	0	0	0	0	0	0	0	0	0
Craft and related trades workers	0	0	0	0	0	0	0	0	0
Plant and machine operators and assemblers	0	0	0	0	0	0	0	0	0
Elementary occupations	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>152</b>	<b>8</b>	<b>7</b>	<b>11</b>	<b>199</b>	<b>11</b>	<b>8</b>	<b>19</b>	<b>415</b>
<b>Employees with disabilities</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>7</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>13</b>

**Table 3.6.2: Total number of employees (including employees with disabilities) in each of the following occupational bands as at 31 March 2018**

Occupational band	Male				Female				Total
	African	Coloured	Asian	White	African	Coloured	Asian	White	
Top management	3	0	1	3	2	0	0	0	9
Senior management	38	4	3	5	30	3	6	10	99
Professionally qualified and experienced specialists and middle management	78	2	3	4	97	4	2	7	197
Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents	27	2	0	0	72	5	0	4	110
Semi-skilled and discretionary decision making	7	0	0	0	5	1	0	0	13
Unskilled and defined decision making	0	0	0	0	0	0			0
<b>Total</b>	<b>152</b>	<b>8</b>	<b>7</b>	<b>11</b>	<b>199</b>	<b>11</b>	<b>8</b>	<b>19</b>	<b>415</b>
<b>Employees with disabilities</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>7</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>13</b>

### 3. Human resources oversight statistics (continued)

**Table 3.6.3: Recruitment in the period 1 April 2017 to 31 March 2018**

No employees were recruited in the period 1 April 2017 to 31 March 2018.

**Table 3.6.4: Promotions for the period 1 April 2017 to 31 March 2018**

No employees were promoted in the period 1 April 2017 to 31 March 2018.

**Table 3.6.5: Terminations in the period 1 April 2017 to 31 March 2018**

Occupational band	Male				Female				Total
	African	Coloured	Asian	White	African	Coloured	Asian	White	
Top management	0	0	0	0	0	0	0	0	0
Senior management	0	0	0	0	0	4	0	0	4
Professionally qualified and experienced specialists and middle management	6	0	0	0	7	0	0	0	13
Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents	0	1	0	0	1	0	0	0	2
Semi-skilled and discretionary decision making	0	0	0	0	0	0	0	0	0
Unskilled and defined decision making	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>19</b>
<b>Employees with disabilities</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Table 3.6.6: Disciplinary action for the period 1 April 2017 to 31 March 2018**

Disciplinary action	Male				Female				Total
	African	Coloured	Asian	White	African	Coloured	Asian	White	
	0	0	0	0	2	0	0	0	2

### 3. Human resources oversight statistics (continued)

**Table 3.6.7: Skills development for the period 1 April 2017 to 31 March 2018**

Occupational category	Male				Female				Total
	African	Coloured	Asian	White	African	Coloured	Asian	White	
Legislators, senior officials and managers	15	3	4	1	6	1	1	5	36
Professionals	40	2	1	3	68	3	0	4	121
Technicians and associate professionals	0	0	0	0	2	0	0	0	2
Clerks	4	0	0	0	40	1	0	0	45
Service and sales workers	1	0	0	0	3	0	0	0	4
Skilled agriculture and fishery workers	0	0	0	0	0	0	0	0	0
Craft and related trades workers	0	0	0	0	0	0	0	0	0
Plant and machine operators and assemblers	2	0	0	0	0	0	0	0	2
Elementary occupations	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>62</b>	<b>5</b>	<b>5</b>	<b>4</b>	<b>119</b>	<b>5</b>	<b>1</b>	<b>9</b>	<b>210</b>
<b>Employees with disabilities</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>5</b>

#### 3.7 Signing of performance agreements by SMS members

**Table 3.7.1: Signing of performance agreements by SMS members as at 31 May 2017**

SMS level	Total number of funded SMS posts	Total number of SMS members	Total number of signed performance agreements	Signed performance agreements as % of total number of SMS members*
Salary Level 16	1	1	1	100
Salary Level 15	9	9	6	100
Salary Level 14	27	23	23	100
Salary Level 13	88	78	78	100
<b>Total</b>	<b>125</b>	<b>110</b>	<b>100</b>	<b>100</b>

\*The percentage of signed performance agreements is given as 100%, as the three Special Advisors are not required to submit performance agreements to Human Resources (see Tables 3.7.2 and 3.7.3).

**Table 3.7.2: Reasons for not having concluded performance agreements for all SMS members as at 31 May 2017**

Reasons
There were two Special Advisors (Salary Level 15). Special Advisors do not have to submit performance agreements to Human Resources.



### 3. Human resources oversight statistics (continued)

**Table 3.7.3: Disciplinary steps taken against SMS members for not having concluded performance agreements as at 31 May 2017**

Reasons
There were three Special Advisors (Salary Level 15). Special advisors do not have to submit performance agreements to Human Resources.

### 3.8 Performance rewards

**Table 3.8.1: Performance rewards by race, gender and disability for the period 1 April 2016 to 31 March 2017**

Race and gender	Beneficiary profile			Cost	
	Number of beneficiaries	Number of employees	% of total within group	Cost (R'000)	Average cost per employee
<b>African</b>					
Male	124	159	78	1 701	13,71
Female	186	212	88	2 117	11,38
<b>Asian</b>					
Male	6	7	86	133	22,17
Female	7	9	78	154	22
<b>Coloured</b>					
Male	6	8	75	120	20
Female	11	12	92	118	10,72
<b>White</b>					
Male	7	14	50	126	18
Female	18	21	86	358	19,89
<b>Total</b>	<b>365</b>	<b>442</b>	<b>83</b>	<b>4 827</b>	<b>13,23</b>

**Table 3.8.2: Performance rewards by salary band for personnel below Senior Management Service level for the period 1 April 2016 to 31 March 2017**

Salary band	Beneficiary profile			Cost		Total cost as % of 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)	0	0	0	0	0	0
Skilled (Levels 3-5)	10	14	71	36	3,6	0,01
Highly skilled production (Levels 6-8)	96	110	87	477	4,97	0,15
Highly skilled supervision (Levels 9-12)	185	216	86	2406	13,01	0,75
<b>Total</b>	<b>291</b>	<b>340</b>	<b>86</b>	<b>2919</b>	<b>10,03</b>	<b>0,91</b>

### 3. Human resources oversight statistics (continued)

**Table 3.8.3: Performance rewards by critical occupation for the period 1 April 2016 to 31 March 2017**

The Department does not have any CORE employees.

See note on CORE employees under Table 3.2.3.

**Table 3.8.4: Performance-related rewards (cash bonus), by salary band for Senior Management Service for the period 1 April 2016 to 31 March 2017**

Salary band	Beneficiary profile			Cost		Total cost as % of total personnel expenditure
	Number of beneficiaries	Number of employees	% of total within salary bands	Total cost (R'000)	Average cost per employee	
Band A	0	1	0	0	0	0
Band B	3	6	50	100	33,33	0,03
Band C	14	21	67	409	29,21	0,13
Band D	57	74	77	1399	24,54	0,44
<b>Total</b>	<b>74</b>	<b>102</b>	<b>73</b>	<b>1908</b>	<b>25,78</b>	<b>0,6</b>

### 3.9 Foreign workers

**Table 3.9.1: Foreign workers by salary band for the period 1 April 2017 to 31 March 2018**

The Department did not employ foreign workers in the period 1 April 2017 to 31 March 2018.

**Table 3.9.2: Foreign workers by major occupation for the period 1 April 2017 to 31 March 2018**

The Department did not employ foreign workers in the period 1 April 2017 to 31 March 2018.

### 3.10 Leave utilisation

**Table 3.10.1: Sick leave for the period 1 January 2017 to 31 December 2017**

Salary band	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)	0	0,00%	0	0,00%	0	0
Skilled (Levels 3-5)	85	3,38%	11	85%	8	66
Highly skilled production (Levels 6-8)	839	33,37%	102	98%	8	1 071
Highly skilled supervision (Levels 9-12)	1 145	45,54%	172	92%	7	3 023
Top and senior management (Levels 13-16)	445	17,70%	76	72%	6	1 909
<b>Total</b>	<b>2 514</b>	<b>25,00%</b>	<b>361</b>	<b>87%</b>	<b>7</b>	<b>6 069</b>

### 3. Human resources oversight statistics (continued)

**Table 3.10.2: Disability leave (temporary and permanent) for the period 1 January 2017 to 31 December 2017**

Salary band	Total days taken	% days with medical certification	Number of employees using disability leave	% of total employees using disability leave	Average days per employee	Estimated cost (R'000)
Lower skilled (Levels 1-2)	0	0	0	0	0	0
Skilled (Levels 3-5)	0	0	0	0	0	0
Highly skilled production (Levels 6-8)	504	100%	22	100%	23	207
Highly skilled supervision (Levels 9-12)	177	100%	18	100%	10	180
Senior management (Levels 13-16)	21	100%	3	100%	7	20
<b>Total</b>	<b>682</b>	<b>100%</b>	<b>43</b>	<b>100%</b>	<b>16</b>	<b>407</b>

**Table 3.10.3: Annual leave for the period 1 January 2017 to 31 December 2017**

Salary band	Total days taken	Number of employees using annual leave	Average per employee
Lower skilled (Levels 1-2)	0	0	0
Skilled (Levels 3-5)	303	13	23
Highly skilled production (Levels 6-8)	2 603	114	23
Highly skilled supervision (Levels 9-12)	4 791	209	23
Senior management (Levels 13-16)	2 598	109	24
<b>Total</b>	<b>10 295</b>	<b>445</b>	<b>23</b>

**Table 3.10.4: Capped leave for the period 1 January 2017 to 31 December 2017**

Salary band	Total days of capped leave taken	Number of employees using capped leave	Average number of days taken per employee	Average capped leave per employee as at 31 March 2017
Lower skilled (Levels 1-2)	0	0	0	0
Skilled (Levels 3-5)	1	1	15	1
Highly skilled production (Levels 6-8)	0	0	0	20
Highly skilled supervision (Levels 9-12)	7	1	31	7
Senior management (Levels 13-16)	0	0	28	0
<b>Total</b>	<b>8</b>	<b>2</b>	<b>27</b>	<b>8</b>

### 3. Human resources oversight statistics (continued)

**Table 3.10.5: Leave payouts for the period 1 January 2017 to 31 December 2017**

Reason	Total amount (R'000)	Number of employees	Average per employee (R'000)
Leave payouts in 2017 due to non-utilisation of leave for the previous cycle	0	0	0
Capped leave payouts on termination of service in 2017	0	0	0
Current leave payouts on termination of service in 2017	464	14	33
<b>Total</b>	<b>464</b>	<b>14</b>	<b>33</b>

#### 3.11 HIV/Aids and health promotion programmes

**Table 3.11.1: Steps taken to reduce the risk of occupational exposure**

This table does not apply to the Department.

**Table 3.11.2: Details of health promotion and HIV/Aids programmes**

Question	Yes	No	Details, if yes
1. Has the Department designated a member of the SMS to implement the provisions contained in Part VI E of Chapter 1 of the Public Service Regulations, 2001? If so, provide her/his name and position.	X		The Director: Special Programmes, Ms Sipiwe Mthombeni
2. Does the Department have a dedicated unit or has it designated specific staff members to promote the health and well-being of its employees? If so, indicate the number of employees who are involved in this task and the annual budget that is available for this purpose.	X		The Directorate: Special Programmes has five employees and a budget of R1,966 million, which also covers the HIV, Aids and TB programme.
3. Has the Department introduced an employee assistance or health promotion programme for its employees? If so, indicate the key elements/ services of this programme.	X		The Department's Employee Assistance Programme services include counselling, health risk assessments, HIV counselling and testing, TB screenings, the distribution of male and female condoms, and education, awareness and sporting activities.
4. Has the Department established one or more committees as contemplated in Part VI E.5 (e) of Chapter 1 of the Public Service Regulations, 2001? If so, please provide the names of the members of the committee and the stakeholder(s) that they represent.	X		<ol style="list-style-type: none"> <li>Ms Loretta Pillay (Employee Health and Wellness)</li> <li>Ms Ellen Moloi (Special Programmes)</li> <li>Mr Sipiwe Shange (Occupational Health and Safety)</li> <li>Ms Truelove Mnguni (Facilities)</li> <li>Ms Nombulelo Dlalisa (Facilities)</li> <li>Ms Pertunia Mphato (Auxiliary Services)</li> <li>Mr Vincent Napo (Enterprise Risk Management)</li> <li>Ms Ncumisa Runeyi (Office of the DG)</li> <li>Ms Caroline Mohlamonyane (Programme 1)</li> <li>Mr Siyabonga Ndlovu (Programme 1)</li> <li>Mr Phumelele Yabo (Programme 1)</li> <li>Ms Tumisoang Sebitloane (Programme 2)</li> <li>Ms Matlhodi Mathebula (Programme 4)</li> <li>Mr Wiseman Ndlela (Programme 5)</li> <li>Ms Vivienne Gondwe (Programme 5)</li> <li>Mr Benny Nhlapo (NACI)</li> <li>Ms Hlamalani Khoza (NIPMO)</li> <li>Ms Sipiwe Mthombeni (Director: Special Programmes)</li> </ol>

### 3. Human resources oversight statistics (continued)

Question	Yes	No	Details, if yes
5. Has the Department reviewed its employment policies and practices to ensure that they do not unfairly discriminate against employees on the basis of their HIV status? If so, list the employment policies/practices so reviewed.	X		The following policies were reviewed and approved: <ol style="list-style-type: none"> <li>1. DST policy on HIV/Aids and TB in the Workplace.</li> <li>2. DST Policy on Occupational Health and Safety.</li> <li>3. DST Policy on Reasonable Accommodation for People with Disabilities.</li> <li>4. The Health and Wellness Programme Policy.</li> <li>5. The Health and Productivity Policy.</li> </ol>
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.	X		<ol style="list-style-type: none"> <li>1. The Department has put in place the HIV, Aids and TB policy to communicate the Department's commitment to implement an HIV/Aids workplace programme. A number of awareness and education initiatives were implemented to address the issue of stigma and discrimination, such as the commemoration of World Aids Day and the annual candlelight memorial.</li> <li>2. Information on disability awareness was provided on the intranet and workshops were conducted with employees.</li> </ol>
7. Does the Department encourage its employees to undergo voluntary HIV counselling and testing? If so, list the results that this has achieved.	X		The Department conducts quarterly HIV counselling and testing (HCT) drives. An average of 24% of employees were tested over the four quarters. A service provider was appointed with effect from 16 February 2018 to provide off-site HCT services for employees and their family members nationwide.
8. Has the Department developed measures/ indicators to monitor and evaluate the impact of its health promotion programme? If so, list these measures/indicators.	X		The Department has a quarterly health screening programme and an exercise programme. There is also a Health Risk Management programme to provide support to employees identified with high health risks.

### 3. Human resources oversight statistics (continued)

#### 3.12 Labour relations

**Table 3.12.1: Collective agreements for the period 1 April 2017 to 31 March 2018**

Total number of collective agreements	None
---------------------------------------	------

**Table 3.12.2: Misconduct and disciplinary hearings finalised for the period 1 April 2017 to 31 March 2018**

Outcomes of disciplinary hearings	Number	% of total
Correctional counselling	0	0
Verbal warning	0	0
Written warning	0	0
Final written warning	1	4,28%

Total number of disciplinary hearings finalised	1
---	---

**Table 3.12.3: Types of misconduct addressed at disciplinary hearings for the period 1 April 2017 to 31 March 2018**

No misconduct was addressed at disciplinary hearings for the period 1 April 2017 to 31 March 2018.

**Table 3.12.4: Grievances logged for the period 1 April 2017 to 31 March 2018**

Grievances	Number	% of total
Number of grievances resolved	0	0%
Number of grievances not resolved	6	100%
<b>Total number of grievances lodged</b>	<b>6</b>	<b>100%</b>

**Table 3.12.5: Disputes logged with councils for the period 1 April 2017 to 31 March 2018**

Disputes	Number	% of total
Number of disputes upheld	1	100%
Number of disputes dismissed	0	0%
<b>Total number of disputes lodged</b>	<b>1</b>	<b>100%</b>

**Table 3.12.6: Strike actions for the period 1 April 2017 to 31 March 2018**

Total number of person working days lost	1
Total cost of working days lost	R2 266,07
<b>Amount recovered as a result of no work no pay (R'000)</b>	<b>R2 266,07</b>

**Table 3.12.7: Precautionary suspensions for the period 1 April 2017 to 31 March 2018**

Total number of person working days lost	73
Total cost of person working days lost	R88 981,00
<b>Amount recovered as a result of no work no pay (R'000)</b>	<b>R0,00</b>

### 3. Human resources oversight statistics (continued)

#### 3.13 Skills development

**Table 3.13.1: Training needs identified for the period 1 April 2017 to 31 March 2018**

Occupational category	Gender	Number of employees as at 1 April 2017	Training identified at start of the reporting period			
			Learnerships	Skills programmes and other short courses	Other forms of training	Total
Legislators, senior officials and managers	Female	48	14	5	19	52
	Male	54	14	7	18	57
Professionals	Female	116	19	12	31	123
	Male	87	19	13	32	87
Technicians and associate professionals	Female	82	3	0	3	1
	Male	29	3	0	3	3
Clerks	Female	5	11	9	20	84
	Male	7	11	5	16	17
Service and sales workers	Female	0	1	2	3	4
	Male	0	1	1	2	11
Skilled agriculture and fishery workers	Female	0	0	0	0	0
	Male	0	0	0	0	0
Craft and related trades workers	Female	0	0	0	0	0
	Male	0	0	0	0	0
Plant and machine operators and assemblers	Female	0	0	0	0	0
	Male	0	2	1	2	5
Elementary occupations	Female	0	3	0	3	5
	Male	0	3	0	3	3
Subtotal	Female	251	53	28	81	269
	Male	177	53	27	80	183
<b>Total</b>		<b>428</b>	<b>106</b>	<b>55</b>	<b>161</b>	<b>452</b>

### 3. Human resources oversight statistics (continued)

**Table 3.13.2: Training provided for the period 1 April 2017 to 31 March 2018**

Occupational category	Gender	Number of employees as at 1 April 2017	Training provided within the reporting period			
			Learnerships	Skills programmes and other short courses	Other forms of training	Total
Legislators, senior officials and managers	Female	48	0	17	3	20
	Male	54	0	31	8	39
Professionals	Female	116	0	42	10	52
	Male	87	0	47	12	59
Technicians and associate professionals	Female	82	0	1	0	1
	Male	29	0	5	0	5
Clerks	Female	5	0	14	7	21
	Male	7	0	5	4	9
Service and sales workers	Female	0	0	2	3	5
	Male	0	0	1	3	4
Skilled agriculture and fishery workers	Female	0	0	0	0	0
	Male	0	0	0	0	0
Craft and related trades workers	Female	0	0	0	0	0
	Male	0	0	0	0	0
Plant and machine operators and assemblers	Female	0	0	0	0	0
	Male	0	0	2	1	3
Elementary occupations	Female	0	0	0	1	1
	Male	0	0	0	0	0
Subtotal	Female	251	0	76	23	99
	Male	177	0	91	28	119
<b>Total</b>		<b>428</b>	<b>0</b>	<b>167</b>	<b>51</b>	<b>218</b>

#### 3.14 Injury on duty

**Table 3.14.1: Injury on duty for the period 1 April 2017 to 31 March 2018**

Nature of injury	Number	% of total employees
Required basic medical attention only	1	0,2%
Temporary total disablement	0	0%
Permanent disablement	0	0%
Fatal	0	0%
<b>Total</b>	<b>1</b>	<b>0,2%</b>



### 3. Human resources oversight statistics (continued)

#### 3.15 Use of consultants

**Table 3.15.1: Report on consultant appointments using appropriated funds for the period 1 April 2017 to 31 March 2018**

No such appointments were made in the period 1 April 2017 to 31 March 2018.

**Table 3.15.2: Analysis of consultant appointments using appropriated funds, in terms of historically disadvantaged individuals, for the period 1 April 2017 to 31 March 2018**

No such appointments were made in the period 1 April 2017 to 31 March 2018.

**Table 3.15.3: Report on consultant appointments using donor funds for the period 1 April 2017 to 31 March 2018**

No such appointments were made in the period 1 April 2017 to 31 March 2018.

**Table 3.15.4: Analysis of consultant appointments made using donor funds, in terms of historically disadvantaged individuals, for the period 1 April 2017 to 31 March 2018**

No such appointments were made in the period 1 April 2017 to 31 March 2018.

Note: In terms of the Public Service Regulations, “consultant” means a natural or juristic person or a partnership, excluding an employee of a department, who or which provides, in terms of a specific contract, on an ad hoc basis, any of the following professional services to a department against remuneration received from any source:

- (a) The rendering of expert advice.
- (b) The drafting of proposals for the execution of specific tasks.
- (c) The execution of a specific task which is of a technical or intellectual nature.

#### 3.16 Severance packages

**Table 3.16.1: Granting of employee-initiated severance packages for the period 1 April 2017 to 31 March 2018**

No employee-initiated severance packages were granted in the period 1 April 2017 to 31 March 2018.



# **PART E**

## FINANCIAL INFORMATION

## 1. REPORT OF THE AUDITOR-GENERAL TO PARLIAMENT ON VOTE NO. 30: DEPARTMENT OF SCIENCE AND TECHNOLOGY

### Report on the audit of the financial statements

#### Opinion

1. I have audited the financial statements of the Department of Science and Technology set out on pages 146 to 282, which comprise the appropriation statement, the statement of financial position as at 31 March 2018, the statement of financial performance, statement of changes in equity and cash flow statement for the year then ended, as well as the notes to the financial statements, including a summary of significant accounting policies.
2. 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 2018, and its financial performance and cash flows for the year then ended in accordance with the Modified Cash Standards (MCS) prescribed by National Treasury and the requirements of the Public Finance Management Act of South Africa, 1999 (Act No.1 of 1999) (PFMA).

#### Basis for opinion

3. I conducted my audit in accordance with the International Standards on Auditing (ISAs). My responsibilities under those standards are further described in the Auditor-General's responsibilities for the audit of the financial statements section of this auditor's report.
4. I am independent of the Department in accordance with the International Ethics Standards Board for Accountants' *Code of ethics for professional accountants* (IESBA code) and the ethical requirements that are relevant to my audit in South Africa. I have fulfilled my other ethical responsibilities in accordance with these requirements and the IESBA code.
5. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

#### Other matter

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

#### Unaudited supplementary schedules

7. The supplementary information set out on pages 266 to 282 does not form part of the financial statements and is presented as additional information. I have not audited these schedules and, accordingly, I do not express an opinion thereon.

#### Responsibilities of the accounting officer for the financial statements

8. The accounting officer is responsible for the preparation and fair presentation of the financial statements in accordance with the MCS and the requirements of the 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.
9. In preparing the financial statements, the accounting officer is responsible for assessing the Department of Science and Technology's ability to continue as a going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting unless the accounting officer either intends to liquidate the Department or to cease operations, or has no realistic alternative but to do so.

#### Auditor-General's responsibilities for the audit of the financial statements

10. My objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the ISAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

## 1. Report of the Auditor-General (continued)

11. A further description of my responsibilities for the audit of the financial statements is included in the annexure to the auditor's report.

### Report on the audit of the annual performance report

#### Introduction and scope

12. In accordance with the Public Audit Act of South Africa, 2004 (Act No. 25 of 2004) (PAA), and the general notice issued in terms thereof, I have a responsibility to report material findings on the reported performance information against predetermined objectives for selected programmes presented in the annual performance report. I performed procedures to identify findings but not to gather evidence to express assurance.
13. My procedures address the reported performance information, which must be based on the approved performance planning documents of the Department. I have not evaluated the completeness and appropriateness of the performance indicators/ measures included in the planning documents. My procedures also did not extend to any disclosures or assertions relating to planned performance strategies and information in respect of future periods that may be included as part of the reported performance information. Accordingly, my findings do not extend to these matters.
14. I evaluated the usefulness and reliability of the reported performance information in accordance with the criteria developed from the performance management and reporting framework, as defined in the general notice, for the following selected Programmes presented in the annual performance report of the Department for the year ended 31 March 2018:

Programmes	Pages in the annual performance report
Programme 2 – Technology Innovation	68-73
Programme 4 – Research Development and Support	80-85
Programme 5 – Socio-economic Innovation Partnerships	86-95

15. I performed procedures to determine whether the reported performance information was properly presented and whether performance was consistent with the approved performance planning documents. I performed further procedures to determine whether the indicators and related targets were measurable and relevant, and assessed the reliability of the reported performance information to determine whether it was valid, accurate and complete.
16. I did not raise any material findings on the usefulness and reliability of the reported performance information for the following programmes:
- Programme 2 – Technology Innovation
  - Programme 4 – Research Development and Support
  - Programme 5 – Socio-economic Innovation Partnerships

#### Other matters

17. I draw attention to the matters below:

#### Achievement of planned targets

18. Refer to the annual performance report on pages 64 to 95 for information on the achievement of planned targets for the year and explanations provided for the under/ over achievement of a significant number of targets.

#### Adjustment of material misstatements

19. I identified material misstatements in the annual performance report submitted for auditing. These material misstatements were on the reported performance information of Programme 5 – Socio-economic Innovation Partnerships. As management subsequently corrected the misstatements, I did not raise any material findings on the usefulness and reliability of the reported performance information.

## 1. Report of the Auditor-General (continued)

### Report on the audit of compliance with legislation

#### Introduction and scope

20. In accordance with the PAA and the general notice issued in terms thereof, I have a responsibility to report material findings on the compliance of the Department with specific matters in key legislation. I performed procedures to identify findings but not to gather evidence to express assurance.
21. I did not raise material findings on compliance with the specific matters in key legislation set out in the general notice issued in terms of the PAA.

#### Other information

22. The accounting officer is responsible for the other information. The other information comprises the information included in the annual report. The other information does not include the financial statements, the auditor's report and those selected Programmes presented in the annual performance report that have been specifically reported in this auditor's report.
23. My opinion on the financial statements and findings on the reported performance information and compliance with legislation do not cover the other information and I do not express an audit opinion or any form of assurance conclusion thereon.
24. In connection with my audit, my responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements and the selected Programmes presented in the annual performance report, or my knowledge obtained in the audit, or otherwise appears to be materially misstated.
25. I did not receive the other information prior to the date of this auditor's report. After I receive and read this information, and if I conclude that there is a material misstatement, I am required to communicate the matter to those charged with governance and request that the other information be corrected. If the other information is not corrected, I may have to retract this auditor's report and re-issue an amended report as appropriate. However, if it is corrected this will not be necessary.

#### Internal control deficiencies

26. I considered internal control relevant to my audit of the financial statements, reported performance information and compliance with applicable legislation; however, my objective was not to express any form of assurance on it. I did not identify any significant deficiencies in internal control.

*Auditor General*

Pretoria

31 July 2018



*Auditing to build public confidence*

## ANNEXURE – AUDITOR-GENERAL'S RESPONSIBILITY FOR THE AUDIT

1. As part of an audit in accordance with the ISAs, I exercise professional judgement and maintain professional scepticism throughout my audit of the financial statements, and the procedures performed on reported performance information for selected programmes and on the Department's compliance with respect to the selected subject matters.

### Financial statements

2. In addition to my responsibility for the audit of the financial statements as described in this auditor's report, I also:
  - Identify and assess the risks of material misstatement of the financial statements whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
  - Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Department's internal control.
  - Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the accounting officer.
  - Conclude on the appropriateness of the accounting officer's use of the going concern basis of accounting in the preparation of the financial statements. I also conclude, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Department's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements about the material uncertainty or, if such disclosures are inadequate, to modify the opinion on the financial statements. My conclusions are based on the information available to me at the date of this auditor's report. However, future events or conditions may cause a department to cease continuing as a going concern.
  - Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

### Communication with those charged with governance

3. I communicate with the accounting officer regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.
4. I also confirm to the accounting officer that I have complied with relevant ethical requirements regarding independence, and communicate all relationships and other matters that may reasonably be thought to have a bearing on my independence and, where applicable, related safeguards.

# ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### Table of Contents

Appropriation Statement .....	147
Notes to the Appropriation Statement.....	229
Statement of Financial Performance.....	230
Statement of Financial Position .....	231
Statement of Changes in Net Assets.....	232
Cash Flow Statement.....	233
Accounting Policies.....	234
Notes to the Annual Financial Statements.....	242
Annexures.....	266

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Appropriation per Programme									
APPROPRIATION STATEMENT	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
<b>1. Administration</b>	375,960	-	(35,087)	340,873	338,197	2,676	99.2%	356,110	332,629
<b>2. Technology Innovation</b>	1,075,116	-	58,667	1,133,783	1,116,181	17,602	98.4%	1,027,588	1,015,860
<b>3. International Cooperation and Resources</b>	132,380	-	35,831	168,211	130,598	37,613	77.6%	121,316	118,466
<b>4. Research Development and Support</b>	4,350,136	-	(49,341)	4,300,795	4,291,924	8,871	99.8%	4,157,604	4,152,630
<b>5. Socio-Economic Innovation Partnerships</b>	1,623,637	-	(10,070)	1,613,567	1,612,645	922	99.9%	1,766,378	1,764,009
<b>TOTAL</b>	<b>7,557,229</b>	<b>-</b>	<b>-</b>	<b>7,557,229</b>	<b>7,489,545</b>	<b>67,685</b>	<b>99.1%</b>	<b>7,428,996</b>	<b>7,383,594</b>
<b>Reconciliation with Statement of Financial Performance</b>									
<b>ADD:</b>									
Departmental receipts				10,298				8,199	
National Research Foundation receipts				25,791				32,345	
Aid assistance									
<b>Actual amounts per Statement of Financial Performance (Total Revenue)</b>				<b>7,593,318</b>				<b>7,469,540</b>	
<b>ADD:</b>									
Aid assistance					25,459				30,920
Prior year unauthorised expenditure approved without funding					-				-
<b>Actual amounts per Statement of Financial Performance (Total Expenditure)</b>					<b>7,515,004</b>				<b>7,414,514</b>



# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Appropriation per Programme									
APPROPRIATION STATEMENT	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
<b>Economic classification</b>									
<b>Current payments</b>	<b>570,729</b>	-	<b>(50,249)</b>	<b>520,480</b>	<b>514,153</b>	<b>6,327</b>	<b>98.8%</b>	<b>531,411</b>	<b>507,913</b>
<b>Compensation of employees</b>	<b>326,827</b>	-	-	<b>326,827</b>	<b>323,806</b>	<b>3,021</b>	<b>99.1%</b>	<b>319,278</b>	<b>319,037</b>
Salaries and wages	288,135	3,552	530	292,217	289,969	2,248	99.2%	285,683	285,876
Social contributions	38,692	(3,552)	(530)	34,610	33,837	773	97.8%	33,595	33,161
<b>Goods and services</b>	<b>243,902</b>	-	<b>(50,249)</b>	<b>193,653</b>	<b>190,347</b>	<b>1,407</b>	<b>99.3%</b>	<b>212,133</b>	<b>188,876</b>
Administrative fees	6,780	(3,965)	(600)	2,215	2,127	88	96.0%	2,139	1,220
Advertising	9,862	26,386	186	36,434	36,301	133	99.6%	29,939	28,711
Minor assets	453	(361)	-	92	88	4	95.7%	589	249
Audit costs: External	8,702	(850)	(2,659)	5,193	5,193	-	100.0%	4,249	4,249
Bursaries: Employees	2,620	(25)	(1,280)	1,315	1,309	6	99.5%	2,477	1,485
Catering: Departmental activities	2,032	914	(130)	2,816	2,695	121	95.7%	4,116	3,500
Communication (G&S)	12,812	(2,010)	(3,719)	7,083	6,986	97	98.6%	10,216	8,234
Computer services	6,675	12,937	-	19,612	19,569	43	99.8%	21,876	21,055
Consultants: Business and advisory services	20,209	(2,335)	(8,141)	9,733	9,579	154	98.4%	13,628	9,867
Scientific and technological services	997	(997)	-	-	-	-	-	778	59
Legal services	-	3,330	-	3,330	3,329	1	100.0%	979	977
Contractors	9,328	358	(6,000)	3,686	3,650	36	99.0%	4,508	3,523
Agency and support/outsourced services	16,418	(847)	(9,000)	6,571	6,480	91	98.6%	16,667	15,304
Entertainment	5,068	(889)	(3,210)	969	860	109	88.8%	1,359	658
Fleet services (incl. government motor transport)	199	633	-	832	829	3	99.6%	882	882
Inventory: Clothing, material and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	129	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Appropriation per Programme									
APPROPRIATION STATEMENT	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
Inventory: Medical supplies	-	-	-	-	-	-	-	-	-
Inventory: Other supplies	-	-	-	-	-	-	-	980	-
Consumable supplies	1,345	52	(100)	1,297	1,240	57	95.6%	1,169	1,160
Consumables: Stationery, printing and office supplies	8,884	(3,425)	(2,221)	3,238	3,229	9	99.7%	5,602	4,954
Operating leases	6,185	(1,242)	-	4,943	3,032	1,911	61.3%	4,434	4,117
Property payments	-	9,816	2,800	12,616	12,588	28	99.8%	11,109	10,455
Transport provided:									
Departmental activity	14,834	(8,791)	(6,043)	-	-	-	-	-	-
Travel and subsistence	17,028	36,792	(623)	53,197	53,069	128	99.8%	48,533	46,484
Training and development	43,306	(34,520)	(5,521)	3,265	3,157	108	96.7%	5,345	4,944
Operating payments	11,220	(2,880)	(1,641)	6,699	6,666	33	99.5%	10,418	9,848
Venues and facilities	6,973	656	(519)	7,110	7,011	99	98.6%	8,710	5,661
Rental and hiring	31,973	(28,737)	(1,828)	1,408	1,360	48	96.6%	1,302	1,280
<b>Transfers and subsidies</b>	<b>6,964,482</b>	<b>-</b>	<b>50,031</b>	<b>7,014,513</b>	<b>6,954,524</b>	<b>59,989</b>	<b>99.1%</b>	<b>6,872,989</b>	<b>6,860,077</b>
Departmental agencies and accounts	5,204,288	-	(8,040)	5,196,248	4,768,216	428,032	91.8%	5,295,890	4,696,599
Departmental agencies	5,204,288	-	(8,040)	5,196,248	4,768,216	428,032	91.8%	5,295,890	4,696,599
Higher education institutions	-	-	-	-	-	-	-	133,981	210,329
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	<b>1,447,110</b>	<b>-</b>	<b>(3,161)</b>	<b>1,443,949</b>	<b>1,722,519</b>	<b>(278,570)</b>	<b>119.3%</b>	<b>1,295,586</b>	<b>1,793,985</b>
<b>Public corporations</b>	<b>1,447,110</b>	<b>-</b>	<b>(3,161)</b>	<b>1,443,949</b>	<b>1,702,754</b>	<b>(258,805)</b>	<b>117.9%</b>	<b>1,295,586</b>	<b>1,771,704</b>
Subsidies on products	915,645	-	-	915,645	915,645	-	100.0%	872,043	872,043
Other transfers to public corporations	531,465	-	(3,161)	528,304	787,109	(258,805)	149.0%	423,543	899,661
<b>Private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>19,765</b>	<b>(19,765)</b>	<b>-</b>	<b>-</b>	<b>22,281</b>
Other transfers to private enterprises	-	-	-	-	19,765	(19,765)	-	-	22,281
Non-profit institutions	313,084	-	60,692	373,776	462,544	(88,768)	123.7%	146,740	157,726

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Appropriation per Programme									
APPROPRIATION STATEMENT	2017/18						2016/17		
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
<b>Households</b>	-	-	<b>540</b>	<b>540</b>	<b>1,245</b>	<b>(705)</b>	<b>230.6%</b>	<b>792</b>	<b>1,438</b>
Social benefits	-	-	540	540	565	(25)	104.6%	489	535
Other transfers to households	-	-	-	-	680	(680)	-	303	903
<b>Payments for capital assets</b>	<b>22,018</b>	-	-	<b>22,018</b>	<b>20,649</b>	<b>1,369</b>	<b>93.8%</b>	<b>24,465</b>	<b>15,478</b>
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	22,018	-	-	22,018	20,649	1,369	93.8%	24,465	15,478
Transport equipment	1,000	1,280	-	2,280	1,596	684	70.0%	1,876	1,876
Other machinery and equipment	21,018	(1,280)	-	19,738	19,053	685	96.5%	22,589	13,602
Software and other intangible assets	-	-	-	-	-	-	-	-	-
<b>Payments for financial assets</b>	-	-	<b>218</b>	<b>218</b>	<b>219</b>	<b>(1)</b>	<b>100.5%</b>	<b>131</b>	<b>126</b>
<b>Total</b>	<b>7,557,229</b>	-	-	<b>7,557,229</b>	<b>7,489,545</b>	<b>67,685</b>	<b>99.1%</b>	<b>7,428,996</b>	<b>7,383,594</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018									
Subprogramme	Adjusted appropriation	Shifting of funds	2017/18				2016/17		
	R'000	R'000	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
			R'000	R'000	R'000	R'000	%	R'000	R'000
<b>1.1 Ministry</b>	4,461	(80)	-	4,381	4,348	33	99.2%	4,269	4,213
<b>1.2 Management</b>	115,873	(10,970)	(5,083)	99,820	99,125	695	99.3%	103,929	99,228
<b>1.3 Corporate Services</b>	242,517	10,430	(32,063)	220,884	219,226	1,658	99.2%	232,928	216,639
<b>1.4 Governance</b>	8,325	620	(741)	8,204	7,950	254	96.9%	10,423	8,168
<b>1.5 Office accommodation</b>	4,784	-	2,800	7,584	7,548	36	99.5%	4,561	4,381
<b>Total</b>	<b>375,960</b>	<b>-</b>	<b>(35,087)</b>	<b>340,873</b>	<b>338,197</b>	<b>2,676</b>	<b>99.2%</b>	<b>356,110</b>	<b>332,629</b>
<b>Economic classification</b>									
<b>Current payments</b>	<b>336,439</b>	<b>-</b>	<b>(35,500)</b>	<b>300,939</b>	<b>300,463</b>	<b>476</b>	<b>99.8%</b>	<b>314,088</b>	<b>299,587</b>
<b>Compensation of employees</b>	<b>158,401</b>	<b>-</b>	<b>1,500</b>	<b>159,901</b>	<b>161,487</b>	<b>(1,586)</b>	<b>101.0%</b>	<b>160,560</b>	<b>161,190</b>
Salaries and wages	139,155	1,400	1,500	142,055	143,723	(1,668)	101.2%	142,912	143,705
Social contributions	19,246	(1,400)	-	17,846	17,764	82	99.5%	17,648	17,485
<b>Goods and services</b>	<b>178,038</b>	<b>-</b>	<b>(37,000)</b>	<b>141,038</b>	<b>138,976</b>	<b>2,062</b>	<b>98.5%</b>	<b>153,528</b>	<b>138,397</b>
Administrative fees	5,819	(4,759)	-	1,060	1,048	12	98.9%	1,124	377
Advertising	8,748	26,250	200	35,198	35,189	9	100.0%	28,937	28,018
Minor assets	453	(361)	-	92	88	4	95.7%	579	245
Audit costs: External	8,702	(850)	(2,659)	5,193	5,193	-	100.0%	4,249	4,249
bursaries: Employees	2,595	-	(1,280)	1,315	1,309	6	99.5%	2,471	1,479
Catering: Departmental activities	522	1,483	-	2,005	2,000	5	99.8%	3,169	2,880
Communication (G&S)	8,965	(1,159)	(3,499)	4,307	4,307	-	100.0%	6,191	4,741
Computer services	6,276	13,216	-	19,492	19,490	2	100.0%	21,660	20,960
Consultants: Business and advisory services	13,440	(590)	(7,041)	5,809	5,806	3	99.9%	6,709	4,017
Scientific and technological services	817	(817)	-	-	-	-	-	778	59
Legal services	-	2,714	-	2,714	2,713	1	100.0%	866	866
Contractors	9,328	(20)	(6,000)	3,308	3,275	33	99.0%	4,487	3,513
Agency and support/outsourced services	8,330	321	(4,700)	3,951	3,949	2	99.9%	8,475	8,475
Entertainment	295	42	(210)	127	115	12	90.6%	618	396

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018										
Subprogramme	2017/18					2016/17				
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000	R'000
Fleet services (incl. government motor transport)	199	633	-	832	829	3	99,6%	882	882	882
Inventory: Clothing, material accessories	-	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	129	-	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-	-
Inventory: Other supplies	-	-	-	-	-	-	-	874	-	-
Consumable supplies	997	334	(100)	1,231	1,222	9	99,3%	1,138	1,138	1,138
Consumables:										
Stationery, printing and office supplies	8,884	(3,654)	(2,221)	3,009	3,007	2	99,9%	5,182	4,762	4,762
Operating leases	6,185	(1,242)	-	4,943	3,032	1,911	61,3%	4,434	4,117	4,117
Property payments	-	9,688	2,800	12,488	12,460	28	99,8%	11,083	10,455	10,455
Transport provided:										
Departmental activity	14,034	(7,991)	(6,043)	-	-	-	-	-	-	-
Travel and subsistence	17,028	5,574	(623)	21,979	21,972	7	100,0%	22,210	21,338	21,338
Training and development	17,287	(11,396)	(2,731)	3,160	3,157	3	99,9%	5,313	4,918	4,918
Operating payments	11,220	(4,609)	(1,641)	4,970	4,964	6	99,9%	7,445	8,072	8,072
Venues and facilities	5,046	(1,598)	(519)	2,929	2,927	2	99,9%	3,436	1,351	1,351
Rental and hiring	22,868	(21,209)	(733)	926	924	2	99,8%	1,089	1,089	1,089
<b>Transfers and subsidies</b>	<b>17,503</b>	<b>-</b>	<b>311</b>	<b>17,814</b>	<b>16,982</b>	<b>832</b>	<b>95,3%</b>	<b>17,460</b>	<b>17,498</b>	<b>17,498</b>
Departmental agencies and accounts	-	-	-	-	-	-	-	-	1,500	1,500
Departmental agencies	-	-	-	-	-	-	-	-	1,500	1,500
Higher education institutions	-	-	-	-	-	-	-	-	6,000	6,000
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018										
Subprogramme	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	2016/17		
								R'000	R'000	
<b>Public corporations and private enterprises</b>	-	-	-	-	-	-	-	R'000	R'000	
<b>Public corporations</b>	-	-	-	-	-	-	-	-	191	
Subsidies on products	-	-	-	-	-	-	-	-	-	
Other transfers to public corporations	-	-	-	-	-	-	-	-	-	
<b>Private enterprises</b>	-	-	-	-	-	-	-	-	-	
Other transfers to private enterprises	-	-	-	-	-	-	-	-	191	
Non-profit institutions	17,503	-	-	17,503	16,642	861	95.1%	16,860	9,170	
<b>Households</b>	-	-	311	311	340	(29)	109.3%	600	637	
Social benefits	-	-	311	311	340	(29)	109.3%	297	334	
Other transfers to Households	-	-	-	-	-	-	-	303	303	
<b>Payment for capital assets</b>	22,018	-	-	22,018	20,649	1,369	93.8%	24,465	15,448	
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-	
Machinery and equipment	22,018	-	-	22,018	20,649	1,369	93.8%	24,465	15,448	
Transport equipment	1,000	1,280	-	2,280	1,596	684	70.0%	1,876	1,876	
Other machinery and equipment	21,018	(1,280)	-	19,738	19,053	685	96.5%	22,589	13,572	
Software and other intangible assets	-	-	-	-	-	-	-	-	-	
<b>Payment for financial assets</b>	-	-	102	102	103	(1)	101.0%	97	96	
<b>Total</b>	<b>375,960</b>	<b>-</b>	<b>(35,087)</b>	<b>340,873</b>	<b>338,197</b>	<b>2,676</b>	<b>99.2%</b>	<b>356,110</b>	<b>332,629</b>	

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018									
Subprogramme 1.1: Ministry	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>4,461</b>	<b>(80)</b>	-	<b>4,381</b>	<b>4,348</b>	<b>33</b>	<b>99.2%</b>	<b>4,269</b>	<b>4,213</b>
<b>Compensation of employees</b>	<b>4,461</b>	<b>(80)</b>	-	<b>4,381</b>	<b>4,348</b>	<b>33</b>	<b>99.2%</b>	<b>4,269</b>	<b>4,213</b>
Salaries and wages	3,765	-	-	3,765	3,738	27	99.3%	3,669	3,617
Social contributions	696	(80)	-	616	610	6	99.0%	600	596
<b>Goods and services</b>	-	-	-	-	-	-	-	-	-
Administrative fees	-	-	-	-	-	-	-	-	-
Advertising	-	-	-	-	-	-	-	-	-
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	-	-	-	-	-	-	-	-	-
Communication (G&S)	-	-	-	-	-	-	-	-	-
Computer services	-	-	-	-	-	-	-	-	-
Consultants: Business and advisory services	-	-	-	-	-	-	-	-	-
Legal services	-	-	-	-	-	-	-	-	-
Contractors	-	-	-	-	-	-	-	-	-
Agency and support/outsourced services	-	-	-	-	-	-	-	-	-
Entertainment	-	-	-	-	-	-	-	-	-
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-
Inventory: Other supplies	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018										
Subprogramme 1.1: Ministry	2017/18						2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Consumable supplies	-	-	-	-	-	-	-	-	-	-
Consumables: Stationery, printing and office supplies	-	-	-	-	-	-	-	-	-	-
Operating leases	-	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	-	-	-
Travel and subsistence	-	-	-	-	-	-	-	-	-	-
Training and development	-	-	-	-	-	-	-	-	-	-
Operating payments	-	-	-	-	-	-	-	-	-	-
Venues and facilities	-	-	-	-	-	-	-	-	-	-
Rental and hiring	-	-	-	-	-	-	-	-	-	-
<b>Transfers and subsidies</b>	-	-	-	-	-	-	-	-	-	-
Departmental agencies and accounts	-	-	-	-	-	-	-	-	-	-
Higher education institutions	-	-	-	-	-	-	-	-	-	-
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	-	-	-	-	-	-	-	-	-	-
<b>Public corporations</b>	-	-	-	-	-	-	-	-	-	-
Subsidies on products	-	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	-	-	-	-	-	-	-	-	-	-
<b>Private enterprises</b>	-	-	-	-	-	-	-	-	-	-
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-	-
Non-profit institutions	-	-	-	-	-	-	-	-	-	-
<b>Households</b>	-	-	-	-	-	-	-	-	-	-
Other transfers to households	-	-	-	-	-	-	-	-	-	-
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-	-



# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018										
Subprogramme 1.1: Ministry	2017/18						2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>4,461</b>	<b>(80)</b>	<b>-</b>	<b>4,381</b>	<b>4,348</b>	<b>33</b>	<b>99.2%</b>	<b>4,269</b>	<b>4,213</b>	

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018									
Subprogramme: 1.2 : Management	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>96,288</b>	<b>(10,970)</b>	<b>(5,269)</b>	<b>80,049</b>	<b>80,892</b>	<b>(843)</b>	<b>101.1%</b>	<b>85,881</b>	<b>81,332</b>
<b>Compensation of employees</b>	<b>64,254</b>	<b>(11,000)</b>	-	<b>53,254</b>	<b>54,141</b>	<b>(887)</b>	<b>101.7%</b>	<b>55,388</b>	<b>55,103</b>
Salaries and wages	57,918	(9,700)	-	49,218	49,126	(908)	101.9%	50,189	49,992
Social contributions	6,336	(1,300)	-	5,036	5,015	21	99.6%	5,199	5,111
<b>Goods and services</b>	<b>32,034</b>	<b>30</b>	<b>(5,269)</b>	<b>26,795</b>	<b>26,751</b>	<b>44</b>	<b>99.8%</b>	<b>30,493</b>	<b>26,229</b>
Administrative fees	713	(165)	-	548	546	2	99.6%	161	135
Advertising	1,036	135	200	1,371	1,371	-	100.0%	253	253
Minor assets	27	(23)	-	4	4	-	100.0%	173	21
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	404	(300)	-	104	101	3	97.1%	401	141
Communication (G&S)	2,062	(504)	(45)	1,513	1,513	-	100.0%	2,191	2,019
Computer services	-	1,705	-	1,705	1,703	2	99.9%	423	423
Consultants: Business and advisory services	3,933	(307)	(2,500)	1,126	1,126	-	100.0%	2,685	1,554
Legal services	-	-	-	-	-	-	-	-	-
Contractors	393	30	-	423	390	33	92.2%	546	72
Agency and support/outsourced Services	1,164	108	-	1,272	1,270	2	99.8%	1,663	1,663
Entertainment	45	42	-	87	87	-	100.0%	294	83
Fleet services (incl. government motor transport)	199	378	-	577	577	-	100.0%	625	625
Inventory: Clothing, material and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	30	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018										
Subprogramme: 1.2 : Management	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	2016/17	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Inventory: Other supplies	-	-	-	-	-	-	-	-	64	-
Consumable supplies	38	(24)	-	14	14	-	100.0%	163	163	163
Consumables; Stationery, printing and office supplies	716	(276)	(141)	299	299	-	100.0%	594	594	198
Operating leases	-	-	-	-	-	-	-	285	285	148
Property payments	-	63	-	63	61	2	96.8%	29	29	29
Travel and subsistence	17,028	(731)	(623)	15,674	15,674	-	100.0%	16,711	16,711	15,839
Training and development	-	-	-	-	-	-	-	10	10	10
Operating payments	3,252	(110)	(1,641)	1,501	1,501	-	100.0%	1,945	1,945	2,572
Venues and facilities	1,024	-	(519)	505	505	-	100.0%	1,247	1,247	281
Rental and hiring	-	9	-	9	9	-	100.0%	-	-	-
<b>Transfers and subsidies</b>	<b>17,503</b>	<b>-</b>	<b>141</b>	<b>17,644</b>	<b>16,783</b>	<b>861</b>	<b>95.1%</b>	<b>16,963</b>	<b>16,963</b>	<b>17,017</b>
Departmental agencies and accounts	-	-	-	-	-	-	-	-	-	1,500
Departmental agencies	-	-	-	-	-	-	-	-	-	1,500
Higher education institutions	-	-	-	-	-	-	-	-	-	6,000
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>191</b>
<b>Public corporations</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Subsidies on products and production	-	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	-	-	-	-	-	-	-	-	-	-
<b>Private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>191</b>
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-	191

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018									
Subprogramme: 1.2 : Management	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Non-profit institutions	17,503	-	-	17,503	16,642	861	95.1%	16,860	9,170
<b>Households</b>	-	-	<b>141</b>	<b>141</b>	<b>141</b>	-	<b>100.0%</b>	<b>103</b>	<b>156</b>
Social benefits	-	-	141	141	141	-	100.0%	103	156
Other transfers to households	-	-	-	-	-	-	-	-	-
<b>Payment for capital assets</b>	<b>2,082</b>	-	-	<b>2,082</b>	<b>1,405</b>	<b>677</b>	<b>67.5%</b>	<b>992</b>	<b>786</b>
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	2,082	-	-	2,082	1,405	677	67.5%	992	786
Transport equipment	1,000	980	-	1,980	1,371	609	69.2%	-	-
Other machinery and equipment	1,082	(980)	-	102	34	68	33.3%	992	786
Software and other intangible assets	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	<b>45</b>	<b>45</b>	<b>45</b>	-	<b>100.0%</b>	<b>93</b>	<b>93</b>
<b>Total</b>	<b>115,873</b>	<b>(10,970)</b>	<b>(5,083)</b>	<b>99,820</b>	<b>99,125</b>	<b>695</b>	<b>99.3%</b>	<b>103,929</b>	<b>99,228</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018									
Subprogramme: 1.3: Corporate Services	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>222,774</b>	<b>10,430</b>	<b>(32,278)</b>	<b>200,926</b>	<b>199,766</b>	<b>1,160</b>	<b>99.4%</b>	<b>208,954</b>	<b>201,493</b>
<b>Compensation of employees</b>	<b>83,372</b>	<b>10,380</b>	<b>1,500</b>	<b>95,252</b>	<b>96,041</b>	<b>(789)</b>	<b>100.8%</b>	<b>93,418</b>	<b>94,482</b>
Salaries and wages	72,684	9,700	1,500	83,884	84,684	(800)	101.0%	82,442	83,534
Social contributions	10,688	680	-	11,368	11,357	11	99.9%	10,976	10,948
<b>Goods and services</b>	<b>139,402</b>	<b>50</b>	<b>(33,778)</b>	<b>105,674</b>	<b>103,725</b>	<b>1,949</b>	<b>98.2%</b>	<b>115,536</b>	<b>107,011</b>
Administrative fees	311	190	-	501	496	5	99.0%	953	238
Advertising	7,143	26,677	-	33,820	33,815	5	100.0%	28,154	27,711
Minor assets	426	(338)	-	88	84	4	95.5%	406	224
Audit costs: External	8,702	(850)	(2,659)	5,193	5,193	-	100.0%	4,249	4,249
Bursaries: Employees	2,595	-	(1,280)	1,315	1,309	6	99.5%	2,471	1,479
Catering: Departmental activities	57	1,820	-	1,877	1,875	2	99.9%	2,710	2,710
Communication (G&S)	6,755	(632)	(3,454)	2,669	2,669	-	100.0%	3,829	2,551
Computer services	6,276	11,511	-	17,787	17,787	-	100.0%	21,237	20,537
Consultants: Business and advisory services	8,719	(238)	(3,800)	4,681	4,680	1	100.0%	2,463	2,463
Scientific and technological services	817	(817)	-	-	-	-	-	778	59
Legal services	-	2,714	-	2,714	2,713	1	100.0%	866	866
Contractors	8,935	(50)	(6,000)	2,885	2,885	-	100.0%	3,941	3,441
Agency and support/outsourced services	7,166	(19)	(4,700)	2,447	2,447	-	100.0%	6,812	6,812
Entertainment	237	-	(210)	27	23	4	85.2%	312	312
Fleet services (incl. government motor transport)	-	255	-	255	252	3	98.8%	257	257
Inventory: Clothing, Material and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	99	-
Inventory: Material and supplies-	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018										
Subprogramme: 1.3: Corporate Services	2017/18					2016/17				
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Inventory: Other supplies	-	-	-	-	-	-	-	810	-	-
Consumable supplies	959	(358)	(100)	1,217	1,208	9	99.3%	975	975	975
Consumables: Stationery, printing and office supplies	8,142	(3,423)	(2,080)	2,639	2,639	-	100.0%	4,563	4,563	4,563
Operating leases	6,185	(3,172)	-	3,013	1,114	1,899	37.0%	2,752	2,752	2,752
Property payments	-	6,771	-	6,771	6,769	2	100.0%	7,890	7,262	7,262
Transport provided:										
Departmental Activity	14,034	(7,991)	(6,043)	-	-	-	-	-	-	-
Travel and subsistence	-	6,100	-	6,100	6,097	3	100.0%	5,331	5,331	5,331
Training and development	17,145	(11,254)	(2,731)	3,160	3,157	3	99.9%	5,303	4,908	4,908
Operating payments	7,968	(4,792)	-	3,176	3,176	-	100.0%	5,152	5,152	5,152
Venues and facilities	4,020	(1,598)	-	2,422	2,422	-	100.0%	2,134	1,070	1,070
Rental and hiring	22,810	(21,172)	(721)	917	915	2	99.8%	1,089	1,089	1,089
<b>Transfers and subsidies</b>	-	-	<b>158</b>	<b>158</b>	<b>158</b>	-	<b>100.0%</b>	<b>497</b>	<b>481</b>	<b>481</b>
Departmental agencies and accounts	-	-	-	-	-	-	-	-	-	-
Higher education institutions	-	-	-	-	-	-	-	-	-	-
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	-	-	-	-	-	-	-	-	-	-
<b>Public corporations</b>	-	-	-	-	-	-	-	-	-	-
Subsidies on products	-	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	-	-	-	-	-	-	-	-	-	-
<b>Private enterprise</b>	-	-	-	-	-	-	-	-	-	-
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-	-
Non-profit institutions	-	-	-	-	-	-	-	-	-	-
<b>Households</b>	-	-	<b>158</b>	<b>158</b>	<b>158</b>	-	<b>100.0%</b>	<b>497</b>	<b>481</b>	<b>481</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018										
Subprogramme: 1.3: Corporate Services	2017/18					2016/17				
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Social benefits	-	-	158	158	158	-	100.0%	194	178	
Other transfers to Households	-	-	-	-	-	-	-	303	303	
<b>Payment for capital assets</b>	<b>19,743</b>	<b>-</b>	<b>-</b>	<b>19,743</b>	<b>19,244</b>	<b>499</b>	<b>97.5%</b>	<b>23,473</b>	<b>14,662</b>	
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-	
Machinery and equipment	19,743	-	-	19,743	19,244	499	97.5%	23,473	14,662	
Transport equipment	-	300	-	300	225	75	75.0%	1,876	1,876	
Other machinery and equipment	19,743	(300)	-	19,443	19,019	424	97.8%	21,597	12,786	
Software and other intangible assets	-	-	-	-	-	-	-	-	-	
<b>Payment for financial assets</b>	<b>-</b>	<b>-</b>	<b>57</b>	<b>57</b>	<b>58</b>	<b>(1)</b>	<b>101.8%</b>	<b>4</b>	<b>3</b>	
<b>Total</b>	<b>242,517</b>	<b>10,430</b>	<b>(32,063)</b>	<b>220,884</b>	<b>219,226</b>	<b>1,658</b>	<b>99.2%</b>	<b>232,928</b>	<b>216,639</b>	

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018									
Subprogramme: 1.4 Governance	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>8,132</b>	<b>620</b>	<b>(753)</b>	<b>7,999</b>	<b>7,909</b>	<b>90</b>	<b>98.9%</b>	<b>10,423</b>	<b>8,168</b>
<b>Compensation of employees</b>	<b>6,314</b>	<b>700</b>	-	<b>7,014</b>	<b>6,957</b>	<b>57</b>	<b>99.2%</b>	<b>7,485</b>	<b>7,392</b>
Salaries and wages	4,788	1,400	-	6,188	6,175	13	99.8%	6,612	6,562
Social contributions	1,526	(700)	-	826	782	44	94.7%	873	830
<b>Goods and services</b>	<b>1,818</b>	<b>(80)</b>	<b>(753)</b>	<b>985</b>	<b>952</b>	<b>33</b>	<b>96.6%</b>	<b>2,938</b>	<b>776</b>
Administration fees	11	-	-	11	6	5	54.6%	10	4
Advertising	569	(562)	-	7	3	4	42.9%	530	54
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	61	(37)	-	24	24	-	100.0%	58	29
Communication (G&S)	148	(23)	-	125	125	-	100.0%	171	171
Computer services	-	-	-	-	-	-	-	-	-
Consultants: Business & advisory services	788	(45)	(741)	2	-	2	-	1,561	-
Legal services	-	-	-	-	-	-	-	-	-
Contractors	-	-	-	-	-	-	-	-	-
Agency and support/outsourced services:-	-	232	-	232	232	-	100.0%	-	-
Entertainment	13	-	-	13	5	8	38.5%	12	1
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-
Inventory: Other supplies	-	-	-	-	-	-	-	-	-
Consumable supplies	-	-	-	-	-	-	-	-	-



# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018										
Subprogramme: 1.4 Governance	2017/18					2016/17				
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Consumables: Stationery, printing and office supplies	26	45	-	71	69	2	97.2%	25	1	
Operating leases	-	-	-	-	-	-	-	-	-	
Property payments	-	-	-	-	-	-	-	-	-	
Travel and subsistence	-	205	-	205	201	4	98.0%	168	168	
Training and development	142	(142)	-	-	-	-	-	-	-	
Operating payments	-	293	-	293	287	6	98.0%	348	348	
Venues and facilities	2	-	-	2	-	2	-	55	-	
Rental and hiring	58	(46)	(12)	-	-	-	-	-	-	
<b>Transfers and subsidies</b>	-	-	<b>12</b>	<b>12</b>	<b>41</b>	<b>(29)</b>	<b>341.7%</b>	-	-	
Departmental agencies and accounts	-	-	-	-	-	-	-	-	-	
Higher education institutions	-	-	-	-	-	-	-	-	-	
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-	
<b>Public corporations and private enterprises</b>	-	-	-	-	-	-	-	-	-	
<b>Public corporations</b>	-	-	-	-	-	-	-	-	-	
Subsidies on products	-	-	-	-	-	-	-	-	-	
Other transfers to public corporations	-	-	-	-	-	-	-	-	-	
<b>Private enterprises</b>	-	-	-	-	-	-	-	-	-	
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-	
Non-profit institutions	-	-	-	-	-	-	-	-	-	
<b>Households</b>	-	-	<b>12</b>	<b>12</b>	<b>41</b>	<b>(29)</b>	<b>341.7%</b>	-	-	
Social benefits	-	-	12	12	41	(29)	341.7%	-	-	
Other transfers to Households	-	-	-	-	-	-	-	-	-	
Payment for capital assets	193	-	-	193	-	193	-	-	-	

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018										
Subprogramme: 1.4 Governance	2017/18						2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Buildings and other fixed structures					-	-	-	-	-	-
<b>Machinery and equipment</b>	<b>193</b>	-	-	<b>193</b>	-	<b>193</b>	-	-	-	-
Transport equipment					-	-	-	-	-	-
Other machinery and equipment	193	-	-	193	-	193	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Total</b>	<b>8,325</b>	<b>620</b>	<b>(741)</b>	<b>8,204</b>	<b>7,950</b>	<b>254</b>	<b>96.9%</b>	<b>10,423</b>	<b>8,168</b>	

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018									
Subprogramme: 1.5: Office Accommodation	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>4,784</b>	-	<b>2,800</b>	<b>7,584</b>	<b>7,548</b>	<b>36</b>	<b>99.5%</b>	<b>4,561</b>	<b>4,381</b>
<b>Compensation of employees</b>	-	-	-	-	-	-	-	-	-
Salaries and wages	-	-	-	-	-	-	-	-	-
Social contributions	-	-	-	-	-	-	-	-	-
<b>Goods and services</b>	<b>4,784</b>	-	<b>2,800</b>	<b>7,584</b>	<b>7,548</b>	<b>36</b>	<b>99.5%</b>	<b>4,561</b>	<b>4,381</b>
Administrative fees	4,784	(4,784)	-	-	-	-	-	-	-
Advertising	-	-	-	-	-	-	-	-	-
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	-	-	-	-	-	-	-	-	-
Communication (G&S)	-	-	-	-	-	-	-	-	-
Computer services	-	-	-	-	-	-	-	-	-
Consultants: Business and advisory services	-	-	-	-	-	-	-	-	-
Legal services	-	-	-	-	-	-	-	-	-
Contractors	-	-	-	-	-	-	-	-	-
Agency and support/ outsourced services	-	-	-	-	-	-	-	-	-
Entertainment	-	-	-	-	-	-	-	-	-
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-
Inventory: Other supplies	-	-	-	-	-	-	-	-	-
Consumable supplies	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018									
Subprogramme: 1.5: Office Accommodation	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Consumables: Stationery, printing and office supplies	-	-	-	-	-	-	-	-	-
Operating leases	-	1,930	-	1,930	1,930	12	99,4%	1,397	1,217
Property payments	-	2,854	2,800	5,654	5,630	24	99,6%	3,164	3,164
Travel and subsistence	-	-	-	-	-	-	-	-	-
Training and development	-	-	-	-	-	-	-	-	-
Operating payments	-	-	-	-	-	-	-	-	-
Venues and facilities	-	-	-	-	-	-	-	-	-
Rental and hiring	-	-	-	-	-	-	-	-	-
<b>Transfers and subsidies</b>	-	-	-	-	-	-	-	-	-
Departmental agencies and accounts	-	-	-	-	-	-	-	-	-
Higher education institutions	-	-	-	-	-	-	-	-	-
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	-	-	-	-	-	-	-	-	-
<b>Public corporations</b>	-	-	-	-	-	-	-	-	-
Subsidies on products	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	-	-	-	-	-	-	-	-	-
<b>Private enterprises</b>	-	-	-	-	-	-	-	-	-
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-
Non-profit institutions	-	-	-	-	-	-	-	-	-
Households	-	-	-	-	-	-	-	-	-
Other transfers to households	-	-	-	-	-	-	-	-	-
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 1 – Administration for the year ended 31 March 2018										
Subprogramme: 1.5: Office Accommodation	2017/18						2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>4,784</b>	<b>-</b>	<b>2,800</b>	<b>7,584</b>	<b>7,548</b>	<b>36</b>	<b>99.5%</b>	<b>4,561</b>	<b>4,381</b>	

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018										
Subprogramme	2017/18						2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>2.1 Space Science</b>	174,897	(200)	17,445	192,142	191,823	319	99.8%	167,966	167,803	
<b>2.2 Hydrogen and Energy</b>	156,785	-	(9,062)	147,723	147,467	256	99.8%	151,546	143,594	
<b>2.3 Bio-economy</b>	156,088	-	22,112	178,200	162,465	15,735	91.2%	157,343	156,905	
<b>2.4 Innovation Priorities and Instruments</b>	540,522	-	(3,937)	536,585	535,581	1,004	99.8%	505,769	505,347	
<b>2.5 National Intellectual Property Management Office</b>	46,824	200	32,109	79,133	78,845	288	99.6%	44,964	42,211	
<b>Total</b>	<b>1,075,116</b>	<b>-</b>	<b>58,667</b>	<b>1,133,783</b>	<b>1,116,181</b>	<b>17,602</b>	<b>98.4%</b>	<b>1,027,588</b>	<b>1,015,860</b>	
<b>Economic classification</b>										
<b>Current payments</b>	<b>67,346</b>	<b>-</b>	<b>(11,659)</b>	<b>55,687</b>	<b>54,421</b>	<b>1,266</b>	<b>97.7%</b>	<b>57,479</b>	<b>55,666</b>	
<b>Compensation of employees</b>	<b>45,938</b>	<b>-</b>	<b>(3,200)</b>	<b>42,738</b>	<b>41,912</b>	<b>826</b>	<b>98.1%</b>	<b>43,193</b>	<b>42,939</b>	
Salaries and wages	39,551	1,300	(2,350)	38,501	37,871	630	98.4%	39,042	38,872	
Social contributions	6,387	(1,300)	(850)	4,237	4,041	196	95.4%	4,151	4,067	
<b>Goods and services</b>	<b>21,408</b>	<b>-</b>	<b>(8,459)</b>	<b>12,949</b>	<b>12,509</b>	<b>440</b>	<b>96.6%</b>	<b>14,286</b>	<b>12,727</b>	
Administrative fees	179	192	-	371	365	6	98.4%	242	208	
Advertising	446	(383)	(14)	49	14	35	28.6%	121	14	
Minor assets	-	-	-	-	-	-	-	-	-	
Audit costs: External	-	-	-	-	-	-	-	-	-	
Bursaries: Employees	25	(25)	-	-	-	-	-	-	-	
Catering: Departmental activities	308	(32)	(50)	226	151	75	66.8%	260	142	
Communication (G&S)	862	(73)	(100)	689	655	34	95.1%	1,198	902	
Computer services	-	68	-	68	68	-	100.0%	78	78	
Consultants: Business and advisory services	1,638	232	(700)	1,170	1,150	20	98.3%	2,152	2,098	
Legal services	-	-	-	-	-	-	-	108	108	
Contractors	-	-	-	-	-	-	-	10	10	

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018										
Subprogramme	2017/18					2016/17				
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Agency and support/ outsourced services	6,358	(1,825)	(4,100)	433	414	19	95.6%	679	191	
Entertainment	3,692	(607)	(3,000)	85	56	29	65.9%	92	20	
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-	
Inventory: Clothing, material and supplies accessories	-	-	-	-	-	-	-	-	-	
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-	
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-	
Inventory: Other supplies	108	(88)	-	20	2	18	10.0%	52	-	
Consumable supplies	-	38	-	38	38	-	100.0%	163	90	
Consumables: Stationery, printing and office supplies	-	-	-	-	-	-	-	-	-	
Operating leases	-	128	-	128	128	-	100.0%	-	-	
Property payments	-	-	-	-	-	-	-	-	-	
Transport provided:	-	-	-	-	-	-	-	-	-	
Departmental activity	300	(300)	-	-	-	-	-	-	-	
Travel and subsistence	-	7,424	-	7,424	7,391	33	99.6%	6,486	6,470	
Training and development	5,172	(5,104)	-	68	-	68	-	17	17	
Operating payments	-	220	-	220	212	8	96.4%	404	355	
Venues and facilities	325	1,610	-	1,935	1,865	70	96.4%	2,160	1,961	
Rental and hiring	1,995	(1,475)	(495)	25	-	25	-	63	63	
<b>Transfers and subsidies</b>	<b>1,007,770</b>	<b>-</b>	<b>70,269</b>	<b>1,078,039</b>	<b>1,061,703</b>	<b>16,336</b>	<b>98.5%</b>	<b>970,109</b>	<b>960,164</b>	
Departmental agencies and accounts	660,988	-	44,320	705,308	699,378	5,930	99.2%	658,104	656,302	

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018									
Subprogramme	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Higher education institutions	-	-	-	-	-	-	-	133,981	143,626
<b>Public corporations and private enterprises</b>	<b>100,848</b>	-	-	<b>100,848</b>	<b>103,090</b>	<b>(2,242)</b>	<b>102.2%</b>	<b>95,298</b>	<b>114,676</b>
<b>Public corporations</b>	<b>100,848</b>	-	-	<b>100,848</b>	<b>100,623</b>	<b>225</b>	<b>99.8%</b>	<b>95,298</b>	<b>111,823</b>
Subsidies on products	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	100,848	-	-	100,848	100,623	225	99.8%	95,298	111,823
<b>Private enterprises</b>	-	-	-	-	<b>2,467</b>	<b>(2,467)</b>	-	-	<b>2,853</b>
Other transfers to private enterprises	-	-	-	-	2,467	(2,467)	-	-	2,853
Non-profit institutions	245,934	-	25,861	271,795	259,146	12,649	95.3%	82,671	45,374
<b>Households</b>	-	-	<b>88</b>	<b>88</b>	<b>88</b>	-	<b>100.0%</b>	<b>55</b>	<b>186</b>
Social benefits	-	-	88	88	88	-	100.0%	55	51
Other transfers to households	-	-	-	-	-	-	-	-	135
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	<b>30</b>
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	30
Transport equipment	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	30
Software and other intangible assets	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>1,075,116</b>	-	<b>58,667</b>	<b>1,133,783</b>	<b>1,116,181</b>	<b>17,602</b>	<b>98.4%</b>	<b>1,027,588</b>	<b>1,015,860</b>



# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018									
Subprogramme: 2.1: Space Science	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>14,811</b>	<b>(200)</b>	<b>(2,170)</b>	<b>12,441</b>	<b>12,122</b>	<b>319</b>	<b>97.6%</b>	<b>13,336</b>	<b>13,173</b>
<b>Compensation of employees</b>	<b>11,660</b>	-	<b>(2,100)</b>	<b>9,560</b>	<b>9,405</b>	<b>155</b>	<b>98.4%</b>	<b>10,161</b>	<b>10,129</b>
Salaries and wages	10,516	-	(1,700)	8,816	8,697	119	98.7%	9,502	9,470
Social contributions	1,144	-	(400)	744	708	36	95.2%	659	659
<b>Goods and services</b>	<b>3,151</b>	<b>(200)</b>	<b>(70)</b>	<b>2,881</b>	<b>2,717</b>	<b>164</b>	<b>94.3%</b>	<b>3,175</b>	<b>3,044</b>
Administrative fees	81	20	-	101	96	5	95.0%	38	30
Advertising	289	(280)	-	9	-	9	-	5	-
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	255	(30)	(50)	175	113	62	64.6%	102	38
Communication (G&S)	300	(185)	-	115	97	18	84.3%	283	283
Computer services	-	-	-	-	-	-	-	-	-
Consultants: Business and advisory services	380	(365)	-	15	-	15	-	-	-
Legal services	-	-	-	-	-	-	-	-	-
Contractors	-	-	-	-	-	-	-	10	10
Agency and support/outsourced services	449	(435)	-	14	-	14	-	4	4
Entertainment	35	25	-	60	54	6	90.0%	16	5
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing, material and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018									
Subprogramme: 2.1: Space Science	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Inventory: Other supplies	-	-	-	-	-	-	-	34	-
Consumable supplies	70	(70)	-	-	-	-	-	-	-
Consumables: Stationery, printing and office supplies	-	-	-	-	-	-	-	22	22
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	-	-
Travel and subsistence	-	1,875	-	1,875	1,870	5	99.7%	1,407	1,407
Training and development	754	(750)	-	4	-	4	-	17	17
Operating payments	-	5	-	5	2	3	40.0%	3	3
Venues and facilities	188	320	-	508	485	23	95.5%	1,234	1,225
Rental and hiring	350	(350)	(20)	-	-	-	-	-	-
<b>Transfers and subsidies</b>	<b>160,086</b>	<b>-</b>	<b>19,615</b>	<b>179,701</b>	<b>179,701</b>	<b>-</b>	<b>100.0%</b>	<b>154,630</b>	<b>154,630</b>
Departmental agencies and accounts	160,086	-	19,595	179,681	176,086	3,595	98.0%	154,630	154,630
Departmental agencies	160,086	-	19,595	179,681	176,086	3,595	98.0%	154,630	154,630
Higher education institutions	-	-	-	-	-	-	-	-	-
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Public corporations</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Subsidies on products	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	-	-	-	-	-	-	-	-	-
<b>Private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-
Non-profit institutions	-	-	-	-	3,595	(3,595)	-	-	-
<b>Households</b>	<b>-</b>	<b>-</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>-</b>	<b>100.0%</b>	<b>-</b>	<b>-</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018									
Subprogramme: 2.1: Space Science	2017/18						2016/17		
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Social benefit	-	-	20	20	20	-	100.0%	-	-
Other transfers to households	-	-	-	-	-	-	-	-	-
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>174,897</b>	<b>(200)</b>	<b>17,445</b>	<b>192,142</b>	<b>191,823</b>	<b>319</b>	<b>99.8%</b>	<b>167,966</b>	<b>167,803</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018									
Subprogramme 2.2: Hydrogen and Energy	Adjusted appropriation	2017/18					2016/17		
		Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>11,206</b>	-	<b>(1,850)</b>	<b>9,356</b>	<b>9,100</b>	<b>256</b>	<b>97.3%</b>	<b>10,427</b>	<b>10,161</b>
<b>Compensation of employees</b>	<b>7,321</b>	-	<b>(450)</b>	<b>6,871</b>	<b>6,741</b>	<b>130</b>	<b>98.1%</b>	<b>6,792</b>	<b>6,704</b>
Salaries and wages	6,576	-	(400)	6,176	6,071	105	98.3%	6,075	6,034
Social contributions	745	-	(50)	695	670	25	96.4%	717	670
<b>Goods and services</b>	<b>3,885</b>	-	<b>(1,400)</b>	<b>2,485</b>	<b>2,359</b>	<b>126</b>	<b>94.9%</b>	<b>3,635</b>	<b>3,457</b>
Administrative fees	22	48	-	70	69	1	98.6%	32	32
Advertising	73	(48)	-	25	-	25	-	67	5
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	18	-	-	18	5	13	27.8%	17	12
Communication (G&S)	182	(90)	-	92	90	2	97.8%	173	118
Computer services	-	-	-	-	-	-	-	-	-
Consultants: Business and advisory services	563	(45)	(500)	18	14	4	77.8%	1,516	1,516
Legal services	-	-	-	-	-	-	-	80	80
Contractors	-	-	-	-	-	-	-	-	-
Agency and support/outsourced services	2,045	(760)	(900)	385	383	2	99.5%	85	65
Entertainment	8	-	-	8	1	7	12.5%	8	3
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing, material and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-
Inventory: Other supplies	-	-	-	-	-	-	-	18	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018									
Subprogramme 2.2: Hydrogen and Energy	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Consumable supplies	19	(6)	-	13	-	13	-	-	-
Consumables: Stationery, printing and office supplies	-	1	-	1	1	-	100.0%	5	5
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	-	-
Travel and subsistence	-	1,580	-	1,580	1,564	16	99.0%	1,403	1,403
Training and development	563	(560)	-	3	-	3	-	-	-
Operating payments	-	180	-	180	176	4	97.8%	160	160
Venues and facilities	85	-	-	85	56	29	65.9%	71	58
Rental and hiring	307	(300)	-	7	-	7	-	-	-
<b>Transfers and subsidies</b>	<b>145,579</b>	<b>-</b>	<b>(7,212)</b>	<b>138,367</b>	<b>138,367</b>	<b>-</b>	<b>100.0%</b>	<b>141,119</b>	<b>133,433</b>
Departmental agencies and accounts	35,149	-	(2,472)	32,677	17,500	15,177	53.6%	34,904	26,323
Departmental agencies	35,149	-	(2,472)	32,677	17,500	15,177	53.6%	34,904	26,323
Higher education institutions	-	-	-	-	-	-	-	100,078	88,688
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2,165</b>	<b>(2,165)</b>	<b>-</b>	<b>-</b>	<b>15,923</b>
Public corporations	-	-	-	-	2,165	(2,165)	-	-	15,923
Subsidies on products	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	-	-	-	-	2,165	(2,165)	-	-	15,923
<b>Private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-
Non-profit institutions	110,430	-	(4,740)	105,690	118,702	(13,012)	112.3%	6,137	2,499
<b>Households</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Social benefit	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018										
Subprogramme 2.2: Hydrogen and Energy	2017/18						2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Other transfers to households	-	-	-	-	-	-	-	-	-	-
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>156,785</b>	<b>-</b>	<b>(9,062)</b>	<b>147,723</b>	<b>147,467</b>	<b>256</b>	<b>99.8%</b>	<b>151,546</b>	<b>143,594</b>	

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018									
Subprogramme: 2.3: Bio-economy	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>19,175</b>	-	<b>(3,108)</b>	<b>16,067</b>	<b>15,927</b>	<b>140</b>	<b>99.1%</b>	<b>15,057</b>	<b>14,589</b>
<b>Compensation of employees</b>	<b>12,578</b>	-	<b>(280)</b>	<b>12,298</b>	<b>12,247</b>	<b>51</b>	<b>99.6%</b>	<b>11,679</b>	<b>11,629</b>
Salaries and wages	11,297	-	(250)	11,047	11,010	37	99.7%	10,469	10,419
Social contributions	1,281	-	(30)	1,251	1,237	14	98.9%	1,210	1,210
<b>Goods and services</b>	<b>6,597</b>	-	<b>(2,828)</b>	<b>3,769</b>	<b>3,680</b>	<b>89</b>	<b>97.6%</b>	<b>3,378</b>	<b>2,960</b>
Administrative fees	63	82	-	145	145	-	100.0%	72	60
Advertising	33	(19)	(14)	-	-	-	-	-	-
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	25	(25)	-	-	-	-	-	-	-
Catering: Departmental activities	30	(24)	-	6	6	-	100.0%	109	64
Communication (G&S)	281	-	(100)	181	173	8	95.6%	332	191
Computer services	-	-	-	-	-	-	-	-	-
Consultants: Business and advisory services	276	(46)	(200)	30	30	-	100.0%	29	-
Legal services	-	-	-	-	-	-	-	-	-
Contractors	-	-	-	-	-	-	-	-	-
Agency and support/outsourced services	2,538	(27)	(2,500)	11	11	-	100.0%	122	122
Entertainment	32	(32)	-	-	-	-	-	17	4
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing, material and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018									
Subprogramme: 2.3: Bio-economy	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Inventory: Other supplies	-	-	-	-	-	-	-	-	-
Consumable supplies	19	(15)	-	4	1	3	25.0%	1	-
Consumables: Stationery, printing and office supplies	-	3	-	3	3	-	100.0%	77	4
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	-	-
Travel and subsistence	-	2,390	-	2,390	2,383	7	99.7%	1,987	1,987
Training and development	2,729	(2,672)	-	57	-	57	-	-	-
Operating payments	-	12	-	12	11	1	91.7%	97	48
Venues and facilities	46	883	-	929	917	12	98.7%	535	480
Rental and hiring	525	(510)	(14)	1	-	1	-	-	-
<b>Transfers and subsidies</b>	<b>136,913</b>	<b>-</b>	<b>25,220</b>	<b>162,133</b>	<b>146,538</b>	<b>15,595</b>	<b>90.4%</b>	<b>142,286</b>	<b>142,286</b>
Departmental agencies and accounts	41,110	-	25,877	66,987	76,409	(9,422)	114.1%	65,752	70,800
Departmental agencies	41,110	-	25,877	66,987	76,409	(9,422)	114.1%	65,752	70,800
Higher education institutions	-	-	-	-	-	-	-	-	15,121
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>12,974</b>	<b>(12,974)</b>	<b>-</b>	<b>-</b>	<b>22,323</b>
<b>Public corporations</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>12,974</b>	<b>(12,974)</b>	<b>-</b>	<b>-</b>	<b>19,470</b>
Subsidies on products	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	-	-	-	-	11,974	(11,974)	-	-	19,470
<b>Private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,000</b>	<b>(1,000)</b>	<b>-</b>	<b>-</b>	<b>2,853</b>
Other transfers to private enterprises	-	-	-	-	1,000	(1,000)	-	-	2,853
Non-profit institutions	95,803	-	(671)	95,132	57,141	37,991	60.1%	76,534	34,042
<b>Households</b>	<b>-</b>	<b>-</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>-</b>	<b>100%</b>	<b>-</b>	<b>-</b>



# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018										
Subprogramme: 2.3: Bio-economy	2017/18						2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Social benefit	-	-	14	14	14	-	100%	-	-	-
Other transfers to households	-	-	-	-	-	-	-	-	-	-
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	30	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	30	-
Transport equipment	-	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	30	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>156,088</b>	<b>-</b>	<b>22,112</b>	<b>178,200</b>	<b>162,465</b>	<b>15,735</b>	<b>91.2%</b>	<b>157,343</b>	<b>156,905</b>	

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018									
Subprogramme: 2.4 Innovation Priorities and Instrument	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>11,330</b>	-	<b>(4,051)</b>	<b>7,279</b>	<b>7,015</b>	<b>264</b>	<b>96.4%</b>	<b>7,598</b>	<b>7,180</b>
<b>Compensation of employees</b>	<b>5,831</b>	-	-	<b>5,831</b>	<b>5,595</b>	<b>236</b>	<b>96.0%</b>	<b>6,367</b>	<b>6,337</b>
Salaries and wages	4,405	800	-	5,205	5,046	159	96.9%	5,717	5,706
Social contributions	1,426	(800)	-	626	549	77	87.7%	650	631
<b>Goods and services</b>	<b>5,499</b>	-	<b>(4,051)</b>	<b>1,448</b>	<b>1,420</b>	<b>28</b>	<b>98.1%</b>	<b>1,231</b>	<b>843</b>
Administrative fees	-	7	-	7	7	-	100.0%	20	6
Advertising	46	(45)	-	1	-	1	-	44	5
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	4	-	-	4	4	-	-	4	-
Communication (G&S)	11	66	-	77	72	5	93.5%	204	104
Computer services	-	-	-	-	-	-	-	-	-
Consultants: Business and advisory services	-	1,038	-	1,038	1,037	1	99.9%	475	450
Legal services	-	-	-	-	-	-	-	-	-
Contractors	-	-	-	-	-	-	-	-	-
Agency and support/outsourced services	783	(83)	(700)	-	-	-	-	46	-
Entertainment	3,604	(600)	(3,000)	4	-	4	-	39	1
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018									
Subprogramme: 2.4 Innovation Priorities and Instrument	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	2016/17	
								Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Inventory: Other supplies	-	-	-	-	-	-	-	-	-
Consumable supplies	-	-	-	-	-	-	-	-	-
Consumables; Stationery, printing and office supplies	-	-	-	-	-	-	-	-	-
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	-	-
Travel and subsistence	-	295	-	295	293	2	99.3%	260	260
Training and development	654	(650)	-	4	-	4	-	-	-
Operating payments	-	7	-	7	7	-	100.0%	17	17
Venues and facilities	6	-	-	6	-	6	-	122	-
Rental and hiring	391	(35)	(351)	5	-	5	-	-	-
<b>Transfers and subsidies</b>	<b>529,192</b>	<b>-</b>	<b>113</b>	<b>529,305</b>	<b>528,565</b>	<b>740</b>	<b>99.9%</b>	<b>498,171</b>	<b>498,167</b>
Departmental agencies and accounts	424,643	-	1,320	425,963	422,482	3,481	99.2%	402,818	403,862
Departmental agencies	424,643	-	1,320	425,963	422,482	3,481	99.2%	420,818	403,167
Higher education institutions	-	-	-	-	-	-	-	-	16,504
<b>Public corporations and private enterprises</b>	<b>100,848</b>	<b>-</b>	<b>-</b>	<b>100,848</b>	<b>81,500</b>	<b>19,348</b>	<b>80.8%</b>	<b>95,298</b>	<b>70,750</b>
<b>Public corporations</b>	<b>100,848</b>	<b>-</b>	<b>-</b>	<b>100,848</b>	<b>81,450</b>	<b>19,398</b>	<b>80.8%</b>	<b>95,298</b>	<b>70,750</b>
Subsidies on products	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	100,848	-	-	100,848	81,450	19,398	80.8%	95,298	70,750
<b>Private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>50</b>	<b>(50)</b>	<b>-</b>	<b>-</b>	<b>-</b>
Other transfers to private enterprises	-	-	-	-	50	(50)	-	-	-
Non-profit institutions	3,701	-	(1,207)	2,494	24,583	(22,089)	985.7%	-	7,000
<b>Households</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>55</b>	<b>51</b>
Social benefits	-	-	-	-	-	-	-	55	51

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018										
Subprogramme: 2.4 Innovation Priorities and Instrument	2017/18						2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Other transfers to households	-	-	-	-	-	-	-	-	-	-
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	1	1	1	-	100.0%	-	-	-
<b>Total</b>	<b>540,522</b>	<b>-</b>	<b>(3,937)</b>	<b>536,585</b>	<b>535,581</b>	<b>1,004</b>	<b>99.8%</b>	<b>505,769</b>	<b>505,347</b>	

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018									
Subprogramme: 2.5: National Intellectual Property Management Office	2017/18						2016/17		
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>10,824</b>	<b>200</b>	<b>(480)</b>	<b>10,544</b>	<b>10,257</b>	<b>287</b>	<b>97.3%</b>	<b>11,061</b>	<b>10,563</b>
<b>Compensation of employees</b>	<b>8,548</b>	-	<b>(370)</b>	<b>8,178</b>	<b>7,924</b>	<b>254</b>	<b>96.9%</b>	<b>8,194</b>	<b>8,140</b>
Salaries and wages	6,757	500	-	7,257	7,047	210	97.1%	7,279	7,243
Social contributions	1,791	(500)	(370)	921	877	44	95.2%	915	897
<b>Goods and services</b>	<b>2,276</b>	<b>200</b>	<b>(110)</b>	<b>2,366</b>	<b>2,333</b>	<b>33</b>	<b>98.6%</b>	<b>2,867</b>	<b>2,423</b>
Administrative fees	13	35	-	48	48	-	100.0%	80	80
Advertising	5	9	-	14	14	-	100.0%	5	4
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	1	22	-	23	23	-	100.0%	28	28
Communication (G&S)	88	136	-	224	223	1	99.6%	206	206
Computer services	-	68	-	68	68	-	100.0%	78	78
Consultants: Business and advisory services	419	(350)	-	69	69	-	100.0%	132	132
Legal services	-	-	-	-	-	-	-	28	28
Contractors	-	-	-	-	-	-	-	-	-
Agency and support/outsourced services	543	(520)	-	23	20	3	87.0%	422	-
Entertainment	13	-	-	13	1	12	7.7%	12	7
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018									
Subprogramme: 2.5: National Intellectual Property Management Office	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-
Inventory: Other supplies	-	-	-	-	-	-	-	-	-
Consumable supplies	-	3	-	3	1	2	33.3%	-	-
Consumables: Stationery, printing and office supplies	-	34	-	34	34	-	100.0%	59	59
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	128	-	128	128	-	100.0%	-	-
Transport provided:									
Departmental activities	300	(300)	-	-	-	-	-	-	-
Travel and subsistence	-	1,284	-	1,284	1,281	3	99.8%	1,429	1,413
Training and development	472	(472)	-	-	-	-	-	-	-
Operating payments	-	16	-	16	16	-	100.0%	127	127
Venues and facilities	-	407	-	407	407	-	100.0%	198	198
Rental and hiring	422	(300)	(110)	12	-	12	-	63	63
<b>Transfers and subsidies</b>	<b>36,000</b>	<b>-</b>	<b>32,533</b>	<b>68,533</b>	<b>68,532</b>	<b>1</b>	<b>100.0%</b>	<b>33,903</b>	<b>31,648</b>
Departmental agencies and accounts	-	-	-	-	6,901	(6,901)	-	-	687
Departmental agencies	-	-	-	-	6,901	(6,901)	-	-	687
Higher education institutions	-	-	-	-	-	-	-	33,903	23,313
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>6,451</b>	<b>(6,451)</b>	<b>-</b>	<b>-</b>	<b>5,680</b>
<b>Public corporations</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>5,034</b>	<b>(5,034)</b>	<b>-</b>	<b>-</b>	<b>5,680</b>
Subsidies on products	-	-	-	-	5,034	(5,034)	-	-	5,680
Other transfers to public corporations	-	-	-	-	-	-	-	-	5,680
<b>Private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,417</b>	<b>(1,471)</b>	<b>-</b>	<b>-</b>	<b>-</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 2 – Technology Innovation for the year ended 31 March 2018									
Subprogramme: 2.5: National Intellectual Property Management Office	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-
Non-profit institutions	36,000	-	32,479	68,479	55,125	13,354	80.5%	-	1,833
<b>Households</b>	-	-	<b>54</b>	<b>54</b>	<b>54</b>	-	<b>100.0%</b>	-	<b>135</b>
Social benefits	-	-	54	54	54	-	100.0%	-	-
Other transfers to households	-	-	-	-	-	-	-	-	135
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	<b>56</b>	<b>56</b>	<b>56</b>	-	<b>100.0%</b>	-	-
<b>Total</b>	<b>46,824</b>	<b>200</b>	<b>32,109</b>	<b>79,133</b>	<b>78,845</b>	<b>288</b>	<b>99.6%</b>	<b>44,964</b>	<b>42,211</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 3 – International Cooperation and Resources for the year ended 31 March 2018									
Subprogramme	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
<b>3.1 Multilateral Cooperation and Africa</b>	31,160	1,806	1,000	33,966	31,353	2,613	92.3%	30,546	30,408
<b>3.2 International Resources</b>	60,495	(500)	34,831	94,826	61,481	33,345	64.8%	54,533	54,204
<b>3.3 Overseas Bilateral Cooperation</b>	40,725	(1,306)	-	39,419	37,764	1,655	95.8%	36,237	33,854
<b>Total</b>	<b>132,380</b>	<b>-</b>	<b>35,831</b>	<b>168,211</b>	<b>130,598</b>	<b>37,613</b>	<b>77.6%</b>	<b>121,316</b>	<b>118,466</b>
<b>Economic classification</b>									
<b>Current payments</b>	<b>68,603</b>	<b>-</b>	<b>983</b>	<b>69,586</b>	<b>66,381</b>	<b>3,205</b>	<b>95.4%</b>	<b>60,430</b>	<b>57,569</b>
<b>Compensation of employees</b>	<b>48,843</b>	<b>-</b>	<b>-</b>	<b>48,843</b>	<b>46,068</b>	<b>2,775</b>	<b>94.3%</b>	<b>43,550</b>	<b>43,295</b>
Salaries and wages	44,008	200	-	44,208	41,632	2,576	94.2%	39,204	39,021
Social contributions	4,835	(200)	-	4,635	4,436	199	95.7%	4,346	4,274
<b>Goods and services</b>	<b>19,760</b>	<b>-</b>	<b>983</b>	<b>20,743</b>	<b>20,313</b>	<b>430</b>	<b>97.9%</b>	<b>16,880</b>	<b>14,274</b>
Administrative fees	133	248	-	381	373	8	97.9%	255	233
Advertising	421	(250)	-	171	90	81	52.6%	439	413
Minor assets	-	-	-	-	-	-	-	10	4
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	351	17	-	368	355	13	96.5%	314	289
Communication (G&S)	1,376	(381)	-	995	978	17	98.3%	1,254	1,233
Computer services	173	(152)	-	21	11	10	52.4%	25	17
Consultants: Business and advisory services	269	24	1,000	1,293	1,186	107	91.7%	1,106	1,090
Legal services	-	-	-	-	-	-	-	5	3
Contractors	-	35	-	35	32	3	91.4%	-	-
Agency and support/outsourced services	655	(96)	-	559	524	35	93.7%	768	142
Entertainment	781	(108)	-	673	658	15	97.8%	559	208



# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 3 – International Cooperation and Resources for the year ended 31 March 2018									
Subprogramme	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
Fleet services (incl. Government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing, material and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-
Inventory: Medical supplies	-	-	-	-	-	-	-	-	-
Inventory: Other supplies	-	-	-	-	-	-	-	49	-
Consumable supplies	216	(195)	-	21	15	6	71.4%	30	22
Consumables: Stationery, printing and office supplies	-	56	-	56	54	2	96.4%	48	25
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	26	-
Transport provided:	-	-	-	-	-	-	-	-	-
Departmental activity	500	(500)	-	-	-	-	-	-	-
Travel and subsistence	-	13,720	-	13,720	13,648	72	99.5%	9,036	8,805
Training and development	9,527	(9,509)	-	18	-	18	-	10	4
Operating payments	-	836	-	836	822	14	98.3%	1,191	375
Venues and facilities	1,108	340	-	1,448	1,432	16	98.9%	1,605	1,283
Rental and hiring	4,250	(4,085)	(17)	148	135	13	91.2%	150	128
<b>Transfers and subsidies</b>	<b>63,777</b>	<b>-</b>	<b>34,845</b>	<b>98,622</b>	<b>64,214</b>	<b>34,408</b>	<b>65.1%</b>	<b>60,882</b>	<b>60,897</b>
Departmental agencies and accounts	14,130	-	-	14,130	45,136	(31,006)	319.4%	13,598	44,586
Higher education institutions	-	-	-	-	-	-	-	-	8,532

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 3 – International Cooperation and Resources for the year ended 31 March 2018									
Subprogramme	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	-	-	-	-	<b>4,790</b>	<b>(4,790)</b>	-	-	<b>4,315</b>
<b>Public corporations</b>	-	-	-	-	<b>4,790</b>	<b>(4,790)</b>	-	-	<b>4,315</b>
Other transfers to public corporations	-	-	-	-	4,790	(4,790)	-	-	4,315
<b>Private enterprises</b>	-	-	-	-	-	-	-	-	-
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-
Non-profit institutions	49,647	-	34,831	84,478	14,278	70,200	16.9%	47,209	3,374
<b>Households</b>	-	-	<b>14</b>	<b>14</b>	<b>10</b>	<b>4</b>	<b>71.4%</b>	<b>75</b>	<b>90</b>
Social benefits	-	-	14	14	10	4	71.4%	75	90
Other transfers to households	-	-	-	-	-	-	-	-	-
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	<b>3</b>	<b>3</b>	<b>3</b>	-	<b>100.0%</b>	<b>4</b>	-
<b>Total</b>	<b>132,380</b>	-	<b>35,831</b>	<b>168,211</b>	<b>130,598</b>	<b>37,613</b>	<b>77.6%</b>	<b>121,316</b>	<b>118,466</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 3 – International Cooperation and Resources for the year ended 31 March 2018									
Subprogramme: 3.1: Multilateral Co-operation and Africa	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>22,288</b>	<b>1,806</b>	<b>986</b>	<b>25,080</b>	<b>24,284</b>	<b>796</b>	<b>98.6%</b>	<b>22,296</b>	<b>22,158</b>
<b>Compensation of employees</b>	<b>15,982</b>	<b>1,350</b>	-	<b>17,332</b>	<b>16,616</b>	<b>716</b>	<b>95.9%</b>	<b>15,932</b>	<b>15,847</b>
Salaries and wages	14,115	1,350	-	15,465	14,840	625	96.0%	14,262	14,202
Social contributions	1,867	-	-	1,867	1,776	91	95.1%	1,670	1,645
<b>Goods and services</b>	<b>6,306</b>	<b>456</b>	<b>986</b>	<b>7,748</b>	<b>7,668</b>	<b>80</b>	<b>99.0%</b>	<b>6,364</b>	<b>6,311</b>
Administrative fees	38	63	-	101	101	-	100.0%	104	96
Advertising	151	(150)	-	1	-	1	-	12	5
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	106	111	-	217	217	-	100.0%	159	155
Communication (G&S)	262	-	-	262	250	12	95.4%	365	365
Computer services	33	(30)	-	3	-	3	-	-	-
Consultants: Business and advisory services	-	186	1,000	1,186	1,186	-	100.0%	1,095	1,090
Legal services	-	-	-	-	-	-	-	-	-
Contractors	-	22	-	22	22	-	100.0%	-	-
Agency and support/outsourced services	-	534	-	534	519	15	97.2%	130	123
Entertainment	111	(80)	-	31	19	12	61.3%	10	6
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 3 – International Cooperation and Resources for the year ended 31 March 2018									
Subprogramme: 3.1: Multilateral Co-operation and Africa	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-
Inventory: Other supplies	-	-	-	-	-	-	-	-	-
Consumable supplies	24	(22)	-	2	2	-	100.0%	-	-
Consumables: Stationery, printing and office supplies	-	25	-	25	25	-	100.0%	1	1
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	-	-
Travel and subsistence	-	4,900	-	4,900	4,883	17	99.7%	3,337	3,331
Training and development	3,832	(3,825)	-	7	-	7	-	-	-
Operating payments	-	127	-	127	124	3	97.6%	170	165
Venues and facilities	167	160	-	327	320	7	97.9%	981	974
Rental and hiring	1,582	(1,565)	(14)	3	-	3	-	-	-
<b>Transfers and subsidies</b>	<b>8,872</b>	-	<b>14</b>	<b>8,886</b>	<b>7,069</b>	<b>1,817</b>	<b>79.6%</b>	<b>8,250</b>	<b>8,250</b>
Departmental agencies and accounts	-	-	-	-	3,300	(3,300)	-	-	2,900
Departmental agencies	-	-	-	-	3,300	(3,300)	-	-	-
Higher education institutions	-	-	-	-	-	-	-	-	200
<b>Public corporations and private enterprises</b>	-	-	-	-	<b>3,110</b>	<b>(3,110)</b>	-	-	<b>2,200</b>
<b>Public corporations</b>	-	-	-	-	<b>3,110</b>	<b>(3,110)</b>	-	-	<b>2,200</b>
Subsidies on products	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	-	-	-	-	3,110	(3,110)	-	-	2,200
<b>Private enterprises</b>	-	-	-	-	-	-	-	-	-
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-
Non-profit institutions	8,872	-	-	8,872	649	8,223	8,250	8,250	2,950
<b>Households</b>	-	-	<b>14</b>	<b>14</b>	<b>10</b>	<b>4</b>	<b>71.4%</b>	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 3 – International Cooperation and Resources for the year ended 31 March 2018										
Subprogramme: 3.1: Multilateral Co-operation and Africa	2017/18						2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Social benefit	-	-	14	14	10	4	71.4%	-	-	-
Other transfers to households	-	-	-	-	-	-	-	-	-	-
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>31,160</b>	<b>1,806</b>	<b>1,000</b>	<b>33,966</b>	<b>31,353</b>	<b>2,613</b>	<b>92.3%</b>	<b>30,546</b>	<b>30,408</b>	

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 3 – International Cooperation and Resources for the year ended 31 March 2018									
Subprogramme: 3.2 International Resources	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>19,720</b>	<b>(500)</b>	<b>(2)</b>	<b>19,218</b>	<b>18,313</b>	<b>905</b>	<b>95.3%</b>	<b>15,495</b>	<b>15,155</b>
<b>Compensation of employees</b>	<b>15,367</b>	<b>(650)</b>	-	<b>14,717</b>	<b>13,884</b>	<b>833</b>	<b>94.3%</b>	<b>12,390</b>	<b>12,310</b>
Salaries and wages	13,803	(450)	-	13,353	12,552	801	94.0%	11,040	10,970
Social contributions	1,564	(200)	-	1,364	1,332	32	97.7%	1,350	1,340
<b>Goods and services</b>	<b>4,353</b>	<b>150</b>	<b>(2)</b>	<b>4,501</b>	<b>4,429</b>	<b>72</b>	<b>98.4%</b>	<b>3,105</b>	<b>2,845</b>
Administrative fees	79	20	-	99	98	1	99.0%	106	93
Advertising	200	(100)	-	100	80	20	80.0%	15	15
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	164	(94)	-	70	70	-	100.0%	78	69
Communication (G&S)	282	179	-	461	458	3	99.3%	397	389
Computer services	140	(137)	-	3	-	3	-	10	8
Consultants: Business and advisory services	68	(65)	-	3	-	3	-	-	-
Legal services	-	-	-	-	-	-	-	5	3
Contractors	-	-	-	-	-	-	-	-	-
Agency and support/outsourced services	22	-	-	22	5	17	22.7%	35	19
Entertainment	188	(40)	-	148	147	1	99.3%	90	85
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing, material and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 3 – International Cooperation and Resources for the year ended 31 March 2018									
Subprogramme: 3.2 International Resources	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-
Inventory: Other supplies	-	-	-	-	-	-	-	-	-
Consumable supplies	15	(3)	-	12	10	2	83.3%	-	-
Consumables: Stationery, printing and office supplies	-	11	-	11	11	-	100.0%	47	24
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	-	-
Travel and subsistence	-	2,720	-	2,720	2,716	4	99.9%	1,906	1,772
Training and development	2,107	(2,100)	-	7	-	7	-	-	-
Operating payments	-	609	-	609	601	8	98.7%	206	201
Venues and facilities	85	30	-	115	115	-	100.0%	110	77
Rental and hiring	1,003	(880)	(2)	121	118	3	97.5%	100	90
<b>Transfers and subsidies</b>	<b>40,775</b>	<b>-</b>	<b>34,831</b>	<b>75,606</b>	<b>43,166</b>	<b>32,440</b>	<b>57.1%</b>	<b>39,034</b>	<b>39,049</b>
Departmental agencies and accounts	-	-	-	-	27,857	(27,857)	-	-	28,088
Departmental agencies	-	-	-	-	27,875	(27,857)	57.1%	39,034	28,088
Higher education institutions	-	-	-	-	-	-	-	-	8,332
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,680</b>	<b>(1,680)</b>	<b>-</b>	<b>-</b>	<b>2,115</b>
<b>Public corporations</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,680</b>	<b>(1,680)</b>	<b>-</b>	<b>-</b>	<b>2,115</b>
Subsidies	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	-	-	-	-	1,680	(1,680)	-	-	2,115
<b>Private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 3 – International Cooperation and Resources for the year ended 31 March 2018										
Subprogramme: 3.2 International Resources	2017/18						2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-	-
Non-profit institutions	40,775	-	34,831	75,606	13,629	61,977	18,0%	38,959	424	
<b>Households</b>	-	-	-	-	-	-	-	<b>75</b>	<b>90</b>	
Social benefits	-	-	-	-	-	-	-	75	90	
Other transfers to households	-	-	-	-	-	-	-	-	-	
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-	
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-	
Machinery and equipment	-	-	-	-	-	-	-	-	-	
Transport equipment	-	-	-	-	-	-	-	-	-	
Other machinery and equipment	-	-	-	-	-	-	-	-	-	
Software and other intangible assets	-	-	-	-	-	-	-	-	-	
<b>Payment for financial assets</b>	-	-	2	2	2	-	100%	4	-	
<b>Total</b>	<b>60,495</b>	<b>(500)</b>	<b>34,831</b>	<b>94,826</b>	<b>61,481</b>	<b>33,345</b>	<b>64.8%</b>	<b>54,533</b>	<b>54,204</b>	



# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 3 – International Cooperation and Resources for the year ended 31 March 2018									
Subprogramme: 3.3 Overseas Bilateral Cooperation	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>26,595</b>	<b>(1,306)</b>	<b>(1)</b>	<b>25,288</b>	<b>23,784</b>	<b>1,504</b>	<b>94.1%</b>	<b>22,639</b>	<b>20,256</b>
<b>Compensation of employees</b>	<b>17,494</b>	<b>(700)</b>	<b>-</b>	<b>16,794</b>	<b>15,568</b>	<b>1,226</b>	<b>92.7%</b>	<b>15,228</b>	<b>15,138</b>
Salaries and wages	16,090	(700)	-	15,390	14,240	1,150	92.5%	13,902	13,849
Social contributions	1,404	-	-	1,404	1,328	76	94.6%	1,326	1,289
<b>Goods and services</b>	<b>9,101</b>	<b>(606)</b>	<b>(1)</b>	<b>8,494</b>	<b>8,216</b>	<b>278</b>	<b>96.7%</b>	<b>7,411</b>	<b>5,118</b>
Administrative fees	16	165	-	181	174	7	96.1%	45	44
Advertising	70	-	-	70	10	60	14.3%	412	393
Minor assets	-	-	-	-	-	-	-	10	4
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	81	-	-	81	68	13	84.0%	77	65
Communication (G&S)	832	(560)	-	272	270	2	99.3%	492	479
Computer services	-	15	-	15	11	4	73.3%	15	9
Consultants: Business and advisory services	201	(97)	-	104	-	104	-	11	-
Legal services	-	-	-	-	-	-	-	-	-
Contractors	-	13	-	13	10	3	76.9%	-	-
Agency and support/outsourced services	633	(630)	-	3	-	3	-	603	-
Entertainment	482	12	-	494	492	2	99.6%	459	117
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 3 – International Cooperation and Resources for the year ended 31 March 2018									
Subprogramme: 3.3 Overseas Bilateral Cooperation	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Inventory: Medical supplies	-	-	-	-	-	-	-	-	-
Inventory: Other supplies	-	-	-	-	-	-	-	49	-
Consumable supplies	177	(170)	-	7	3	4	42.9%	30	22
Consumables: Stationery, printing and office supplies	-	20	-	20	18	2	90.0%	-	-
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	26	-
Transport provided:	-	-	-	-	-	-	-	-	-
Departmental activity	500	(500)	-	-	-	-	-	-	-
Travel and subsistence	-	6,100	-	6,100	6,049	51	99.2%	3,793	3,702
Training and development	3,588	(3,584)	-	4	-	4	-	10	4
Operating payments	-	100	-	100	97	3	97.0%	815	9
Venues and facilities	856	150	-	1,006	997	9	99.1%	514	232
Rental and hiring	1,665	(1,640)	(1)	24	17	7	70.8%	50	38
<b>Transfers and subsidies</b>	<b>14,130</b>	<b>-</b>	<b>-</b>	<b>14,130</b>	<b>13,979</b>	<b>151</b>	<b>98.9%</b>	<b>13,598</b>	<b>13,598</b>
Departmental agencies and accounts	14,130	-	-	14,130	13,979	151	98.9%	13,598	13,598
Departmental agencies	14,130	-	-	14,130	13,979	151	98.9%	13,598	13,598
Higher education institutions	-	-	-	-	-	-	-	-	-
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Public corporations</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Subsidies	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	-	-	-	-	-	-	-	-	-
<b>Private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 3 – International Cooperation and Resources for the year ended 31 March 2018									
Subprogramme: 3.3 Overseas Bilateral Cooperation	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-
Non-profit institutions	-	-	-	-	-	-	-	-	-
<b>Households</b>	-	-	-	-	-	-	-	-	-
Social benefits	-	-	-	-	-	-	-	-	-
Other transfers to households	-	-	-	-	-	-	-	-	-
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	1	1	1	-	100.0%	-	-
<b>Total</b>	<b>40,725</b>	<b>(1,306)</b>	<b>-</b>	<b>39,419</b>	<b>37,764</b>	<b>1,655</b>	<b>95.8%</b>	<b>36,237</b>	<b>33,854</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 4 – Research Development and Support for the year ended 31 March 2018									
Subprogramme	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
<b>4.1 Human Capital and Science Promotion</b>	2,424,804	(310)	(48,990)	2,375,504	2,367,069	8,435	99.6%	2,356,179	2,354,550
<b>4.2 Science Missions</b>	214,244	-	69	214,313	214,211	102	100.0%	214,115	213,071
<b>4.3 Basic Sciences and Infrastructure</b>	976,604	1,239	(120)	977,723	977,488	235	100.0%	896,989	895,536
<b>4.4 Astronomy</b>	734,484	(929)	(300)	733,255	733,156	99	100.0%	690,321	689,473
<b>Total</b>	<b>4,350,136</b>	<b>-</b>	<b>(49,341)</b>	<b>4,300,795</b>	<b>4,291,924</b>	<b>8,871</b>	<b>99.8%</b>	<b>4,157,604</b>	<b>4,152,630</b>
<b>Economic classification</b>									
<b>Current payments</b>	<b>49,237</b>	<b>-</b>	<b>(1,245)</b>	<b>47,992</b>	<b>47,532</b>	<b>460</b>	<b>99.0%</b>	<b>50,434</b>	<b>48,337</b>
<b>Compensation of employees</b>	<b>33,712</b>	<b>-</b>	<b>1,700</b>	<b>35,412</b>	<b>35,206</b>	<b>206</b>	<b>99.4%</b>	<b>34,787</b>	<b>34,613</b>
Salaries and wages	29,588	800	1,380	31,768	31,627	141	99.6%	31,224	31,102
Social contributions	4,124	(800)	320	3,644	3,579	65	98.2%	3,563	3,511
<b>Goods and services</b>	<b>15,525</b>	<b>-</b>	<b>(2,945)</b>	<b>12,580</b>	<b>12,326</b>	<b>254</b>	<b>98.0%</b>	<b>15,647</b>	<b>13,724</b>
Administrative fees	527	382	(600)	309	256	53	82.8%	360	315
Advertising	41	961	-	1,002	1,002	-	100.0%	348	261
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	570	(327)	(80)	163	147	16	90.3%	184	117
Communication (G&S)	646	(7)	(120)	519	486	33	93.6%	665	625
Computer services	154	(123)	-	31	-	31	-	44	-
Consultants: Business and advisory services	1,365	(284)	-	1,081	1,064	17	98.4%	2,720	2,264
Scientific and technological services	180	(180)	-	-	-	-	-	-	-
Legal services	-	-	-	-	-	-	-	-	-
Contractors	-	343	-	343	343	-	100.0%	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 4 – Research Development and Support for the year ended 31 March 2018									
Subprogramme	Adjusted appropriation	2017/18				2016/17			
		Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
Agency and support/ outsourced services	879	(406)	(200)	273	238	35	87.3%	1,030	822
Entertainment	200	(171)	-	29	16	13	56.0%	49	20
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-
Inventory: Other supplies	-	-	-	-	-	-	-	-	-
Consumable supplies	19	-	-	19	-	19	-	-	-
Consumables: Stationery, printing and office supplies	-	43	-	43	42	1	97.7%	137	35
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	-	-
Travel and subsistence	-	7,159	-	7,159	7,145	14	99.8%	7,702	7,299
Training and development	8,481	(6,886)	(1,500)	5	-	5	-	5	5
Operating payments	-	551	-	551	546	5	99.1%	1,250	926
Venues and facilities	453	292	-	745	740	5	99.3%	1,153	1,035
Rental and hiring	2,011	(1,347)	(355)	309	301	8	97.4%	-	-
<b>Transfers and subsidies</b>	<b>4,300,899</b>	<b>-</b>	<b>(48,147)</b>	<b>4,252,752</b>	<b>4,244,341</b>	<b>8,411</b>	<b>99.8%</b>	<b>4,107,140</b>	<b>4,104,263</b>
Departmental agencies and accounts	4,026,486	-	(48,251)	3,978,235	3,639,288	338,947	91.5%	3,892,594	3,550,051
Higher education institutions	-	-	-	-	-	-	-	-	37,547
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 4 – Research Development and Support for the year ended 31 March 2018									
Subprogramme	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
<b>Public corporations and private enterprise</b>	<b>274,413</b>	-	-	<b>274,413</b>	<b>457,544</b>	<b>(183,131)</b>	<b>166.7%</b>	<b>214,546</b>	<b>467,380</b>
<b>Public corporations</b>	<b>274,413</b>	-	-	<b>274,413</b>	<b>457,544</b>	<b>(183,131)</b>	<b>166.7%</b>	<b>214,546</b>	<b>467,380</b>
Subsidies	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	274,413	-	-	274,413	457,544	(183,131)	166.7%	214,546	467,380
<b>Private enterprises</b>	-	-	-	-	-	-	-	-	-
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-
Non-profit institutions	-	-	-	-	146,725	(146,725)	-	-	48,820
<b>Households</b>	-	-	<b>104</b>	<b>104</b>	<b>784</b>	<b>(680)</b>	<b>753.8%</b>	-	<b>465</b>
Social benefit	-	-	104	104	104	-	100.0%	-	-
Other transfers to households	-	-	-	-	680	(680)	-	-	465
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	<b>51</b>	<b>51</b>	<b>51</b>	-	<b>100.0%</b>	<b>30</b>	<b>30</b>
<b>Total</b>	<b>4,350,136</b>	-	<b>(49,341)</b>	<b>4,300,795</b>	<b>4,291,924</b>	<b>8,871</b>	<b>99.8%</b>	<b>4,157,604</b>	<b>4,152,630</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 4 – Research Development and Support for the year ended 31 March 2018									
Subprogramme: 4.1: Human Capital and Science Promotion	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>14,742</b>	<b>(310)</b>	<b>(2,099)</b>	<b>12,333</b>	<b>12,188</b>	<b>145</b>	<b>98.8%</b>	<b>15,343</b>	<b>14,565</b>
<b>Compensation of employees</b>	<b>10,402</b>	<b>(310)</b>	-	<b>10,092</b>	<b>10,013</b>	<b>79</b>	<b>99.2%</b>	<b>11,078</b>	<b>11,036</b>
Salaries and wages	8,782	330	-	9,112	9,041	71	99.2%	9,977	9,956
Social contributions	1,620	(640)	-	980	972	8	99.2%	1,101	1,080
<b>Goods and services</b>	<b>4,340</b>	<b>-</b>	<b>(2,099)</b>	<b>2,241</b>	<b>2,175</b>	<b>66</b>	<b>97.1%</b>	<b>4,265</b>	<b>3,529</b>
Administrative fees	49	13	-	62	62	-	100.0%	77	32
Advertising	41	(40)	-	1	1	-	100.0%	87	-
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	222	(102)	(80)	40	37	3	92.5%	55	50
Communication (G&S)	298	-	(120)	178	171	7	96.1%	208	197
Computer services	76	(73)	-	3	-	3	-	-	-
Consultants: Business and advisory services	-	-	-	-	-	-	-	1,215	1,200
Legal services	-	-	-	-	-	-	-	-	-
Contractors	-	-	-	-	-	-	-	-	-
Agency and support/ outsourced services	182	(60)	-	122	120	2	98.4%	190	-
Entertainment	15	-	-	15	4	11	26.7%	8	2
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 4 – Research Development and Support for the year ended 31 March 2018									
Subprogramme: 4.1: Human Capital and Science Promotion	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-
Inventory: Other supplies	-	-	-	-	-	-	-	-	-
Consumable supplies	19	-	-	19	-	19	-	-	-
Consumables: Stationery, printing and office supplies	-	2	-	2	1	1	50.0%	25	18
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	-	-
Travel and subsistence	-	1,540	-	1,540	1,534	6	99.6%	1,771	1,483
Training and development	2,097	(505)	(1,590)	2	-	2	-	-	-
Operating payments	-	250	-	250	245	5	98.0%	591	547
Venues and facilities	200	(195)	-	5	-	5	-	38	-
Rental and hiring	1,141	(830)	(309)	2	-	2	-	-	-
<b>Transfers and subsidies</b>	<b>2,410,062</b>	<b>-</b>	<b>(46,939)</b>	<b>2,363,123</b>	<b>2,354,833</b>	<b>8,290</b>	<b>99.6%</b>	<b>2,340,836</b>	<b>2,339,085</b>
Departmental agencies and accounts	2,358,922	-	(47,000)	2,311,922	2,265,705	46,217	98.0%	2,340,836	2,263,985
Departmental agencies	2,358,922	-	(47,000)	2,311,922	2,265,705	46,217	98.0%	2,340,836	2,263,931
Higher education institutions	-	-	-	-	-	-	-	-	3,223
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	<b>51,140</b>	<b>-</b>	<b>-</b>	<b>51,140</b>	<b>39,056</b>	<b>12,084</b>	<b>76.4%</b>	<b>-</b>	<b>38,388</b>
<b>Public corporations</b>	<b>51,140</b>	<b>-</b>	<b>-</b>	<b>51,140</b>	<b>39,056</b>	<b>12,084</b>	<b>76.4%</b>	<b>-</b>	<b>38,388</b>
Subsidies	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	51,140	-	-	51,140	39,056	12,084	76.4%	-	38,388
<b>Private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-



# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 4 – Research Development and Support for the year ended 31 March 2018										
Subprogramme: 4.1: Human Capital and Science Promotion	2017/18						2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Non-profit institutions	-	-	-	-	49,611	(49,611)	-	-	-	34,208
<b>Households</b>	-	-	<b>61</b>	<b>61</b>	<b>461</b>	<b>(400)</b>	<b>755.7%</b>	-	-	<b>235</b>
Social benefits	-	-	61	61	61	-	100.0%	-	-	-
Other transfers to households	-	-	-	-	400	(400)	-	-	-	235
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	<b>48</b>	<b>48</b>	<b>48</b>	<b>-</b>	<b>100.0%</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Total</b>	<b>2,424,804</b>	<b>(310)</b>	<b>(48,990)</b>	<b>2,375,504</b>	<b>2,367,069</b>	<b>8,435</b>	<b>99.6%</b>	<b>2,356,179</b>	<b>2,354,550</b>	

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 4 – Research Development and Support for the year ended 31 March 2018									
Subprogramme: 4.2: Science Mission	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>14,672</b>	-	<b>1,277</b>	<b>15,949</b>	<b>15,847</b>	<b>102</b>	<b>99.4%</b>	<b>16,139</b>	<b>16,025</b>
<b>Compensation of employees</b>	<b>11,415</b>	-	<b>1,520</b>	<b>12,935</b>	<b>12,901</b>	<b>34</b>	<b>99.7%</b>	<b>12,210</b>	<b>12,167</b>
Salaries and wages	10,383	-	1,200	11,583	11,563	20	99.8%	10,931	10,895
Social contributions	1,032	-	320	1,352	1,338	14	99.0%	1,279	1,272
<b>Goods and services</b>	<b>3,257</b>	-	<b>(243)</b>	<b>3,014</b>	<b>2,946</b>	<b>68</b>	<b>97.7%</b>	<b>3,929</b>	<b>3,858</b>
Administrative fees	55	14	-	69	69	-	100.0%	74	74
Advertising	-	5	-	5	5	-	100.0%	-	-
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	41	(10)	-	31	28	3	90.3%	17	10
Communication (G&S)	183	-	-	183	161	22	88.0%	218	218
Computer services	40	(14)	-	26	-	26	-	8	-
Consultants: Business and advisory services	497	-	-	497	482	15	97.0%	950	950
Legal services	-	-	-	-	-	-	-	-	-
Contractors	-	3	-	3	3	-	100.0%	-	-
Agency and support/outsourced services	263	(63)	(200)	-	-	-	-	276	276
Entertainment	5	-	-	5	5	-	100.0%	5	5
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 4 – Research Development and Support for the year ended 31 March 2018									
Subprogramme: 4.2: Science Mission	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Inventory: Other supplies	-	-	-	-	-	-	-	-	-
Consumable supplies	-	-	-	-	-	-	-	-	-
Consumables: Stationery, printing and office supplies	-	10	-	10	10	-	100.0%	-	-
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	-	-
Travel and subsistence	-	2,164	-	2,164	2,162	2	99.9%	2,261	2,261
Training and development	1,832	(1,832)	-	-	-	-	-	-	-
Operating payments	-	3	-	3	3	-	100.0%	81	42
Venues and facilities	171	(153)	-	18	18	-	100.0%	39	22
Rental and hiring	170	(127)	(43)	-	-	-	-	-	-
<b>Transfers and subsidies</b>	<b>199,572</b>	<b>-</b>	<b>(1,208)</b>	<b>198,364</b>	<b>198,364</b>	<b>-</b>	<b>100%</b>	<b>197,946</b>	<b>197,016</b>
Departmental agencies and accounts	199,572	-	(1,251)	198,321	180,626	17,695	91.1%	197,946	181,819
Departmental agencies	199,572	-	(1,251)	198,321	180,626	17,695	91.1%	197,946	181,819
Higher education institutions	-	-	-	-	-	-	-	-	7,244
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>5,215</b>	<b>(5,215)</b>	<b>-</b>	<b>-</b>	<b>4,611</b>
<b>Public corporations</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>5,215</b>	<b>(5,215)</b>	<b>-</b>	<b>-</b>	<b>4,611</b>
Subsidies	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	-	-	-	-	5,215	(5,215)	-	-	4,611
<b>Private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-
Non-profit institutions	-	-	-	-	12,480	(12,480)	-	-	3,312
<b>Households</b>	<b>-</b>	<b>-</b>	<b>43</b>	<b>43</b>	<b>43</b>	<b>-</b>	<b>100.0%</b>	<b>-</b>	<b>30</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 4 – Research Development and Support for the year ended 31 March 2018										
Subprogramme: 4.2: Science Mission	2017/18						2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Social benefits	-	-	43	43	43	-	100,0%	-	-	-
Other transfers to households	-	-	-	-	-	-	-	-	-	30
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>214,244</b>	<b>-</b>	<b>69</b>	<b>214,313</b>	<b>214,211</b>	<b>102</b>	<b>100,0%</b>	<b>214,115</b>	<b>30</b>	<b>213,071</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 4 – Research Development and Support for the year ended 31 March 2018									
Subprogramme: 4.3: Basic Science and Infrastructure	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>8,618</b>	<b>1,239</b>	<b>(123)</b>	<b>9,734</b>	<b>9,620</b>	<b>114</b>	<b>98.8%</b>	<b>9,337</b>	<b>8,980</b>
<b>Compensation of employees</b>	<b>6,575</b>	<b>1,239</b>	<b>180</b>	<b>7,994</b>	<b>7,937</b>	<b>57</b>	<b>99.3%</b>	<b>7,382</b>	<b>7,341</b>
Salaries and wages	5,702	1,239	180	7,121	7,101	20	99.7%	6,607	6,581
Social contributions	873	-	-	873	836	37	95.8%	775	760
<b>Goods and services</b>	<b>2,043</b>	<b>-</b>	<b>(303)</b>	<b>1,740</b>	<b>1,683</b>	<b>57</b>	<b>96.7%</b>	<b>1,955</b>	<b>1,639</b>
Administrative fees	11	355	(300)	66	65	1	98.5%	30	30
Advertising	-	1	-	1	1	-	100.0%	-	-
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	74	(57)	-	17	14	3	82.4%	71	19
Communication (G&S)	165	(73)	-	92	88	4	95.7%	139	139
Computer services	38	(36)	-	2	-	2	-	36	-
Consultants: Business and advisory services	607	(605)	-	2	-	2	-	192	114
Legal services	-	-	-	-	-	-	-	-	-
Contractors	-	-	-	-	-	-	-	-	-
Agency and support/outsourced services	201	(150)	-	51	20	31	39.2%	191	173
Entertainment	-	5	-	5	4	1	80.0%	6	6
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 4 – Research Development and Support for the year ended 31 March 2018									
Subprogramme: 4.3: Basic Science and Infrastructure	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Inventory: Other supplies	-	-	-	-	-	-	-	-	-
Consumable supplies	-	-	-	-	-	-	-	-	-
Consumables: Stationery, printing and office supplies	-	-	-	-	-	-	-	1	1
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	-	-
Travel and subsistence	-	1,305	-	1,305	1,299	6	99.5%	1,046	1,046
Training and development	697	(695)	-	2	-	2	-	5	5
Operating payments	-	-	-	-	-	-	-	78	9
Venues and facilities	82	110	-	192	192	-	100.0%	160	97
Rental and hiring	168	(160)	(3)	5	-	5	-	-	-
<b>Transfers and subsidies</b>	<b>967,986</b>	<b>-</b>	<b>-</b>	<b>967,986</b>	<b>967,865</b>	<b>121</b>	<b>100.0%</b>	<b>887,652</b>	<b>886,556</b>
Departmental agencies and accounts	744,713	-	-	744,713	469,678	275,035	63.1%	673,106	423,595
Higher education institutions	-	-	-	-	-	-	-	-	27,080
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	<b>223,273</b>	<b>-</b>	<b>-</b>	<b>223,273</b>	<b>413,273</b>	<b>(190,000)</b>	<b>185.1%</b>	<b>214,546</b>	<b>424,381</b>
<b>Public corporations</b>	<b>223,273</b>	<b>-</b>	<b>-</b>	<b>223,273</b>	<b>413,273</b>	<b>(190,000)</b>	<b>185.1%</b>	<b>214,546</b>	<b>424,381</b>
Subsidies	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	223,273	-	-	223,273	413,273	(190,000)	185.1%	214,546	424,381
<b>Private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-
Non-profit institutions	-	-	-	-	84,634	(84,634)	-	-	11,300
Households	-	-	-	-	280	(280)	-	-	200
Social benefits	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 4 – Research Development and Support for the year ended 31 March 2018									
Subprogramme: 4.3: Basic Science and Infrastructure	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Other transfers to households	-	-	-	-	280	(280)	-	-	200
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	3	3	3	-	100.0%	-	-
<b>Total</b>	<b>976,604</b>	<b>1,239</b>	<b>(120)</b>	<b>977,723</b>	<b>977,488</b>	<b>235</b>	<b>100.0%</b>	<b>896,989</b>	<b>895,536</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 4 – Research Development and Support for the year ended 31 March 2018									
Subprogramme: 4.4 Astronomy	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	11,205	(929)	(300)	9,976	9,877	99	99,0%	9,615	8,767
<b>Compensation of employees</b>	5,320	(929)	-	4,391	4,355	36	99,2%	4,117	4,069
Salaries and wages	4,721	(769)	-	3,952	3,922	30	99,2%	3,709	3,670
Social contributions	599	(160)	-	439	433	6	98,6%	408	399
<b>Goods and services</b>	5,885	-	(300)	5,585	5,522	63	98,9%	5,498	4,698
Administrative fees	412	-	(300)	112	60	52	53,4%	179	179
Advertising	-	995	-	995	995	-	100,0%	261	261
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	233	(158)	-	75	68	7	91,0%	41	38
Communication (G&S)	-	66	-	66	66	-	100,0%	100	71
Computer services	-	-	-	-	-	-	-	-	-
Consultants: Business and advisory services	261	321	-	582	582	-	100,0%	363	-
Scientific and technological services	180	(180)	-	-	-	-	-	-	-
Legal services	-	-	-	-	-	-	-	-	-
Contractors	-	340	-	340	340	-	100,0%	-	-
Agency and support/outsourced services	233	(133)	-	100	98	2	98,2%	373	373
Entertainment	180	(176)	-	4	3	1	84,4%	30	7
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-



# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 4 – Research Development and Support for the year ended 31 March 2018									
Subprogramme: 4.4 Astronomy	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-
Inventory: Other supplies	-	-	-	-	-	-	-	-	-
Consumable supplies	-	-	-	-	-	-	-	-	-
Consumables: Stationery, printing and office supplies	-	31	-	31	31	-	100.0%	111	16
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	-	-
Travel and subsistence	-	2,150	-	2,150	2,150	-	100.0%	2,624	2,509
Training and development	3,855	(3,854)	-	1	-	1	-	-	-
Operating payments	-	298	-	298	298	-	100.0%	500	328
Venues and facilities	-	530	-	530	530	-	100.0%	916	916
Rental and hiring	532	(230)	-	302	301	1	99.7%	-	-
<b>Transfers and subsidies</b>	<b>723,279</b>	<b>-</b>	<b>-</b>	<b>723,279</b>	<b>723,279</b>	<b>-</b>	<b>100.0%</b>	<b>680,706</b>	<b>680,706</b>
Departmental agencies and accounts	723,279	-	-	723,279	723,279	-	100.0%	680,706	680,706
Departmental agencies	723,279	-	-	723,279	723,279	-	100.0%	680,706	680,706
Higher education institutions	-	-	-	-	-	-	-	-	-
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Public corporations</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Subsidies on products	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	-	-	-	-	-	-	-	-	-
<b>Private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 4 – Research Development and Support for the year ended 31 March 2018									
Subprogramme: 4.4 Astronomy	2017/18					2016/17			
	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 R'000	Final appropriation R'000	Actual expenditure R'000
Non-profit institutions	-	-	-	-	-	-	-	-	-
<b>Households</b>	-	-	-	-	-	-	-	-	-
Social benefits	-	-	-	-	-	-	-	-	-
Other transfers to households	-	-	-	-	-	-	-	-	-
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>734,484</b>	<b>(929)</b>	<b>(300)</b>	<b>733,255</b>	<b>733,156</b>	<b>99</b>	<b>100.0%</b>	<b>690,321</b>	<b>689,473</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 5 – Socio –Economic Innovation Partnerships for the year ended 31 March 2018										
Subprogramme	2017/18						2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000	R'000
<b>5.1 Sector Innovation and Green Economy</b>	983,996	(550)	(9,077)	974,369	996,730	(22,361)	102.3%	932,824	932,049	
<b>5.2 Innovation for Inclusive Development</b>	356,598	(972)	1,317	356,943	356,729	214	99.9%	344,691	344,506	
<b>5.3 Science and Technology Investment</b>	25,276	3,602	(6,265)	22,613	22,198	415	98.2%	22,329	22,158	
<b>5.4 Technology Localisation, Beneficiation and Advanced Manufacturing</b>	257,767	(2,080)	3,955	259,642	236,988	22,654	91.3%	466,534	465,296	
<b>Total</b>	<b>1,623,687</b>	<b>-</b>	<b>(10,070)</b>	<b>1,613,567</b>	<b>1,612,645</b>	<b>922</b>	<b>99.9%</b>	<b>1,766,378</b>	<b>1,764,009</b>	
<b>Economic classification</b>										
<b>Current payments</b>	<b>49,104</b>	<b>-</b>	<b>(2,828)</b>	<b>46,276</b>	<b>45,356</b>	<b>920</b>	<b>98.0%</b>	<b>48,980</b>	<b>46,754</b>	
<b>Compensation of employees</b>	<b>39,933</b>	<b>-</b>	<b>-</b>	<b>39,933</b>	<b>39,133</b>	<b>800</b>	<b>98.0%</b>	<b>37,188</b>	<b>37,000</b>	
Salaries and wages	35,833	(148)	-	35,685	35,116	569	98.4%	33,301	33,176	
Social contributions	4,100	148	-	4,248	4,017	231	94.6%	3,887	3,824	
<b>Goods and services</b>	<b>9,171</b>	<b>-</b>	<b>(2,828)</b>	<b>6,343</b>	<b>6,223</b>	<b>120</b>	<b>98.1%</b>	<b>11,792</b>	<b>9,754</b>	
Administrative fees	122	(28)	-	94	85	9	90.4%	158	87	
Advertising	206	(192)	-	14	6	8	42.9%	94	5	
Minor assets	-	-	-	-	-	-	-	-	-	
Audit costs: External	-	-	-	-	-	-	-	-	-	
Bursaries: Employees	-	-	-	-	-	-	-	6	6	
Catering: Departmental activities	281	(227)	-	54	42	12	77.8%	189	72	
Communication (G&S)	963	(390)	-	573	560	13	97.7%	908	733	
Computer services	72	(72)	-	-	-	-	-	69	-	
Consultants: Business and advisory services	3,497	(1,717)	(1,400)	380	373	7	98.2%	941	398	
Legal services	-	616	-	616	616	-	100.0%	-	-	
Contractors	-	-	-	-	-	-	-	11	-	

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 5 – Socio –Economic Innovation Partnerships for the year ended 31 March 2018									
Subprogramme	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
Agency and support/ outsourced services	196	1,159	-	1,355	1,355	-	100.0%	5,715	5,674
Entertainment	100	(45)	-	55	15	40	27.3%	41	14
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing, material accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-
Inventory: Other supplies	-	-	-	-	-	-	-	5	-
Consumable supplies	5	1	-	6	1	5	16.7%	-	-
Consumables: Stationery, printing and office supplies	-	92	-	92	88	4	95.7%	72	42
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	-	-
Travel and subsistence	-	2,915	-	2,915	2,913	2	99.9%	3,099	2,579
Training and development	2,839	(1,625)	(1,200)	14	-	14	-	-	-
Operating payments	-	122	-	122	122	-	100.0%	128	120
Venues and facilities	41	12	-	53	47	6	88.7%	356	31
Rental and hiring	849	(621)	(228)	-	-	-	-	-	-
<b>Transfers and subsidies</b>	<b>1,574,533</b>	<b>-</b>	<b>(7,247)</b>	<b>1,567,286</b>	<b>1,567,284</b>	<b>2</b>	<b>100.0%</b>	<b>1,717,398</b>	<b>1,717,255</b>
Departmental agencies and accounts	502,684	-	(4,109)	498,575	384,413	114,162	77.1%	731,594	444,160
Departmental agencies	502,684	-	(4,109)	498,575	384,413	114,162	77.1%	731,595	444,160
Higher education institutions	-	-	-	-	-	-	-	-	14,624

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 5 – Socio –Economic Innovation Partnerships for the year ended 31 March 2018									
Subprogramme	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprise</b>	<b>1,071,849</b>	-	(3,161)	<b>1,068,688</b>	<b>1,157,095</b>	<b>(88,407)</b>	<b>108.3%</b>	<b>985,742</b>	<b>1,207,423</b>
<b>Public corporations</b>	<b>1,071,849</b>	-	(3,161)	<b>1,068,688</b>	<b>1,139,797</b>	<b>(71,109)</b>	<b>106.7%</b>	<b>985,742</b>	<b>1,188,186</b>
Subsidies on products	915,645	-	-	915,645	915,645	-	100.0%	872,043	872,043
Other transfers to public corporations	156,204	-	(3,161)	153,043	224,152	(71,109)	146.5%	113,699	316,143
<b>Private enterprises</b>	-	-	-	-	<b>17,298</b>	<b>(17,298)</b>	-	-	<b>19,237</b>
Other transfers to private enterprises	-	-	-	-	17,298	(17,298)	-	-	19,237
Non-profit institutions	-	-	-	-	25,753	(25,753)	-	-	50,988
<b>Households</b>	-	-	<b>23</b>	<b>23</b>	<b>23</b>	-	<b>100.0%</b>	<b>62</b>	<b>60</b>
Social benefits	-	-	23	23	23	-	100.0%	62	60
Other transfers to households	-	-	-	-	-	-	-	-	-
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	<b>5</b>	<b>5</b>	<b>5</b>	-	<b>100.0%</b>	-	-
<b>Total</b>	<b>1,623,637</b>	-	<b>(10,070)</b>	<b>1,613,567</b>	<b>1,612,645</b>	<b>922</b>	<b>99.9%</b>	<b>1,766,378</b>	<b>1,764,009</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 5 – Socio – Economic Innovation Partnerships for the year ended 31 March 2018									
Subprogramme: 5.1: Sector Innovation and Green Economy	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>12,496</b>	<b>(550)</b>	<b>(2,000)</b>	<b>9,946</b>	<b>9,914</b>	<b>32</b>	<b>99.7%</b>	<b>11,032</b>	<b>10,259</b>
<b>Compensation of employees</b>	<b>8,690</b>	-	-	<b>8,690</b>	<b>8,695</b>	<b>(5)</b>	<b>100.1%</b>	<b>9,081</b>	<b>9,033</b>
Salaries and wages	7,701	-	-	7,701	7,719	(18)	100.2%	8,058	8,032
Social contributions	989	-	-	989	976	13	98.7%	1,023	1,001
<b>Goods and services</b>	<b>3,806</b>	<b>(550)</b>	<b>(2,000)</b>	<b>1,256</b>	<b>1,219</b>	<b>37</b>	<b>97.1%</b>	<b>1,951</b>	<b>1,226</b>
Administrative fees	62	(43)	-	19	19	-	100.0%	59	17
Advertising	80	(80)	-	-	-	-	-	73	-
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	90	(86)	-	4	4	-	100.0%	86	5
Communication (G&S)	338	(177)	-	161	161	-	100.0%	322	186
Computer services	72	(72)	-	-	-	-	-	69	-
Consultants: Business and advisory services	1,517	(59)	(1,400)	58	58	-	100.0%	311	264
Legal services	-	-	-	-	-	-	-	-	-
Contractors	-	-	-	-	-	-	-	-	-
Agency and support/ outsourced services	42	109	-	151	151	-	100.0%	40	16
Entertainment	20	-	-	20	2	18	10.0%	19	2
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 5 – Socio – Economic Innovation Partnerships for the year ended 31 March 2018									
Subprogramme: 5.1: Sector Innovation and Green Economy	Adjusted appropriation	Shifting of funds	2017/18				2016/17		
			Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Inventory: Other supplies	-	-	-	-	-	-	-	5	-
Consumable supplies	5	-	-	5	-	5	-	-	-
Consumables: Stationery, printing and office supplies	-	-	-	-	-	-	-	-	-
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	-	-
Travel and subsistence	-	757	-	757	757	-	100.0%	697	657
Training and development	1,329	(915)	(400)	14	-	14	-	-	-
Operating payments	-	67	-	67	67	-	100.0%	48	48
Venues and facilities	18	(18)	-	-	-	-	-	222	31
Rental and hiring	233	(33)	(200)	-	-	-	-	-	-
<b>Transfers and subsidies</b>	<b>971,500</b>	<b>-</b>	<b>(7,077)</b>	<b>964,423</b>	<b>986,816</b>	<b>(22,816)</b>	<b>102.3%</b>	<b>921,792</b>	<b>921,790</b>
Departmental agencies and accounts	23,895	-	(2,000)	21,895	3,755	18,140	17.2%	23,360	4,205
Departmental agencies	23,895	-	(2,000)	21,895	3,755	18,140	17.2%	23,360	4,205
Higher education institutions	-	-	-	-	-	-	-	-	-
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	<b>947,605</b>	<b>-</b>	<b>(5,077)</b>	<b>942,528</b>	<b>965,388</b>	<b>(22,860)</b>	<b>102.4%</b>	<b>898,370</b>	<b>907,545</b>
<b>Public corporations</b>	<b>947,605</b>	<b>-</b>	<b>(5,077)</b>	<b>942,528</b>	<b>961,435</b>	<b>(18,907)</b>	<b>102.0%</b>	<b>898,370</b>	<b>907,545</b>
Subsidies products and production	915,645	-	-	915,645	915,645	-	100.0%	872,043	872,043
Other transfers to public corporations	31,960	-	(5,077)	26,883	45,790	(18,907)	170.3%	26,327	35,502
<b>Private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3,953</b>	<b>(3,953)</b>	<b>-</b>	<b>-</b>	<b>-</b>
Other transfers to private enterprises	-	-	-	-	3,953	(3,953)	-	-	-
Non-profit institutions	-	-	-	-	17,673	(17,673)	-	-	9,980

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 5 – Socio – Economic Innovation Partnerships for the year ended 31 March 2018									
Subprogramme: 5.1: Sector Innovation and Green Economy	2017/18						2016/17		
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Households</b>	-	-	-	-	-	-	-	62	60
Social benefits	-	-	-	-	-	-	-	62	60
Other transfers to households	-	-	-	-	-	-	-	-	-
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>983,996</b>	<b>(550)</b>	<b>(9,077)</b>	<b>974,369</b>	<b>996,730</b>	<b>(22,361)</b>	<b>102.3%</b>	<b>932,824</b>	<b>932,049</b>



# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 5 – Socio – Economic Innovation Partnerships for the year ended 31 March 2018									
Subprogramme: 5.2: Innovation for Inclusive Development	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>10,119</b>	<b>(972)</b>	-	<b>9,147</b>	<b>8,933</b>	<b>214</b>	<b>97.7%</b>	<b>11,460</b>	<b>11,275</b>
<b>Compensation of employees</b>	<b>9,411</b>	<b>(1,702)</b>	-	<b>7,709</b>	<b>7,512</b>	<b>197</b>	<b>97.4%</b>	<b>6,687</b>	<b>6,927</b>
Salaries and wages	8,757	(1,850)	-	6,907	6,750	157	97.7%	6,247	6,207
Social contributions	654	148	-	802	762	40	95.0%	740	720
<b>Goods and services</b>	<b>708</b>	<b>730</b>	-	<b>1,438</b>	<b>1,421</b>	<b>17</b>	<b>98.8%</b>	<b>4,473</b>	<b>4,348</b>
Administrative fees	41	2	-	43	43	-	100.0%	39	17
Advertising	10	(2)	-	8	-	8	-	7	5
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	55	(47)	-	8	8	-	100.0%	28	16
Communication (G&S)	143	(52)	-	91	91	-	100.0%	135	96
Computer services	-	-	-	-	-	-	-	-	-
Consultants: Business and advisory services	17	(10)	-	7	-	7	-	30	-
Legal services	-	-	-	-	-	-	-	-	-
Contractors	-	-	-	-	-	-	-	-	-
Agency and support/ outsourced services	154	(154)	-	-	-	-	-	3,327	3,322
Entertainment	13	(9)	-	4	4	-	100.0%	12	2
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 5 – Socio–Economic Innovation Partnerships for the year ended 31 March 2018									
Subprogramme: 5.2: Innovation for Inclusive Development	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-
Inventory: Other supplies	-	-	-	-	-	-	-	-	-
Consumable supplies	-	-	-	-	-	-	-	-	-
Consumables: Stationery, printing and office supplies	-	-	-	-	-	-	-	-	-
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	-	-
Travel and subsistence	-	1,243	-	1,243	1,241	2	99.8%	833	833
Training and development	52	(52)	-	-	-	-	-	-	-
Operating payments	-	34	-	34	34	-	100.0%	57	57
Venues and facilities	23	(23)	-	-	-	-	-	5	-
Rental and hiring	200	(200)	-	-	-	-	-	-	-
<b>Transfers and subsidies</b>	<b>346,479</b>	<b>-</b>	<b>1,317</b>	<b>347,796</b>	<b>347,796</b>	<b>-</b>	<b>100.0%</b>	<b>333,231</b>	<b>333,231</b>
Departmental agencies and accounts	346,479	-	1,317	347,796	339,705	8,091	97.7%	333,231	297,015
Departmental agencies	346,479	-	1,317	347,796	339,705	8,091	97.7%	333,231	297,015
Higher education institutions	-	-	-	-	-	-	-	-	8,001
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>5,182</b>	<b>(5,182)</b>	<b>-</b>	<b>-</b>	<b>19,295</b>
<b>Public corporations</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>5,182</b>	<b>(5,182)</b>	<b>-</b>	<b>-</b>	<b>19,295</b>
Subsidies on products	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	-	-	-	-	5,182	(5,182)	-	-	19,295
<b>Private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 5 – Socio–Economic Innovation Partnerships for the year ended 31 March 2018										
Subprogramme: 5.2: Innovation for Inclusive Development	2017/18							2016/17		
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Non-profit institutions	-	-	-	-	2,909	(2,909)	-	-	-	8,920
Households	-	-	-	-	-	-	-	-	-	-
Social benefit	-	-	-	-	-	-	-	-	-	-
Other transfers to households	-	-	-	-	-	-	-	-	-	-
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>356,598</b>	<b>(972)</b>	<b>1,317</b>	<b>356,943</b>	<b>356,729</b>	<b>214</b>	<b>99.9%</b>	<b>344,691</b>	<b>344,506</b>	

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 5 – Socio – Economic Innovation Partnerships for the year ended 31 March 2018									
Subprogramme: 5.3: Science and Technology Investment	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>12,058</b>	<b>3,602</b>	<b>(23)</b>	<b>15,637</b>	<b>15,222</b>	<b>415</b>	<b>97.3%</b>	<b>15,128</b>	<b>14,957</b>
<b>Compensation of employees</b>	<b>10,416</b>	<b>2,752</b>	-	<b>13,168</b>	<b>12,800</b>	<b>368</b>	<b>97.2%</b>	<b>11,869</b>	<b>11,829</b>
Salaries and wages	9,244	2,502	-	11,746	11,513	233	98.0%	10,666	10,634
Social contributions	1,172	250	-	1,422	1,287	135	90.5%	1,203	1,195
<b>Goods and services</b>	<b>1,642</b>	<b>850</b>	<b>(23)</b>	<b>2,469</b>	<b>2,422</b>	<b>47</b>	<b>98.1%</b>	<b>3,259</b>	<b>3,128</b>
Administrative fees	19	-	-	19	10	9	52.6%	15	8
Advertising	116	(110)	-	6	6	-	100.0%	14	-
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	74	(41)	-	33	21	12	63.6%	51	51
Communication (G&S)	287	(111)	-	176	176	-	100.0%	242	242
Computer services	-	-	-	-	-	-	-	-	-
Consultants: Business and advisory services	485	(245)	-	240	240	-	100.0%	129	129
Legal services	-	397	-	397	397	-	100.0%	-	-
Contractors	-	-	-	-	-	-	-	-	-
Agency and support/outsourced services	-	1,137	-	1,137	1,137	-	100.0%	2,320	2,308
Entertainment	38	(10)	-	28	6	22	21.4%	4	4
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 5 – Socio–Economic Innovation Partnerships for the year ended 31 March 2018									
Subprogramme: 5.3: Science and Technology Investment	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Inventory: Other supplies	-	-	-	-	-	-	-	-	-
Consumable supplies	-	-	-	-	-	-	-	-	-
Consumables: Stationery, printing and office supplies	-	43	-	43	39	4	90.7%	43	23
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	-	-
Travel and subsistence	-	357	-	357	357	-	100.0%	376	358
Training and development	421	(421)	-	-	-	-	-	-	-
Operating payments	-	12	-	12	12	-	100.0%	7	5
Venues and facilities	-	21	-	21	21	-	100.0%	58	-
Rental and hiring	202	(179)	(23)	-	-	-	-	-	-
<b>Transfers and subsidies</b>	<b>13,218</b>	<b>-</b>	<b>(6,242)</b>	<b>6,976</b>	<b>6,976</b>	<b>-</b>	<b>100.0%</b>	<b>7,201</b>	<b>7,201</b>
Departmental agencies and accounts	13,218	-	(6,265)	6,953	6,953	-	100.0%	7,201	7,201
Departmental agencies	13,218	-	(6,265)	6,953	6,953	-	100.0%	7,201	7,201
Higher education institutions	-	-	-	-	-	-	-	-	-
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Public corporations</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Subsidies on products	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	-	-	-	-	-	-	-	-	-
<b>Private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Other transfers to private enterprises	-	-	-	-	-	-	-	-	-
Non-profit institutions	-	-	-	-	-	-	-	-	-
<b>Households</b>	<b>-</b>	<b>-</b>	<b>23</b>	<b>23</b>	<b>23</b>	<b>-</b>	<b>100.0%</b>	<b>-</b>	<b>-</b>

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 5 – Socio–Economic Innovation Partnerships for the year ended 31 March 2018										
Subprogramme: 5.3: Science and Technology Investment	2017/18						2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Social benefit	-	-	23	23	23	-	100,0%	-	-	-
Other transfers to households	-	-	-	-	-	-	-	-	-	-
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>25,276</b>	<b>3,602</b>	<b>(6,265)</b>	<b>22,613</b>	<b>22,198</b>	<b>415</b>	<b>98.2%</b>	<b>22,329</b>	<b>22,158</b>	

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 5 – Socio – Economic Innovation Partnerships for the year ended 31 March 2018									
Subprogramme: 5.4: Technology Localisation, Beneficiation and Advanced Manufacturing	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
<b>Current payments</b>	<b>14,431</b>	<b>(2,080)</b>	<b>(805)</b>	<b>11,546</b>	<b>11,287</b>	<b>259</b>	<b>97.8%</b>	<b>11,360</b>	<b>10,263</b>
<b>Compensation of employees</b>	<b>11,416</b>	<b>(1,050)</b>	-	<b>10,366</b>	<b>10,126</b>	<b>240</b>	<b>97.7%</b>	<b>9,251</b>	<b>9,211</b>
Salaries and wages	10,131	(800)	-	9,331	9,134	197	97.9%	8,330	8,303
Social contributions	1,285	(250)	-	1,035	992	43	95.8%	921	908
<b>Goods and services</b>	<b>3,015</b>	<b>(1,030)</b>	<b>(805)</b>	<b>1,180</b>	<b>1,161</b>	<b>19</b>	<b>98.4%</b>	<b>2,109</b>	<b>1,052</b>
Administrative fees	-	13	-	13	13	-	100.0%	45	45
Advertising	-	-	-	-	-	-	-	-	-
Minor assets	-	-	-	-	-	-	-	-	-
Audit costs: External	-	-	-	-	-	-	-	-	-
Bursaries: Employees	-	-	-	-	-	-	-	6	6
Catering: Departmental activities	62	(53)	-	9	9	-	100.0%	24	-
Communication (G&S)	195	(50)	-	145	132	13	91.0%	209	209
Computer services	-	-	-	-	-	-	-	-	-
Consultants: Business and advisory services	1,478	(1,403)	-	75	75	-	100.0%	471	5
Legal services	-	219	-	219	219	-	100.0%	-	-
Contractors	-	-	-	-	-	-	-	11	-
Agency and support/ outsourced services	-	67	-	67	67	-	100.0%	28	28
Entertainment	29	(26)	-	3	3	-	100.0%	6	6
Fleet services (incl. government motor transport)	-	-	-	-	-	-	-	-	-
Inventory: Clothing and accessories	-	-	-	-	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	-	-	-	-	-	-	-
Inventory: Material and supplies	-	-	-	-	-	-	-	-	-

# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 5 – Socio – Economic Innovation Partnerships for the year ended 31 March 2018									
Subprogramme: 5.4: Technology Localisation, Beneficiation and Advanced Manufacturing	2017/18					2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Inventory: Other supplies	-	-	-	-	-	-	-	-	-
Consumable supplies	-	1	-	1	1	-	100.0%	-	-
Consumables: Stationery, printing and office supplies	-	49	-	49	49	-	100.0%	29	19
Operating leases	-	-	-	-	-	-	-	-	-
Property payments	-	-	-	-	-	-	-	-	-
Travel and subsistence	-	558	-	558	558	-	100.0%	1,193	724
Training and development	1,037	(237)	(800)	-	-	-	-	-	-
Operating payments	-	9	-	9	9	-	100.0%	16	10
Venues and facilities	-	32	-	32	26	6	81.3%	71	-
Rental and hiring	214	(209)	(5)	-	-	-	-	-	-
<b>Transfers and subsidies</b>	<b>243,336</b>	<b>-</b>	<b>4,755</b>	<b>248,091</b>	<b>225,696</b>	<b>22,395</b>	<b>91.0%</b>	<b>455,174</b>	<b>455,033</b>
Departmental agencies and accounts	119,092	-	2,839	121,931	34,000	87,931	87.9%	367,802	135,739
Departmental agencies	119,092	-	2,839	121,931	34,000	87,931	87.9%	367,802	135,739
Higher education institutions	-	-	-	-	-	-	-	-	6,623
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>	<b>124,244</b>	<b>-</b>	<b>1,916</b>	<b>126,160</b>	<b>186,525</b>	<b>(60,365)</b>	<b>147.8%</b>	<b>87,372</b>	<b>280,583</b>
<b>Public corporations</b>	<b>124,244</b>	<b>-</b>	<b>1,916</b>	<b>126,160</b>	<b>173,180</b>	<b>(47,020)</b>	<b>137.3%</b>	<b>87,372</b>	<b>261,346</b>
Subsidies on products	-	-	-	-	-	-	-	-	-
Other transfers to public corporations	124,244	-	1,916	126,160	173,180	(47,020)	137.3%	87,372	261,346
<b>Private enterprises</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>13,345</b>	<b>(13,345)</b>	<b>-</b>	<b>-</b>	<b>19,237</b>
Other transfers to private enterprises	-	-	-	-	-	-	-	-	19,237
Non-profit institutions	-	-	-	-	5,171	(5,171)	-	-	32,088
<b>Households</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>



# VOTE 30 APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

Detail per Programme 5 – Socio – Economic Innovation Partnerships for the year ended 31 March 2018										
Subprogramme: 5.4: Technology Localisation, Beneficiation and Advanced Manufacturing	2017/18						2016/17			
	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure	
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Social benefits	-	-	-	-	-	-	-	-	-	-
Other transfers to households	-	-	-	-	-	-	-	-	-	-
<b>Payment for capital assets</b>	-	-	-	-	-	-	-	-	-	-
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	-	-	-
Transport equipment	-	-	-	-	-	-	-	-	-	-
Other machinery and equipment	-	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-	-
<b>Payment for financial assets</b>	-	-	5	5	5	-	-	-	-	-
<b>Total</b>	<b>257,767</b>	<b>(2,080)</b>	<b>3,955</b>	<b>259,642</b>	<b>236,988</b>	<b>22,654</b>	<b>91.3%</b>	<b>466,534</b>	<b>465,296</b>	

# NOTES TO THE APPROPRIATION STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

### Details of transfers and subsidies as per the Appropriation Act (after virement)

Details of these transactions can be viewed in the note to the Transfers and Subsidies, disclosure notes and Annexure 1 (B, C, E, D, F and G) to the Annual Financial Statements.

### Detail of specifically and exclusively appropriated amounts voted (after virement)

Detail of these transactions can be viewed in note 1 (Annual Appropriation) to the Annual Financial Statements.

### Detail on payments for financial assets

The details of these transactions can be viewed in note 7 to the Annual Financial Statements.

### Explanations of material variances from amounts voted (after virement)

Per Programme:	Final appropriation	Actual expenditure	Variance R'000	Variance as a % of final appropriation
	R'000	R'000	R'000	%
<b>Programme name</b>				
Technology Innovation	1,133,783	1,116,181	17,602	1.6%

The underspending under the programme is mainly due to non-payment of HIV research to the South African National Aids council (SANAC) due to the entity's capacity constraints.

#### Programme name

International Cooperation and Resources	168,211	130,501	37,613	22.4%
The underspending is due to delays in finalising a contract between DST and the implementation agency for the Research and Innovation Exchange Platform (REIP).				

#### Programme name

Research Development and Support	4,300,793	4,291,924	8,870	0.2%
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Per economic classification	Final appropriation	Actual expenditure	Variance	Variance as a % of final appropriation
	R'000	R'000	R'000	%
Current payments				
Compensation of employees	326,827	323,806	3,021	0.9%
Goods and services	193,653	190,347	3,306	1.7%
Interest and rent on land	-	-	-	-
Transfers and subsidies				
Departmental agencies and accounts	5,196,248	4,764,581	431,667	8.3%
Higher education institutions	-	-	-	-
Public corporations and private enterprises	1,443,949	1,725,525	(281,576)	(19.5%)
Non-profit institutions	373,776	463,076	(89,300)	(23.9%)
<b>Households</b>	540	1,245	(705)	(130.6%)
Payments for capital assets				
Machinery and equipment	22,018	20,649	1,369	(6.2%)
Intangible assets	-	-	-	-
Payments for financial assets	218	219	(1)	(0.5%)
The variance under payments for financial assets are due to the misallocation of budget.				

# STATEMENT OF FINANCIAL PERFORMANCE

## FOR THE YEAR ENDED 31 MARCH 2018

PERFORMANCE	Note	2017/18 R'000	2016/17 R'000
<b>REVENUE</b>			
Annual appropriation	1	7,557,229	7,428,996
Departmental revenue	2	10,298	8,199
Aid assistance	3	25,791	32,345
<b>TOTAL REVENUE</b>		<b>7,593,318</b>	<b>7,469,540</b>
<b>EXPENDITURE</b>			
<b>Current expenditure</b>			
Compensation of employees	4	323,806	319,037
Goods and services	5	190,348	188,876
Aid assistance	3	2,750	1,270
<b>Total current expenditure</b>		<b>516,904</b>	<b>509,183</b>
<b>Transfers and subsidies</b>			
Transfers and subsidies	7	6,954,523	6,860,077
Aid assistance	3	22,709	29,650
<b>Total transfers and subsidies</b>		<b>6,977,232</b>	<b>6,889,727</b>
<b>Expenditure for capital assets</b>			
Tangible capital assets	8	20,649	15,478
Intangible assets	9	-	-
<b>Total expenditure for capital assets</b>		<b>20,649</b>	<b>15,478</b>
Unauthorised expenditure approved without funding		-	-
<b>Payment for financial assets</b>	6	219	126
<b>TOTAL EXPENDITURE</b>		<b>7,515,004</b>	<b>7,414,514</b>
<b>SURPLUS FOR THE YEAR</b>		<b>78,314</b>	<b>55,026</b>
<b>Reconciliation of net surplus for the year</b>			
Voted funds		67,684	45,402
Departmental revenue	14	10,298	8,199
Aid assistance	3	332	1,425
<b>SURPLUS FOR THE YEAR</b>		<b>78,314</b>	<b>55,026</b>

# STATEMENT OF FINANCIAL POSITION

## FOR THE YEAR ENDED 31 MARCH 2018

POSITION	Note	2017/18 R'000	2016/17 R'000
<b>ASSETS</b>			
<b>Current assets</b>		<b>80,818</b>	<b>46,478</b>
Cash and cash equivalents	9	79,922	44,468
Prepayments and advances	10	447	638
Receivables	11	449	1,372
<b>Non-current assets</b>		<b>343</b>	<b>415</b>
Receivables	11	343	415
<b>TOTAL ASSETS</b>		<b>81,161</b>	<b>46,893</b>
<b>LIABILITIES</b>			
<b>Current liabilities</b>		<b>81,131</b>	<b>46,837</b>
Voted funds to be surrendered to the Revenue Fund	13	67,684	45,401
Departmental revenue to be surrendered to the Revenue Fund	14	7	6
Payables	15	13,108	5
Aid assistance repayable	3	332	1,425
<b>TOTAL LIABILITIES</b>		<b>81,131</b>	<b>46,837</b>
<b>NET ASSETS</b>		<b>30</b>	<b>56</b>
<b>Represented by:</b>			
Recoverable revenue		30	56
<b>TOTAL</b>		<b>30</b>	<b>56</b>

# STATEMENT OF CHANGES IN NET ASSETS

## FOR THE YEAR ENDED 31 MARCH 2018

NET ASSETS	Note	2017/18 R'000	2016/17 R'000
<b>Recoverable revenue</b>			
Opening balance		56	77
Transfers:		<b>(26)</b>	<b>(21)</b>
Debts revised		-	3
Debts recovered (included in departmental receipts)		(30)	(27)
Debts raised		4	3
Closing balance		<b>30</b>	<b>56</b>
<b>TOTAL</b>		<b>30</b>	<b>56</b>

# CASH FLOW STATEMENT

## FOR THE YEAR ENDED 31 MARCH 2018

CASH FLOW	Note	2017/18 R'000	2016/17 R'000
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>			
Receipts		<b>7,592,888</b>	<b>7,469,494</b>
Annual appropriated funds received	1.1	7,557,229	7,428,995
Departmental revenue received	2	9,834	8,145
Interest received	2.2	34	9
Aid assistance received	3	25,791	32,345
Net (increase) in working capital		14,289	(917)
Surrendered to Revenue Fund		(55,698)	(36,845)
Surrendered to RDP Fund/Donor		(1,425)	(3,885)
Current payments		(516,904)	(509,183)
Interest paid		-	-
Payments for financial assets		(219)	(126)
Transfers and subsidies paid		(6,977,232)	(6,889,727)
<b>Net cash flow available from operating activities</b>	16	<b>55,699</b>	<b>28,811</b>
<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>			
Payments for capital assets	8	(20,649)	(15,478)
Proceeds from sale of capital assets	2.3	430	45
<b>Net cash flows from investing activities</b>		<b>(20,219)</b>	<b>(15,433)</b>
<b>CASH FLOWS FROM FINANCING ACTIVITIES</b>			
Increase/(decrease) in net assets		(26)	(21)
<b>Net cash flows from financing activities</b>		<b>(26)</b>	<b>(21)</b>
Net increase/(decrease) in cash and cash equivalents		35,454	13,357
Cash and cash equivalents at the beginning of the period		44,468	31,111
<b>Cash and cash equivalents at end of period</b>	17	<b>79,922</b>	<b>44,468</b>

# ACCOUNTING POLICIES

## FOR THE YEAR ENDED 31 MARCH 2018

The Financial Statements have been prepared in accordance with the following policies, which have been applied consistently in all material aspects, unless otherwise indicated. Management has concluded that the financial statements present fairly the department's primary and secondary information.

The historical cost convention has been used, except where otherwise indicated. Management has used assessments and estimates in preparing the annual financial statements. These are based on the best information available at the time of preparation.

Where appropriate and meaningful, additional information has been disclosed to enhance the usefulness of the Financial Statements and to comply with the statutory requirements of the Public Finance Management Act, Act 1 of 1999 (as amended by Act 29 of 1999), and the Treasury Regulations issued in terms of the Act and the Division of Revenue Act.

### 1. Basis of preparation

The Financial Statements have been prepared in accordance with the Modified Cash Standard.

### 2. Going concern

The financial statements have been prepared on a going concern basis for the following reasons, among others:

- (i) The Department was allocated a budget over the Medium Term Expenditure Framework period that includes R7.8 billion that was allocated for the next financial year for its operations. This budget will assist in paying for short-term financial obligations such as personnel and other priority projects.
- (ii) The Department's five-year (2015-2020) strategic plan is still ongoing. The plan is being implemented and will only be reviewed after 2020.

### 3. Presentation currency

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

### 4. Rounding

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

### 5. Foreign currency translation

Cash flows arising from foreign currency transactions are translated into South African Rands using the spot exchange rates prevailing at the date of payment/receipt.

### 6. Comparative information

#### 6.1 Prior period comparative information

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.

#### 6.2 Current year comparison with budget

A comparison between the approved, final budget and actual amounts for each programme and economic classification is included in the appropriation statement.

# ACCOUNTING POLICIES

## FOR THE YEAR ENDED 31 MARCH 2018

### 7. Revenue

#### 7.1 Appropriated funds

Appropriated funds comprise departmental allocations. Appropriated funds are recognised in the Statement of Financial Performance on the date the appropriation becomes effective. Adjustments to the appropriated funds made in terms of the adjustments budget process are recognised in the statement of financial performance on the date the adjustments become effective.

The net amount of any appropriated funds due to or from the National Revenue Fund at the reporting date is recognised as payable or receivable in the Statement of Financial Position.

#### 7.2 Departmental revenue

The departmental revenue is recognised in the Statement of Financial Performance when received and is subsequently paid into the National Revenue Fund, unless otherwise stated. Any amount owing to the National Revenue Fund at the reporting date is recognised as payable in the Statement of Financial Position.

#### 7.3 Accrued departmental revenue

Accruals in respect of departmental revenue (excluding tax revenue) are recorded in the notes to the financial statements when –

- it is probable that the economic benefits or service potential associated with the transaction will flow to the Department; and
- the amount of revenue can be measured reliably.

The accrued revenue (and related interest and penalties) is measured at amounts receivable.

### 8. Expenditure

#### 8.1 Compensation of employees

##### 8.1.1 Salaries and wages

Salaries and wages are recognised in the Statement of Financial Performance on the date of payment.

##### 8.1.2 Social contributions

Social contributions made by the Department in respect of current employees are recognised in the Statement of Financial Performance on the date of payment. Social contributions made by the Department in respect of ex-employees are classified as transfers to households in the Statement of Financial Performance on the date of payment.

#### 8.2 Other expenditure

Other expenditure such as goods and services, transfers and subsidies and payments for capital assets are recognised in the Statement of Financial Performance on the date of payment. The expense is classified as a capital expense if the total consideration paid is more than the capitalisation threshold.



# ACCOUNTING POLICIES

## FOR THE YEAR ENDED 31 MARCH 2018

### 8. Expenditure (continued)

#### 8.3 Accruals and payables not recognised

Accruals and payables not recognised are recorded in the notes to the financial statements when the goods are received or in the case of services, when they are rendered to the department or in the case of transfers and subsidies when they are due and payable. Accruals and payables not recognised are measured at cost.

#### Leases

##### 8.3.1 Operating lease

Operating lease payments made during the reporting period are recognised as current expenditure in the Statement of Financial Performance on the date of payment. The operating lease commitments are recorded in the notes to the financial statements.

##### 8.3.2 Finance leases

Finance lease payments made during the reporting period are recognised as capital expenditure in the Statement of Financial Performance on the date of payment. The finance lease commitments are recorded in the notes to the financial statements and are not apportioned between the capital and interest portions.

Finance lease acquired at the end of the lease term are recorded and measured at the lower of –

- cost, being the fair value of the asset, or
- the sum of the minimum lease payments made, including any payments made to acquire ownership at the end of the lease term, excluding interest.

### 9. Aid assistance

#### 9.1 Aid assistance received

Aid assistance received in cash is recognised in the statement of financial performance when received. In-kind aid assistance is recorded in the notes to the financial statements on the date of receipt and is measured at fair value.

Aid assistance not spent for the intended purpose and any unutilised funds from aid assistance that are required to be refunded to the donor are recognised as a payable in the statement of financial position.

#### 9.2 Aid assistance paid

Aid assistance paid is recognised in the Statement of Financial Performance on the date of payment. Aid assistance payments made prior to the receipt of funds are recognised as a receivable in the Statement of Financial Position.

### 10. Cash and cash equivalents

Cash and cash equivalents are stated at cost in the Statement of Financial Position. Bank overdrafts are shown separately on the face of the Statement of Financial Position.

For the purposes of the Cash Flow Statement, cash and cash equivalents comprise cash on hand, deposits held, other short-term highly liquid investments and bank overdrafts.

# ACCOUNTING POLICIES

## FOR THE YEAR ENDED 31 MARCH 2018

### 11. Prepayments and advances

Prepayments and advances are recognised in the statement of financial position when the department receives or disburses the cash. Prepayments and advances are initially and subsequently measured at cost.

### 12. Loans and receivables

Loans and receivables are recognised in the statement of financial position at cost plus accrued interest, where interest is charged, less amounts already settled or written-off. Write-offs are made according to the Department's write-off policy.

### 13. Investments

Investments are recognised in the Statement of Financial position at cost.

### 14. Financial assets

#### 14.1 Financial assets (not covered elsewhere)

A financial asset is recognised initially at its cost plus transaction costs that are directly attributable to the acquisition or issue of the financial assets. At the reporting date, a department shall measure its financial assets at cost, less amounts already settled or written-off, except for recognised loans and receivables, which are measured at cost plus accrued interest, where interest is charged, less amounts already settled or written off.

#### 14.2 Impairment of financial assets

Where there is an indication of impairment of a financial asset, an estimation of the reduction is the recorded carrying value, to reflect the best estimate of the amount of the future economic benefits expected to be recovered from that asset is recorded in the notes to the financial statements.

### 15. Payables

Loans and payables are recognised in the Statement of Financial Position at cost.

### 16. Capital assets

#### 16.1 Immovable capital assets

Immovable capital assets are initially recorded in the notes to the financial statements at cost. Immovable capital assets acquired through a non-exchange transaction is measured at fair value as at the date of acquisition.

Where the cost of immovable capital assets cannot be determined reliably, the immovable capital assets are measured at R1 unless the fair value of the asset has been reliably estimated, in which case the fair value is used.

All assets acquired prior to 1 April 2002 (or a later date as approved by the Office of the Auditor-General) may be recorded at R1.

Immovable capital assets are subsequently carried at cost and are not subject to depreciation or impairment.

Subsequent expenditure that is of a capital nature is added to the cost of the asset at the end of the capital project unless the immovable asset is recorded by another department in which case the completed project costs are transferred to that department.

# ACCOUNTING POLICIES

## FOR THE YEAR ENDED 31 MARCH 2018

### 16. Capital assets (continued)

#### 16.2 Movable capital assets

Movable capital assets are initially recorded in the notes to the financial statements at cost. Movable capital assets acquired through a non-exchange transaction is measured at fair value as at the date of acquisition.

Where the cost of movable capital assets cannot be determined accurately, the movable capital assets are measured at fair value and where fair value cannot be determined; the movable assets are measured at R1.

All assets acquired prior to 1 April 2002 (or late as approved by the Office of the Accountant General) are measured at R1. Movable capital assets are subsequently carried at cost and are not subject to depreciation or impairment.

Subsequent expenditure that is of capital nature is added to the cost of the asset at the end of the capital project unless the movable asset is recorded by another department in which case the completed project costs are transferred to the department.

#### 16.3 Intangible assets

Intangible assets are initially recorded in the notes to the financial statements at cost. Intangible assets acquired through a non-exchange transaction are measured at fair value as at the date of acquisition.

Internally generated intangible assets are recorded in the notes to the financial statements when the department commences the development phase of the project.

Where the cost of intangible assets cannot be determined accurately, the intangible capital assets are measured at fair value and where fair value cannot be determined; the intangible assets are measured at R1. All assets acquired prior to 1 April 2002 (or a later date as approved by the Office of the Auditor-General) are recorded at R1. Intangible assets are subsequently carried at cost and are not subject to depreciation or impairment.

Subsequent expenditure that is of a capital nature is added to the cost of the asset at the end of the capital project unless the intangible asset is recorded by another department/entity in which case the completed project costs are transferred to that department.

#### 16.4 Project costs: Work in progress

Expenditure of a capital nature is initially recognised in the statement of financial performance at cost when paid. Amounts paid towards capital projects are separated from the amounts recognised and accumulated in work-in-progress until the underlying assets is ready for use. Once ready for use, the total accumulated payments are recorded in an assets register. Subsequent payments to complete the project are added to the capital asset in the asset register. Where the department is not the custodian of the completed project asset, the asset is transferred to the custodian subsequent to completion.

### 17. Provisions and contingents

#### 17.1 Provisions

Provisions are recorded in the notes to the financial statements when there is a present legal or constructive obligation to forfeit economic benefits as a result of events in the past and it is probable that an outflow of resources embodying economic benefits or service potential will be required to settle the obligation and a reliable estimate of the obligation can be made. The provision is measured as the best estimate of the funds required to settle the present obligation at the reporting date.

# ACCOUNTING POLICIES

## FOR THE YEAR ENDED 31 MARCH 2018

### 17. Provisions and contingents (continued)

#### 17.2 Contingent liabilities

Contingent liabilities are recorded in the notes to the financial statements when there is a possible obligation that arises from past events, and whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not within the control of the department or when there is a present obligation that is not recognised because it is not probable that an outflow of resources will be required to settle the obligation or the amount of the obligation cannot be measured reliably.

#### 17.3 Contingent assets

Contingent assets are recorded in the notes to the financial statements when a possible asset arises from past events, and whose existence will be confirmed by the occurrence or non-occurrence of one or more uncertain future events not within the control of the department.

#### 17.4 Commitments

Commitments are recorded at cost in the notes to the financial statements when there is a contractual arrangement or an approval by management in a manner that raises a valid expectation that the department will discharge its responsibilities thereby incurring future expenditure that will result in the outflow of cash.

### 18. Unauthorised expenditure

Unauthorised expenditure is recognised in the statement of financial position until such time as the expenditure is either –

- approved by Parliament with funding and the related funds are received; or
- approved by Parliament without funding and is written off against the appropriation in the statement of financial performance; or
- transferred to receivables for recovery.

Unauthorised expenditure is measured at the amount of the confirmed unauthorised expenditure.

### 19. Fruitless and wasteful expenditure

Fruitless and wasteful expenditure is recorded in the notes to the financial statements when confirmed. The amount recorded is equal to the total value of the fruitless and or wasteful expenditure incurred.

Fruitless and wasteful expenditure is removed from the notes to the financial statements when it is resolved or transferred to receivables for recovery. Fruitless and wasteful expenditure receivables are measured at the amount that is expected to be recoverable and are de-recognised when settled or subsequently written-off as irrecoverable.

# ACCOUNTING POLICIES

## FOR THE YEAR ENDED 31 MARCH 2018

### 20. Irregular expenditure

Irregular expenditure is recorded in the notes to the financial statements when confirmed. The amount recorded is equal to the value of the irregular expenditure incurred unless it is impracticable to determine, in which case reasons therefor are provided in the note.

Irregular expenditure is removed from the note when it is either condoned by the relevant authority, transferred to receivables for recovery or not condoned and is not recoverable.

Irregular expenditure receivables are measured at the amount that is expected to be recoverable and are de-recognised when settled or subsequently written-off as irrecoverable.

### 21. Changes in accounting estimates

Changes in accounting policies that are effected by management have been applied retrospectively in accordance with MCS requirements, except to the extent that it is impracticable to determine the period-specific effects or the cumulative effect of the change in policy. In such instances the department shall restate the opening balances of assets, liabilities and net assets for the earliest period for which retrospective restatement is practicable.

Changes in accounting estimates are applied prospectively in accordance with MCS requirements.

Correction of errors is applied retrospectively in the period in which the error has occurred in accordance with MCS requirements, except to the extent that it is impracticable to determine the period-specific effects or the cumulative effect of the error. In such cases the department shall restate the opening balances of assets, liabilities and net assets for the earliest period for which retrospective restatement is practicable.

### 22. Events after the reporting date

Events after the reporting date that are classified as adjusting events are accounted for in the financial statements, if occurred. The events after the reporting date that are classified as non-adjusting events after the reporting date are disclosed in the notes to the financial statements, if occurred.

### 23. Agent – Principal arrangements

The Department is not party to any principal-agent arrangement. In terms of the arrangement of a principal-agent, all related revenues, expenditures, assets and liabilities have been recognised or recorded in terms of the relevant policies listed herein. Additional disclosures have been provided in the notes to the financial statements where appropriate.

### 24. Departures from the MCS requirements

Management has concluded that the financial statements present fairly the department's primary and secondary information; that the department complied with the Standard and that there was no departure from any particular requirement to achieve fair presentation.

### 25. Capitalisation reserve

The capitalisation reserve comprises of 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 reserves when identified in the current period and are transferred to the National Revenue Fund when the underlying asset is disposed and the related funds are received.

# ACCOUNTING POLICIES

## FOR THE YEAR ENDED 31 MARCH 2018

### 26. 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 are transferred to the statement of financial performance when written-off.

### 27. Related party transactions

A related party transaction is a transfer of resources, services or obligations between the reporting entity and a related party. Related party transactions within the Minister's portfolio are recorded in the notes to the financial statements when the transaction is not at arm's length.

Key management personnel are those persons having the authority and responsibility for planning, directing and controlling the activities of the department. The number of individuals and their full compensation is recorded in the notes to the financial statements

### 28. Inventories

At the date of acquisition, inventories are recorded at cost price in the statement of financial performance. Where inventories are acquired as part of a non-exchange transaction, the cost of inventory is its fair value at the date of acquisition. Inventories are subsequently measured at the lower of cost and net realisable value or the lower of cost and current replacement value (the factors which could lead to the revaluation of inventory includes but not limited to obsolescence, defects, over-supply and major price declines). Subsequent measurement of the cost of inventory is determined on the weighted average basis. The Department is not an inventory institution therefore the note on inventory is not applicable

### 29. Public-private partnerships

Public-private partnerships (PPP) are accounted for based on the nature and/or the substance of the partnership. The transaction is accounted for in accordance with the relevant accounting policies. The summary of the significant terms of the PPP agreement, the parties to the agreement, and the date of commencement thereof together with the description and nature of the concession fees received, the unitary fees paid, rights and obligations of the department are recorded in the notes to the financial statements.

### 30. Employee benefits

The value of each major class of employee benefit obligation (accruals, payables not recognised and provisions) is disclosed in the employee benefits note.

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 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	Actual funds 2017/18	Funds not requested/ not received	Final appropriation 2016/17	Appropriation received 2016/17
	R'000	R'000	R'000	R'000	R'000
Administration	342,871	342,871	-	356,110	356,110
Technology Innovation	1,133,760	1,133,760	-	1,027,588	1,027,587
International Cooperation and Resources	166,192	166,192	-	121,316	121,316
Research Development and Support	4,300,793	4,300,793	-	4,157,604	4,157,604
Socio-Economic Innovation Partnerships	1,613,613	1,613,613	-	1,766,378	1,766,378
<b>Total</b>	<b>7,557,229</b>	<b>7,557,229</b>	<b>-</b>	<b>7,428,996</b>	<b>7,428,995</b>

### 2. Departmental revenue

	Note	2017/18	2016/17
		R'000	R'000
Sales of goods and services other than capital assets	2.1	60	57
Interest, dividends and rent on land	2.2	34	9
Sale of capital assets	2.3	430	45
Transactions in financial assets and liabilities	2.4	9,774	8,088
<b>Departmental revenue collected</b>		<b>10,298</b>	<b>8,199</b>

#### 2.1 Sales of goods and services other than capital assets

	Note	2017/18	2016/17
		R'000	R'000
Other sales	2	59	57
Sales of scrap, waste and other used current goods		1	-
<b>Total</b>		<b>60</b>	<b>57</b>

#### 2.2 Interest, dividends and rent on land

	Note	2017/18	2016/17
		R'000	R'000
Interest	2	34	9
<b>Total</b>		<b>34</b>	<b>9</b>

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 2. Departmental revenue (continued)

#### 2.3 Sale of capital assets

	Note	2017/18	2016/17
		R'000	R'000
Machinery and equipment	2	430	45
<b>Total</b>		<b>430</b>	<b>45</b>

The sale of capital assets relate to vehicles that were damaged and uneconomical to maintain that were disposed.

#### 2.4 Transactions in financial assets and liabilities

	Note	2017/18	2016/17
		R'000	R'000
Other receipts, including recoverable revenue	2	9,774	8,088
<b>Total</b>		<b>9,774</b>	<b>8,088</b>

### 3. Aid assistance

#### 3.1 Aid assistance received in cash from RDP

	Note	2017/18	2016/17
		R'000	R'000
<b>Foreign</b>	3		
Opening balance		1,425	3,885
Prior year error		-	-
As restated		1,425	3,885
Transferred from Statement of Financial Performance		332	1,425
Paid during the year		(1,425)	(3,885)
<b>Closing balance</b>		<b>332</b>	<b>1,425</b>

#### 3.2 Analysis of balance by source

	Note		
<b>Aid assistance from RDP</b>	3	332	1,425
RDP Fund		332	1,425
<b>Closing balance</b>		<b>332</b>	<b>1,425</b>

#### 3.3 Analysis of balance

	Note	2017/18	2016/17
		R'000	R'000
Aid assistance repayable	3	332	1,425
<b>Closing balance</b>		<b>332</b>	<b>1,425</b>



# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 3. Aid assistance (continued)

#### 3.4 Aid assistance expenditure per economic classification

		2017/18
		R'000
	Note	
Current	3	2,750
Capital		-
Transfers and subsidies		22,709
<b>Closing balance</b>		<b>25,459</b>

### 4. Compensation of employees

#### 4.1 Salaries and wages

	Note	2017/18	2016/17
		R'000	R'000
Basic salary	4	212,898	210,762
Performance award		4,857	4,643
Service-based		154	55
Compensative/circumstantial		4,016	2,891
Periodic payments		62	-
Other non-pensionable allowances		67,984	67,522
<b>Total</b>		<b>289,971</b>	<b>285,873</b>

#### 4.2 Social contributions

	Note	2017/18	2016/17
		R'000	R'000
<b>Employer contributions</b>			
Pension		27,239	26,612
Medical		6,560	6,518
Bargaining council		36	34
<b>Total</b>		<b>33,835</b>	<b>33,164</b>
<b>Total compensation of employees</b>		<b>323,806</b>	<b>319,037</b>
<b>Average number of employees</b>		<b>426</b>	<b>449</b>

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 5. Goods and services

	Note	2017/18 R'000	2016/17 R'000
Administrative fees		2,127	1,222
Advertising		36,299	28,769
Minor assets	5.1	87	249
Bursaries (employees)		1,309	1,479
Catering		2,694	3,507
Communication		6,987	8,693
Computer services	5.2	19,569	20,595
Consultants: Business and advisory services		9,580	9,867
Legal services		3,329	977
Contractors		3,649	3,523
Agency and support/outourced services		6,481	15,303
Entertainment		861	656
Audit cost – external	5.3	5,193	4,249
Fleet services		829	882
Consumables	5.4	4,470	6,115
Operating leases		3,032	4,117
Property payments	5.5	12,587	10,455
Rental and Hiring		1,360	1,281
Travel and subsistence	5.6	53,070	46,485
Venues and facilities		7,011	5,662
Training and development		3,157	4,944
Other operating expenditure	5.7	6,667	9,846
<b>Total</b>		<b>190,348</b>	<b>188,876</b>

#### 5.1 Minor assets

	Note	2017/18 R'000	2016/17 R'000
<b>Tangible assets</b>	5	<b>87</b>	<b>249</b>
Machinery and equipment		87	249
<b>Intangible assets</b>		-	-
<b>Total</b>		<b>87</b>	<b>249</b>

#### 5.2 Computer services

	Note	2017/18 R'000	2016/17 R'000
SITA computer services	5	13,802	9,927
External computer service providers		5,767	10,668
<b>Total</b>		<b>19,569</b>	<b>20,595</b>

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 5. Goods and services (continued)

#### 5.3 Audit cost – External

	Note	2017/18	2016/17
		R'000	R'000
Regularity audits	5	5,193	4,249
<b>Total</b>		<b>5,193</b>	<b>4,249</b>

#### 5.4 Consumables

	Note	2017/18	2016/17
		R'000	R'000
Consumables supplies	5	1,240	1,281
Uniform and clothing		267	10
Household supplies		19	333
IT consumables		322	321
Other consumables		632	617
Stationery, printing and office supplies		3,230	4,834
<b>Total</b>		<b>4,470</b>	<b>6,115</b>

#### 5.5 Property payments

	Note	2017/18	2016/17
		R'000	R'000
Municipal services	5	5,630	3,644
Property maintenance and repairs		-	2,181
Other		6,957	4,630
<b>Total</b>		<b>12,587</b>	<b>10,455</b>

#### 5.6 Travel and subsistence

	Note	2017/18	2016/17
		R'000	R'000
Local	5	28,575	27,545
Foreign		24,495	18,940
<b>Total</b>		<b>53,070</b>	<b>46,485</b>

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 5. Goods and services (continued)

#### 5.7 Other operating expenditure

	Note	2017/18	2016/17
		R'000	R'000
Professional bodies, membership and subscription fees	5	2,835	4,546
Resettlement costs		48	275
Other		3,784	5,025
<b>Total</b>		<b>6,667</b>	<b>9,846</b>

### 6. Payments for financial assets

	Note	2017/18	2016/17
		R'000	R'000
Other material losses written off	6.1	168	123
Debts written off	6.2	51	3
<b>Total</b>		<b>219</b>	<b>126</b>

#### 6.1 Other material losses written off

	Note	2017/18	2016/17
		R'000	R'000
<b>Nature of losses</b>			
Losses in respect of damaged vehicle written off		168	123
<b>Total</b>		<b>168</b>	<b>123</b>

#### 6.2 Debts written off

	Note	2017/18	2016/17
		R'000	R'000
<b>Nature of losses</b>			
Irrecoverable debts written off		51	3
<b>Total</b>		<b>51</b>	<b>3</b>

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 7. Transfers and subsidies

		2017/18	2016/17
		R'000	R'000
	Note		
Departmental agencies and accounts	Annex 1B	4,768,216	4,696,599
Higher education institutions	Annex 1C	-	210,329
Foreign governments and international organisations	Annex 1E	-	-
Public corporations and private enterprises	Annex 1D	1,722,519	1,793,985
Non-profit institutions	Annex 1F	462,544	157,726
Households	Annex 1G	1,244	1,438
<b>Total</b>		<b>6,954,523</b>	<b>6,860,077</b>

### 8. Expenditure for capital assets

	Note	2017/18	2016/17
		R'000	R'000
<b>Tangible assets</b>		<b>20,649</b>	<b>15,478</b>
Machinery and equipment	8.1	20,649	15,478
<b>Intangible assets</b>		<b>-</b>	<b>-</b>
Software	8.1	-	-
Patents, licences, copyright, brand names, trademarks		-	-
<b>Total</b>		<b>20,649</b>	<b>15,478</b>

#### 8.1 Analysis of funds utilised to acquire capital assets – 2017/18

	Voted funds	Aid assistance	Total
	R'000	R'000	R'000
<b>Tangible assets</b>	<b>20,649</b>	<b>-</b>	<b>20,649</b>
Machinery and equipment	20,649	-	20,649
<b>Intangible assets</b>	<b>-</b>	<b>-</b>	<b>-</b>
Software	-	-	-
Patents, licences, copyright, brand names, trademarks	-	-	-
<b>Total</b>	<b>20,649</b>	<b>-</b>	<b>20,649</b>

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 8. Expenditure for capital assets (continued)

#### 8.2 Analysis of funds utilised to acquire capital assets – 2016/17

	Voted funds	Aid assistance	Total
	R'000	R'000	R'000
Machinery and equipment	15,478	-	15,478
<b>Total assets acquired</b>	<b>15,478</b>	<b>-</b>	<b>15,478</b>
<b>Intangible assets</b>	-	-	-
Software	-	-	-
Patents, licences, copyright, brand names, trademarks	-	-	-
<b>Total</b>	<b>15,478</b>	<b>-</b>	<b>15,478</b>

#### 8.3 Finance lease expenditure included in expenditure for capital assets

	Note	2017/18	2016/17
		R'000	R'000
<b>Tangible assets</b>			
Machinery and equipment		1,899	1,039
<b>Total</b>		<b>1,899</b>	<b>1,039</b>

### 9. Cash and cash equivalents

	Note	2017/18	2016/17
		R'000	R'000
Consolidated Paymaster-General Account		79,889	44,435
Cash on hand		33	33
<b>Total</b>		<b>79,922</b>	<b>44,468</b>

### 10. Prepayments and advances

	Note	2017/18	2016/17
		R'000	R'000
Travel and subsistence		45	95
Advances paid		402	543
<b>Total</b>		<b>447</b>	<b>638</b>

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 10. Prepayments and advances (continued)

#### 10.1 Advances paid (not expensed)

	Balance as at 1 April 2017	Less: Amounts expensed in current year	Add: Current year advances	Balance as at 31 March 2018
	R'000	R'000	R'000	R'000
National departments	543	5,485	5,344	402
Provincial departments	-	-	-	-
Public entities	-	-	-	-
Other institutions	-	-	-	-
<b>Total</b>	<b>543</b>	<b>5,485</b>	<b>5,344</b>	<b>402</b>

The analysis on sub-note 10.1 was introduced in 2017/18 to indicate the total advances made and expensed during the financial year.

### 11. Receivables

		2017/18			2016/17		
		Current	Non-Current	Total	Current	Non-Current	Total
	Note	R'000	R'000	R'000	R'000	R'000	R'000
Claims recoverable	11.1	267	52	319	1,035	98	1,133
Recoverable expenditure	11.2	10	243	253	164	251	415
Staff debt	11.3	172	48	220	173	66	239
<b>Total</b>		<b>449</b>	<b>343</b>	<b>792</b>	<b>1,372</b>	<b>415</b>	<b>1,787</b>

#### 11.1 Claims recoverable

	Note	2017/18	2016/17
		R'000	R'000
National departments	11	230	68
Households and non-profit institutions		89	1,065
<b>Total</b>		<b>319</b>	<b>1,133</b>

#### 11.2 Recoverable expenditure (disallowance accounts)

	Note	2017/18	2016/17
		R'000	R'000
Income tax debt	11	-	-
Persal Salaries and Stoppages		-	-
Damages to vehicles		253	415
VAT Clearing account		-	-
<b>Total</b>		<b>253</b>	<b>415</b>

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 11. Receivables (continued)

#### 11.3 Staff debt

	Note	2017/18	2016/17
		R'000	R'000
Salary overpayment	11	136	89
Cell phone debts		51	71
Previous employees - Resettlement debt		-	54
Income tax debt		21	-
Other		12	25
<b>Total</b>		<b>220</b>	<b>239</b>

### 12. Investments

The Department acquired shares for 35% shareholding of the Biological and Vaccines Institute (Biovac) of South Africa valued at R 86,240 million (calculated as percentage of retained earnings of Biovac as at 31 December 2017) from the Department of Health at no cost. The value of the shares could not be disclosed in the Statement of Financial Position because they were transferred at no cost.

### 13. Voted funds to be surrendered to the Revenue Fund

	Note	2017/18	2016/17
		R'000	R'000
Opening balance		45,401	28,644
Prior period error		-	-
As restated		45,401	28,644
Transfer from statement of financial performance		67,684	45,402
Voted funds not requested/not received	1.1	-	(1)
Paid during the year		(45,401)	(28,644)
<b>Closing balance</b>		<b>67,684</b>	<b>45,401</b>

### 14. Departmental revenue to be surrendered to the Revenue Fund

	Note	2017/18	2016/17
		R'000	R'000
Opening balance		6	8
Prior period error		-	-
As restated		6	8
Transfer from Statement of Financial Performance		10,298	8,199
Paid during the year		(10,297)	(8,201)
<b>Closing balance</b>		<b>7</b>	<b>6</b>



# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 15. Payables – current

	Note	2017/18 R'000	2016/17 R'000
Clearing accounts	15.1	108	5
Other Payables	15.2	13,000	-
<b>Total</b>		<b>13,108</b>	<b>5</b>

#### 15.1 Clearing accounts

	Note	2017/18 R'000	2016/17 R'000
Sal: GEHS refund control acc: CL	15	12	-
Sal: Income tax: CL		96	5
<b>Total</b>		<b>108</b>	<b>5</b>

#### 15.2 Other payables

	Note	2017/18 R'000	2016/17 R'000
Transfer from Eastern Cape Provincial Department	15	13,000	-
<b>Total</b>		<b>13,000</b>	<b>-</b>

### 16. Net cash flow available from operating activities

	Note	2017/18 R'000	2016/17 R'000
Net surplus as per Statement of Financial Performance		78,314	55,026
Add back non-cash/cash movements not deemed operating activities		(22,615)	(26,215)
(Increase)/Decrease in receivables – current		995	(696)
(Increase)/Decrease in prepayments and advances		191	(199)
Increase/(Decrease) in payables – current		13,103	(22)
Proceeds from sale of capital assets		(430)	(45)
Expenditure on capital assets		20,649	15,478
Surrenders to Revenue Fund	13	(55,698)	(36,845)
Surrenders to Donor Fund		(1,425)	(3,885)
Voted funds not requested/not received		-	(1)
<b>Net cash flow generated by operating activities</b>		<b>55,699</b>	<b>28,811</b>

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 17. Reconciliation of cash and cash equivalents for cash flow purposes

	Note	2017/18 R'000	2016/17 R'000
Consolidated Paymaster-General Account		79,889	44,435
Cash on hand		33	33
<b>Total</b>		<b>79,922</b>	<b>44,468</b>

### 18. Contingent liabilities

	Note	2017/18 R'000	2016/17 R'000
<b>Liable to</b>			
Claims against the department	<i>Annex 3B</i>	830	401
<b>Total</b>		<b>830</b>	<b>401</b>

### 19. Commitments

	Note	2017/18 R'000	2016/17 R'000
<b>Current expenditure</b>			
Approved and contracted		29,243	31,454
Approved but not yet contacted		8,635	4
		<b>37,878</b>	<b>31,458</b>
<b>Capital expenditure</b>			
Approved and contracted		503	16,815
Approved but not yet contacted		-	-
		<b>503</b>	<b>16,815</b>
<b>Total commitments</b>		<b>38,381</b>	<b>48,273</b>

The Department has commitments for more than a year for contracts that are needed for its operations such as employee health and wellness, knowledge management and information solutions, and consulting services, among others.

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 20. Accruals and payables not recognised

#### 20.1 Accruals

	2017/18			2016/17
	R'000			R'000
<b>Listed by economic classification</b>				
	30 days	30+ days	Total	Total
Goods and services	7,504	-	7,504	8,611
Capital assets	-	-	-	-
<b>Total</b>	<b>7,504</b>	<b>-</b>	<b>7,504</b>	<b>8,611</b>

		2017/18	2016/17
	Note	R'000	R'000
<b>Listed by Programme</b>			
Programme 1: Administration		4,484	4,370
Programme 2: Technology Innovation		714	364
Programme 3: International Cooperation and Resources		1,087	3,187
Programme 4: Research Development and Support		977	509
Programme 5: Socio-Economic Innovation Partnerships		242	181
<b>Total</b>		<b>7,504</b>	<b>8,611</b>

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 20. Accruals and payables not recognised (continued)

#### 20.2 Payables not recognised

	2017/18			2016/17
	R'000			R'000
Listed by economic classification	30 days	30 +days	Total	Total
Goods and services	2,356	-	2,356	1,252
Capital assets	-	-	-	16
<b>Total</b>	<b>2,356</b>	<b>-</b>	<b>2,356</b>	<b>1,268</b>

	Note	2017/18	2016/17
		R'000	R'000
<b>Listed by Programme</b>			
Programme 1: Administration		175	551
Programme 2: Technology Innovation		903	98
Programme 3: International Cooperation and Resources		880	206
Programme 4: Research, Development and Support		1	305
Programme 5: Socio-Economic Innovation Partnerships		397	108
<b>Total</b>		<b>2,356</b>	<b>1,268</b>

	Note	2017/18	2016/17
		R'000	R'000
Confirmed balances with other departments	<i>Annex 5</i>	870	3,404
Confirmed balances with other government entities		360	
<b>Total</b>		<b>1,230</b>	<b>3,404</b>

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 21. Employee benefits

	Note	2017/18	2016/17
		R'000	R'000
Leave entitlement*		13,066	11,938
Service bonus (Thirteenth cheque)		7,392	7,281
Performance awards		4,954	4,789
Capped leave commitments		3,024	2,845
Other (Long Service Awards)		69	37
<b>Total</b>		<b>28,505</b>	<b>26,890</b>

\*A negative amount of R 371,009.96 was offset against leave entitlement. The amount was as a result of a pro-rata calculation of leave taken by employees as at the 31 March 2018. In terms of the pro-rata calculation, employees are entitled to 5.49 days leave from 1 January to 31 March. If an employee takes more leave this result 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

2017/18	Land	Buildings and other fixed structures	Machinery and equipment	Total
	R'000	R'000	R'000	R'000
Not later than 1 year	-	1,323	1,114	2,437
Later than 1 year and not later than 5 years	-	-	743	743
<b>Total lease commitments</b>	<b>-</b>	<b>1,323</b>	<b>1,857</b>	<b>3,180</b>

2016/17	Land	Buildings and other fixed structures	Machinery and equipment	Total
	R'000	R'000	R'000	R'000
Not later than 1 year	-	1,855	1,114	2,969
Later than 1 year and not later than 5 years	-	1,323	1,857	3,180
<b>Total lease commitments</b>	<b>-</b>	<b>3,178</b>	<b>2,971</b>	<b>6,149</b>

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 22. Lease commitments (continued)

#### 22.2 Finance leases expenditure

2017/18	Land	Buildings and other fixed structures	Machinery and equipment	Total
	R'000	R'000	R'000	R'000
Not later than 1 year	-	-	1,760	1,760
Later than 1 year and not later than 5 years	-	-	1,123	1,123
<b>Total lease commitments</b>	-	-	<b>2,883</b>	<b>2,883</b>

2016/17	Land	Buildings and other fixed structures	Machinery and equipment	Total
	R'000	R'000	R'000	R'000
Not later than 1 year	-	-	1,706	1,706
Later than 1 year and not later than 5 years	-	-	168	168
<b>Total lease commitments</b>	-	-	<b>1,874</b>	<b>1,874</b>

### 23. Accrued departmental revenue

	Note	2017/18	2016/17
		R'000	R'000
Transactions in financial assets and liabilities		7,076	146
<b>Total</b>		<b>7,076</b>	<b>146</b>

#### 23.1 Analysis for accrued departmental revenue

	Note	2017/18	2016/17
		R'000	R'000
Opening balance		146	6,847
Less: Amounts received		146	6,701
Add: Amounts recognised		7,076	-
<b>Total</b>		<b>7,076</b>	<b>146</b>

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 24. Irregular expenditure

#### 24.1 Reconciliation of irregular expenditure

Note	2017/18	2016/17
	R'000	R'000
Opening balance	35,118	34,942
As restated	35,118	34,942
Add: Irregular expenditure – relating to prior year	11,753	-
Add: Irregular expenditure – relating to current year	2,733	176
Less: Prior year amount condoned	-	-
Less: Current year amounts condoned	-	-
Less: Amounts recoverable (not condoned)	-	-
<b>Irregular expenditure awaiting condonation</b>	<b>49,604</b>	<b>35,118</b>
Current year	2,733	176
Prior years	46,871	34,942
<b>Total</b>	<b>49,604</b>	<b>35,118</b>

Analysis of awaiting condonation per age classification

#### 24.2 Details of irregular expenditure – current year

Incident	Disciplinary steps taken/ criminal proceedings	2017/18 R'000
Non-compliance with SCM processes	Referred to National Treasury	14,486
<b>Total</b>		<b>14,486</b>

#### 24.3 Irregular expenditures referred to the National Treasury

- The National Treasury ruled that the matter that was referred to them for guidance in the 2016/17 financial year was irregular expenditure. The matter pertains to a mobile communication contract that was advertised for a shorter period after approval was obtained from the Accounting Officer in the 2014/15 financial year. The irregular expenditure was disclosed accordingly in the financial statements and will be handled in terms of the guidelines for the management of irregular expenditure.
- The prior year's irregular expenditure amounting to R34 942 million was referred to the National Treasury for condonement in the 2015/16 and 2016/17 financial years and no feedback has been received yet. The matters are being followed up with the National Treasury on a regular basis.

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 25. Fruitless and wasteful expenditure

#### Reconciliation of fruitless and wasteful expenditure

	Note	2017/18	2016/17
		R'000	R'000
Opening balance		64	62
Prior year period error		-	-
As restated		64	62
Fruitless and wasteful expenditure – relating to prior		-	-
Fruitless and wasteful expenditure – relating to current year		-	2
Less: Amounts resolved		(64)	-
<b>Fruitless and wasteful expenditure awaiting condonement</b>		<b>-</b>	<b>64</b>

### 26. Related party transactions

#### 26.1 Related party transactions

	2017/18	2016/17
	R'000	R'000
Payments made		
Goods and services	-	-
<b>Total</b>	<b>-</b>	<b>-</b>

#### 26.2 Public entities under ownership control of the Department

The following entities are under the ownership control of the Department in terms of Chapter 1 of the Public Finance Management Act, 1999, and report to the Minister of Science and Technology, and as such are related parties to the Department:

##### Schedule 3A – National public entities

- Human Sciences Research Council
- National Research Foundation
- South African National Space Agency
- Technology Innovation Agency

##### Schedule 3B – National government business enterprises

- Council for Scientific and Industrial Research

The Department transactions with these entities are limited to transfer and subsidy payments. Annexures 1C and 1E to the Annual Financial Statement reflect payments to these public entities. Where transactions other than these occur, they occur within a normal supplier/client relationship in terms of the procurement procedures of the Department and the Public Finance Management Act, 1999.



# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 26. Related party transactions (continued)

#### 26.3 Related party relationships with other Departments

The Department has a related party relationship with the Department of Public Works that provides office accommodation free of charge to the Department. The Department of Public Works claims maintenance fees only. The Department has a relationship with the Academy of Science of South Africa that is funding its operations. All the transactions the Department has with these entities are at arm's length.

### 27. Key management personnel

	No. of individuals	2017/18 R'000	2016/17 R'000
Political office bearers (provide detail below)	3	4,353	4,388
Officials:			
Level 15 to 16	11	15,625	15,107
Level 14 (incl. CFO if at a lower level)	32	31,065	31,360
<b>Total</b>		<b>51,043</b>	<b>50,855</b>

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).

### 28. Movable tangible capital assets

#### Movement in movable tangible capital assets per asset register for the year ended 31 March 2018

	Opening balance R'000	Value adjustments R'000	Additions R'000	Disposals R'000	Closing balance R'000
<b>MACHINERY AND EQUIPMENT</b>	<b>90,041</b>	<b>-</b>	<b>18,750</b>	<b>(4,108)</b>	<b>104,683</b>
Transport assets	7,299	-	1,596	(1,556)	7,339
Computer equipment	43,086	-	15,368	(2,100)	56,354
Furniture and office equipment	18,715	-	326	(172)	18,869
Other machinery and equipment	20,941	-	1,460	(280)	22,121
<b>TOTAL MOVABLE TANGIBLE CAPITAL ASSETS</b>	<b>90,041</b>	<b>-</b>	<b>18,750</b>	<b>(4,108)</b>	<b>104,683</b>

An asset to the value of R341,121.06 was written off as it was stolen. It was subsequently recovered, and the Department is in the process of putting it back on the asset register.

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 28. Movable tangible capital assets (continued)

#### 28.1 Additions

Additions to movable tangible capital assets per asset register for the year ended 31 March 2018

	Cash	Non-cash	(Capital work in progress current costs and finance lease payments)	Received current, not paid (Paid current year, received prior year)	Total
	R'000	R'000	R'000	R'000	R'000
<b>MACHINERY AND EQUIPMENT</b>	<b>20,649</b>	-	<b>(1,899)</b>	-	<b>18,750</b>
Transport assets	1,596	-	-	-	1,596
Computer equipment	15,368	-	-	-	15,368
Furniture and office equipment	326	-	-	-	326
Other machinery and equipment	3,359	-	(1,899)	-	1,460
<b>TOTAL ADDITIONS TO MOVABLE TANGIBLE CAPITAL ASSETS</b>	<b>20,649</b>	-	<b>(1,899)</b>	-	<b>18,750</b>

#### 28.2 Disposals

Disposals of movable tangible capital assets per asset register for the year ended 31 March 2018

	Sold for cash	Non-cash disposals	Total disposals	Cash received actual
	R'000	R'000	R'000	R'000
<b>MACHINERY AND EQUIPMENT</b>	<b>1,556</b>	<b>2,552</b>	<b>4,108</b>	<b>430</b>
Transport assets	1,556	-	1,556	430
Computer equipment	-	2,100	2,100	-
Furniture and office equipment	-	172	172	-
Other machinery and equipment	-	280	280	-
<b>TOTAL DISPOSAL OF MOVABLE TANGIBLE CAPITAL ASSETS</b>	<b>1,556</b>	<b>2,552</b>	<b>4,108</b>	<b>430</b>

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 28. Movable tangible capital assets (continued)

#### 28.3 Movement for 2016/17

Movement in movable tangible capital assets per asset register for the year ended 31 March 2017

	Opening balance	Prior period errors	Additions	Disposals	Closing balance
	R'000	R'000	R'000	R'000	R'000
<b>MACHINERY AND EQUIPMENT</b>	<b>79,981</b>	<b>(677)</b>	<b>14,455</b>	<b>(3,718)</b>	<b>90,041</b>
Transport assets	5,579	-	1,876	(156)	7,299
Computer equipment	42,650	(359)	3,685	(2,890)	43,086
Furniture and office equipment	18,721	-	40	(46)	18,715
Other machinery and equipment	13,031	(318)	8,854	(626)	20,941
<b>TOTAL MOVABLE TANGIBLE CAPITAL ASSETS</b>	<b>79,981</b>	<b>(677)</b>	<b>14,455</b>	<b>(3,718)</b>	<b>90,041</b>

#### 28.3.1 Prior period errors

Nature of prior error	2016/17 R'000
Capital assets incorrectly classified as minor assets	13
Capital assets recorded twice on the asset register	690
<b>Total</b>	<b>677</b>

#### 28.4 Minor assets

Minor assets of the Department for the year ended 31 March 2018

	Intangible assets	Heritage assets	Machinery and equipment	Biological assets	Total
	R'000	R'000	R'000	R'000	R'000
Opening balance	-	-	6,798	-	6,798
Value adjustments	-	-	(13)	-	(13)
Additions	-	-	87	-	87
Disposals	-	-	(289)	-	(289)
<b>TOTAL MINOR ASSETS</b>	<b>-</b>	<b>-</b>	<b>6,583</b>	<b>-</b>	<b>6,583</b>
Number of R1 minor assets	-	-	5,746	-	5,746
Number of minor assets at cost	-	-	3,840	-	3,840
<b>Total</b>	<b>-</b>	<b>-</b>	<b>9,586</b>	<b>-</b>	<b>9,586</b>

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 28. Movable tangible capital assets (continued)

#### 28.4 Minor assets (continued)

Minor assets of the department for the year ended 31 March 2017

	Intangible assets	Heritage assets	Machinery and equipment	Biological assets	Total
	R'000	R'000	R'000	R'000	R'000
Opening balance	-	-	6,785	-	6,785
Prior period error	-	-	(13)	-	(13)
Additions	-	-	249	-	249
Disposals	-	-	(223)	-	(223)
<b>Total</b>	<b>-</b>	<b>-</b>	<b>6,798</b>	<b>-</b>	<b>6,798</b>

	Intangible assets	Heritage assets	Machinery and equipment	Biological assets	Total
Number of R1 minor assets	-	-	5,888	-	5,888
Number of minor assets at cost	-	-	3,915	-	3,915
	<b>-</b>	<b>-</b>	<b>9,803</b>	<b>-</b>	<b>9,803</b>

#### 28.4.1 Prior period errors

Nature of prior error	2016/17 R'000
Capital assets incorrectly classified as minor assets	(13)
<b>Relating to 2016/17</b>	
Number of assets at R1	5,858
Number of assets at cost	3,784
<b>Total</b>	<b>9,629</b>

### 29. Intangible capital assets

Movement in intangible capital assets per asset register for the year ended 31 March 2018

	Opening balance	Additions	Disposals	Closing balance
	R'000	R'000	R'000	R'000
Software	7,483	-	-	7,483
Patents, licences, copyright, brand names, trademarks	-	-	-	-
<b>TOTAL INTANGIBLE CAPITAL ASSETS</b>	<b>7,483</b>	<b>-</b>	<b>-</b>	<b>7,483</b>

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 29. Intangible capital assets (continued)

#### 29.1 Additions

Additions to intangible capital assets per asset register for the year ended 31 March 2018

	Cash	Non-cash	(Development work in progress current costs)	Received current, not paid (Paid current year, received prior year)	Total
	R'000	R'000	R'000	R'000	R'000
Software	-	-	-	-	-
<b>TOTAL ADDITIONS TO MOVABLE TANGIBLE CAPITAL ASSETS</b>	-	-	-	-	-

#### 29.2 Disposals

Disposals of intangible capital assets per asset register for the year ended 31 March 2018

	Sold for cash	Transfer out or destroyed or scrapped	Total disposals	Cash received actual
	R'000	R'000	R'000	R'000
Software	-	-	-	-
<b>TOTAL DISPOSAL OF INTANGIBLE CAPITAL ASSETS</b>	-	-	-	-

#### 29.3 Intangible capital assets

Movement in intangible capital assets per asset register for the year ended 31 March 2017

	Opening balance	Prior year error balances	Additions	Disposals	Closing balance
	R'000	R'000	R'000	R'000	R'000
Software	5,880	1,603	-	-	7,483
Patents, licences, copyright, brand names, trademarks	-	-	-	-	-
<b>TOTAL INTANGIBLE CAPITAL ASSETS</b>	<b>5,880</b>	<b>1,603</b>	<b>-</b>	<b>-</b>	<b>7,483</b>

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### 30. Prior period errors

#### Assets

Research and Development Tax Incentive application System was not included in the Tangible assets value

Note	Amount before error correction	Prior period error 2016/17	Closing balance
R'000	R'000	R'000	R'000
40	5,883	1,603	7,483
-	-	-	-
<b>NET EFFECT</b>	<b>5,883</b>	<b>1,603</b>	<b>7,483</b>

#### Prior period errors

#### Liabilities

Commitments for operating costs for office accommodation were not included in the commitments values for 2016/17 Financial year

Note	Amount before error correction	Prior period error 2016/17	Closing balance
R'000	R'000	R'000	R'000
26	48,273	618	48,891
-	-	-	-
<b>NET EFFECT</b>	<b>48,273</b>	<b>618</b>	<b>48,891</b>

# ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### ANNEXURE 1B

#### STATEMENT OF TRANSFERS TO DEPARTMENTAL AGENCIES AND ACCOUNTS

Department/agency/account	Transfer allocation			Transfer		2016/17
	Adjusted Appropriation Act	Rollovers	Adjustments	Total available	Actual transfer	% of available funds transferred
	R'000	R'000	R'000	R'000	R'000	%
Agricultural Research Council	37,547	-	-	37,547	37,547	100%
Council for Geosciences	3,103	-	-	3,103	3,103	100%
Human Science Research Council	324,358	-	(6,265)	318,093	317,015	100%
National Research Foundation	4,035,616	-	(1,775)	4,033,841	3,606,687	89%
South African Medical Research Council	97,807	-	-	97,807	97,807	100%
South African National Biodiversity Institute	21,954	-	-	21,954	21,954	100%
South African National Energy Development Institute	4,500	-	-	4,500	4,500	100%
South African National Space Agency	184,780	-	-	184,780	184,780	100%
Technology Innovation Agency	494,623	-	-	494,623	494,823	100%
<b>Total</b>	<b>5,204,288</b>	<b>-</b>	<b>(8,040)</b>	<b>5,196,248</b>	<b>4,768,216</b>	<b>5,295,890</b>

# ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### ANNEXURE 1C

#### STATEMENT OF TRANSFERS TO UNIVERSITIES AND UNIVERSITIES OF TECHNOLOGY

University/University of technology	Transfer allocation				Transfer			2016/17
	Adjusted Appropriation Act	Rollovers	Adjustments	Total available	Actual transfer	Amount not transferred	% of available funds transferred	
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000
Cape Peninsula University of Technology	-	-	-	-	-	-	-	3,229
Nelson Mandela Metropolitan University	-	-	-	-	-	-	-	4,883
North West University	-	-	-	-	-	-	-	4,530
Durban University of Technology	-	-	-	-	-	-	-	-
Central University of Technology, Free State	-	-	-	-	-	-	-	1,914
Mangosuthu University of Technology	-	-	-	-	-	-	-	-
Vaal University of Technology	-	-	-	-	-	-	-	15
Tshwane University of Technology	-	-	-	-	-	-	-	2,990
University of Cape Town	-	-	-	-	-	-	-	18,359
University of Fort Hare	-	-	-	-	-	-	-	7,952
University of the Free State	-	-	-	-	-	-	-	3,753
University of Johannesburg	-	-	-	-	-	-	-	2,382
University of KwaZulu-Natal	-	-	-	-	-	-	-	4,336
University of Limpopo	-	-	-	-	-	-	-	14,604
University of Pretoria	-	-	-	-	-	-	-	3,483
Rhodes University	-	-	-	-	-	-	-	375
University of South Africa	-	-	-	-	-	-	-	2,561
Stellenbosch University	-	-	-	-	-	-	-	3,300
University of Venda	-	-	-	-	-	-	-	1,608
University of the Western Cape	-	-	-	-	-	-	-	48,799
University of the Witwatersrand	-	-	-	-	-	-	-	3,752
University of Zululand	-	-	-	-	-	-	-	600
Walter Sisulu University	-	-	-	-	-	-	-	556
<b>Total</b>	-	-	-	-	-	-	-	<b>133,981</b>



# ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### ANNEXURE 1D

#### STATEMENT OF TRANSFERS/SUBSIDIES TO PUBLIC CORPORATIONS AND PRIVATE ENTERPRISES

Name of public corporations/ private enterprise	TRANSFER ALLOCATION			EXPENDITURE				2016/17
	Adjusted Appropriation Act	Rollovers	Adjustments	Total available	Actual transfer	% of available funds transferred	Current	
	R'000	R'000	R'000	R'000	R'000	%	R'000	
<b>Public corporations</b>								
<b>Transfers</b>								
Council for Mineral Technology	51,232	-	-	51,232	57,664	-	14,690	29,514
Council for Scientific and Industrial Research	423,926	-	(3,161)	420,765	685,475	161.2%	370,422	360,130
South African Nuclear Energy Corporation Ltd	56,307	-	-	56,307	50,970	90.5%	56,307	31,899
South African Bureau of Standards	-	-	-	-	-	-	-	2,000
<b>Subtotal</b>	<b>531,465</b>	<b>-</b>	<b>(3,161)</b>	<b>528,304</b>	<b>787,109</b>	<b>149.0%</b>	<b>441,419</b>	<b>423,543</b>
<b>Subsidies</b>								
Council for Scientific and Industrial Research	915,645	-	-	915,645	915,645	-	-	872,043
<b>Subtotal</b>	<b>915,645</b>	<b>-</b>	<b>-</b>	<b>915,645</b>	<b>915,645</b>	<b>100.0%</b>	<b>-</b>	<b>872,043</b>
<b>Total</b>	<b>1,447,110</b>	<b>-</b>	<b>(3,161)</b>	<b>1,443,949</b>	<b>1,702,754</b>	<b>117.9%</b>	<b>441,419</b>	<b>1,295,586</b>

# ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### ANNEXURE 1D (CONTINUED)

#### STATEMENT OF TRANSFERS/SUBSIDIES TO PUBLIC CORPORATIONS AND PRIVATE ENTERPRISES

Name of public corporations/ private enterprise	TRANSFER ALLOCATION			EXPENDITURE				2016/17
	Adjusted Appropriation Act	Rollovers	Adjustments	Total available	Actual transfer	% of available funds transferred	Capital	
	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
<b>Private enterprises: Transfers</b>								
Manufacturing Indaba	-	-	-	-	100	-	-	-
Hlomuka Holdings	-	-	-	-	50	-	-	-
Pelchem	-	-	-	-	13,245	-	-	-
Wits Commercial Enterprise	-	-	-	-	1,417	-	-	-
Wits Health Consortium	-	-	-	-	1,000	-	-	-
Citrus Research (Pty) Ltd	-	-	-	-	3,953	-	-	-
<b>Subtotal</b>	-	-	-	-	<b>19,765</b>	-	-	-
<b>Total</b>	<b>1,447,110</b>		<b>(3,161)</b>	<b>1,443,949</b>	<b>1,722,519</b>	<b>119.3%</b>	<b>368,877</b>	<b>1,295,586</b>

# ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### ANNEXURE 1F

#### STATEMENT OF TRANSFERS TO NON-PROFIT INSTITUTIONS

Non-profit institutions	Transfer allocation			Expenditure		2016/17 Appropriation Act
	Adjusted Appropriation Act	Rollovers	Adjustments	Total available	Actual transfer	% of Available funds transferred
	R'000	R'000	R'000	R'000	R'000	%
<b>Transfers</b>						
Aeronautical Society of South Africa	100	-	-	100	100	100%
Africa Teen Geeks	-	-	-	-	-	-
Academy of Science of South Africa	6,040	-	-	6,040	6,404	106%
Bakgatla Ba Kgafela Traditional	500	-	-	500	500	100%
Bakgatla Sports, Arts and Culture	-	-	-	-	-	-
Cape Peninsula University of Technology	1,324	-	-	1,324	1,324	100%
Central University of Technology	4,025	-	-	4,025	4,025	100%
Centre for Phonetic and Genomic	12,000	-	-	12,000	12,000	100%
Da Vinci TT100 Awards Programme	1,754	-	-	1,754	1,754	100%
Department of Mineral Resources	800	-	-	800	800	100%
Durban University of Technology	1,595	-	-	1,595	1,595	100%
Egolibio	500	-	-	500	500	100%
Engineering and biotechnology	36,979	-	-	36,979	36,979	100%
En Novate	-	-	-	-	-	-
Environmental Affairs	930	-	-	930	930	100%
Forestry South Africa	-	-	-	-	-	-
Fresh Produce Exporters Forum	-	-	-	-	-	-
Gauteng Department of Sports, Art, Culture and Recreation	500	-	-	500	500	100%
Government Technical Advisory Centre	2,236	-	-	2,236	1,633	73%
Grahamstown Foundation	2,000	-	-	2,000	2,000	100%
Grain South Africa	12,800	-	-	12,800	12,800	100.0%
International Atomic Energy Agency	4,727	-	(18)	4,709	4,709	100%
International Centre for Genetic Engineering and Biotechnology	-	-	-	-	-	-
Mangosuthu University of Technology	28	-	-	28	28	100%

# ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

Non-profit institutions	Transfer allocation				Expenditure		2016/17	
	Adjusted Appropriation Act	Rollovers	Adjustments	Total available	Actual transfer	% of Available funds transferred	Appropriation Act	
	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
Mapungubwe Institute of Science Relations	-	-	-	-	-	-	-	2,000
Mobile Application Laboratory NP	3,131	-	-	3,131	3,131	100%	4,500	
Mpilohle	292	-	-	292	292	100%	-	
Mpumalanga Tourism and Parks	500	-	-	500	500	100%	500	
National Health Laboratory Service	3,500	-	-	3,500	3,500	100%	6,000	
National Science and Technology Forum	15,402	-	4,000	19,402	16,474	85%	8,647	
Nelson Mandela University	6,713	-	(248)	6,465	6,465	100%	-	
NEPAD Business Foundation	496	-	-	496	496	100%	-	
North-West University	-	-	34,831	34,831	96,183	276%	-	
Oil and Protein Seeds Development Trust	-	-	-	-	-	-	906	
Paper Manufacturers Association of South Africa	-	-	-	-	-	-	2,640	
Resonance Bazaar	350	-	-	350	350	100%	575	
Rhodes University	1,144	-	-	1,144	1,144	100%	-	
SARIMA	2,494	-	-	2,494	2,494	100%	1,000	
SEDA Essential Oils Business Incubation (SEOBI)	-	-	-	-	-	-	8,120	
SASS	30	-	-	30	30	100%	-	
South African Council for Natural Scientific Professions	4,441	-	-	4,441	4,441	100%	-	
South African Chemical Institute	50	-	-	50	50	100%	-	
South African Institute of Physics	1,500	-	-	1,500	1,500	-	1,300	
South African Council for Scientia	-	-	-	-	-	-	4,200	
South African Mathematics Foundation	1,060	-	-	1,060	1,060	100%	1,060	
South African National Aids Council	15,000	-	-	15,000	-	0%	-	
South African San Institute	500	-	-	500	500	100%	500	
Stellenbosch University	28,096	-	-	28,096	25,707	91%	-	
Sugar Milling Research Institute	4,060	-	-	4,060	4,060	100%	-	
The Composites Group (Pty) Ltd	-	-	-	-	-	-	150	
The SA Institute of Mining and Metallurgy	-	-	-	-	-	-	1,697	

# ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

Non-profit institutions	Transfer allocation				Expenditure		2016/17	
	Adjusted Appropriation Act	Rollovers	Adjustments	Total available	Actual transfer	% of Available funds transferred	Appropriation Act	
	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
Tshwane University of Technology	259	-	-	259	259	100%	-	-
University of Cape Town	5,804	-	32,479	38,283	38,244	100%	-	-
University of Fort Hare	4,028	-	-	4,028	4,028	100%	-	-
University of Free State	10,500	-	(1,207)	9,293	8,354	90%	-	-
University of Johannesburg	2,938	-	-	2,938	2,938	100%	-	-
University of KwaZulu-Natal	6,105	-	-	6,105	6,104	100%	-	-
University of Limpopo	22,300	-	(4,492)	17,808	26,226	147%	-	-
University of Pretoria	12,738	-	(653)	12,085	12,085	100%	-	-
University of South Africa	4,073	-	-	4,073	4,073	100%	-	-
University of Venda	5,001	-	-	5,001	5,001	100%	-	-
University of Venda Foundation	2,000	-	-	2,000	2,000	100%	-	-
University of Western Cape	10,844	-	-	10,844	47,375	437%	-	-
University of the Witwatersrand	2,048	-	-	2,048	2,048	100%	-	-
University of Zululand Foundation	750	-	-	750	750	100%	-	-
Vaal University of Technology	3,558	-	-	3,558	3,558	100%	-	-
Walter Sisulu University	4,337	-	-	4,337	4,337	100%	-	-
Water Institute of Southern Africa	540	-	-	540	540	100%	-	-
Water Meteorological Organisation	5,000	-	-	5,000	5,000	100%	-	-
Water Research Commission	7,403	-	-	7,403	7,403	100%	7,183	-
Winetech	-	-	-	-	-	-	5,000	-
Young Water Professionals (WISA)	-	-	-	-	-	-	500	-
<b>Total</b>	<b>287,823</b>	<b>-</b>	<b>64,692</b>	<b>352,515</b>	<b>437,283</b>	<b>-</b>	<b>122,634</b>	
<b>Subsidies</b>								
ASSAF	25,261	-	-	25,261	25,261	100%	24,106	-
	<b>25,261</b>	<b>-</b>	<b>-</b>	<b>25,261</b>	<b>25,261</b>	<b>100%</b>	<b>24,106</b>	
<b>Total</b>	<b>313,084</b>	<b>-</b>	<b>64,692</b>	<b>377,776</b>	<b>462,544</b>	<b>-</b>	<b>146,740</b>	

# ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### ANNEXURE 1G

#### STATEMENT OF TRANSFERS TO HOUSEHOLDS

HOUSEHOLDS	TRANSFER ALLOCATION				EXPENDITURE		2016/17
	Adjusted appropriation Act	Rollovers	Adjustments	Total available	Actual transfer	% of Available funds transferred	
R'000	R'000	R'000	R'000	R'000	%	R'000	
<b>Transfers</b>							
Claim against the state: Melaletsa, M	-	-	-	-	-	-	303
Leave gratuity: Boema, T	-	-	-	-	-	-	47
Leave gratuity: Hlatshwayo, MP	12	-	-	12	12	100%	-
Leave gratuity: Inama, J	-	-	-	-	-	-	46
Leave gratuity: Kgotleng, DW	43	-	-	43	43	100%	-
Leave gratuity: Khumalo, LML	41	-	-	41	41	100%	-
Leave gratuity: Lethaku, KM	-	-	-	-	-	-	8
Leave gratuity: Mabuela, M	-	-	-	-	-	-	24
Leave gratuity: Makgoba, MM	-	-	-	-	-	-	7
Leave gratuity: Makhura, F	-	-	-	-	-	-	8
Leave gratuity: Malabi, SP	60	-	-	60	60	100%	-
Leave gratuity: Maluleke, TS	-	-	-	-	-	-	27
Leave gratuity: Mandaha, D	30	-	-	30	30	100%	-
Leave gratuity: Maredi, ID	-	-	-	-	-	-	56
Leave gratuity: Masemene, MA (Donor Funds)	-	-	-	-	-	-	-
Leave gratuity: Masenthal, TC	39	-	-	39	39	100%	-
Leave gratuity: Matiwane, KD	-	-	-	-	-	-	19
Leave gratuity: Matutu, PP	61	-	-	61	61	100%	-
Leave gratuity: Mlisa, A	20	-	-	20	20	100%	-
Leave gratuity: Modibedi, N	-	-	-	-	-	-	41
Leave gratuity: Mofokeng, NT	9	-	-	9	9	100%	-
Leave gratuity: Mokone, D	23	-	-	23	23	100%	-

# ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

HOUSEHOLDS	TRANSFER ALLOCATION				EXPENDITURE		2016/17
	Adjusted appropriation Act	Rollovers	Adjustments	Total available	Actual transfer	% of Available funds transferred	
	R'000	R'000	R'000	R'000	R'000	%	R'000
Leave gratuity: Molapisi, JJ	-	-	-	-	-	-	51
Leave gratuity: Motihaping, BN	12	-	-	12	12	100%	-
Leave gratuity: Mthethwa, BC	32	-	-	32	32	100%	-
Leave gratuity: Muanalo, N	-	-	-	-	-	-	54
Leave gratuity: Muller, KJ	-	-	-	-	-	-	28
Leave gratuity: Munsami, V	10	-	-	10	10	100%	-
Leave gratuity: Nienaber, S	-	-	-	-	-	-	4
Leave gratuity: Nqabeni, XE	-	-	-	-	-	-	16
Leave gratuity: Nyatlo, SM	54	-	-	54	54	100%	-
Leave gratuity: Ramabu, MS	-	-	-	-	-	-	5
Leave gratuity: Selala, WM	32	-	-	32	32	100%	-
Leave gratuity: Selowa, MR	35	-	-	35	35	100%	-
Leave gratuity: Shandu, SB	37	-	-	37	37	100%	-
Leave gratuity: Tawane, BCT	14	-	-	14	14	100%	-
Leave gratuity: Thagane, MA	-	-	-	-	-	-	62
Leave gratuity: Tsatsi	-	-	-	-	-	-	32
Women in Science Awards	680	-	-	680	680	100%	600
<b>TOTAL</b>	<b>1,244</b>	<b>-</b>	<b>-</b>	<b>1,244</b>	<b>1,244</b>		<b>1,438</b>
	<b>1,244</b>	<b>-</b>	<b>-</b>	<b>1,244</b>	<b>1,244</b>		<b>1,438</b>

# ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### ANNEXURE 11

#### STATEMENT OF LOCAL AND FOREIGN AID ASSISTANCE RECEIVED

Name of donor	Purpose	Opening balance	Surrendered funds	Revenue	Expenditure	Closing balance
		R'000	R'000	R'000	R'000	R'000
Received in cash						
European Union	To develop vibrant and sustainable rural communities that contributes to adequate food supply.	-	-	3,006	2,985	21
European Union	Strengthening the European – South African Science and Advancement Programme (ESASTAP2)	1,272	1,272	960	649	311
European Union	ERAFrica: To develop a skilled and capable workforce	51	51	-	-	-
Finland	Develop Skilled and capable workforce	-	-	20,000	20,000	-
Portugal	Bridging Actions for GMES & Africa (BRAGMA)	-	-	217	217	-
European Union	European researchers to access SA innovation programmes and collaborate with SA researchers	-	-	253	253	-
European Union	RINEA Programme	11	11	-	-	-
United States of Agency for International Development	To determine the possibility of the establishment of a virtual network to include rural areas in SA and Tanzania	-	-	1,355	1,355	-
European Union/Argentina	To enhance science, technology and innovation cooperation between Africa and the European Union	91	91	-	-	-
Subtotal		1,425	1,425	25,791	25,459	332
Received in kind						
Subtotal		-	-	-	-	-
TOTAL		1,425	1,425	25,791	25,459	332



## ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2018

### ANNEXURE 1J

#### STATEMENT OF GIFTS, DONATIONS AND SPONSORSHIPS MADE AND REMISSIONS, REFUNDS AND PAYMENTS MADE AS AN ACT OF GRACE

Nature of gift, donation or sponsorship	2017/18	2016/17
	R'000	R'000
<b>Paid in cash</b>		
Women in Science Awards	680	600
<b>SUBTOTAL</b>	<b>680</b>	<b>600</b>
<b>TOTAL</b>	<b>680</b>	<b>600</b>

# ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### ANNEXURE 2B

#### STATEMENT OF INVESTMENTS IN AND AMOUNTS OWING BY/TO ENTITIES AS AT 31 March 2018

Name of entity	Nature of business	Cost of investment R'000		Net asset value of investment R'000		Amount owing to entities R'000		Amount owing by entities R'000	
		2017/18	2016/17	2017/18	2016/17	2017/18	2016/17	2017/18	2016/17
Controlled entities									
		-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-
Non-controlled entities									
<b>Biological Vaccine Institute (Biovac)</b>	Pharmaceutical Industry (35% shareholding)	-	-	86,240	86,123	-	-	-	-
<b>Total</b>		-	-	86,240	86,123	-	-	-	-

The Department of Science and Technology acquired Biovac shares from the Department of Health. The shares were transfer to the DST without any financial implications for the Department. The amount of R 86,240 million is the value of shares calculated at 35% of the retained earnings of Biovac as at 31 December 2017.

# ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### ANNEXURE 3B

#### STATEMENT OF CONTINGENT LIABILITIES AS AT 31 March 2018

Nature of liability	Opening balance 1 April 2017	Liabilities incurred during the year	Liabilities paid/ cancelled/reduced during the year	Liabilities recoverable)	Closing balance 31 March 2018
	R'000	R'000	R'000	R'000	R'000
The civil claim against the Department in respect of injuries allegedly sustained when the claimant fell in the in an open hole in the National Zoological Gardens Review application of the arbitrator's decision	401	-	-	-	401
	-	429	-	-	429
<b>Total</b>	<b>401</b>	<b>429</b>	<b>-</b>	<b>-</b>	<b>830</b>

# ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### ANNEXURE 4

#### CLAIMS RECOVERABLE

Government entity	Confirmed balance outstanding		Unconfirmed balance outstanding		Total	
	31/03/18	31/03/17	31/03/18	31/03/17	31/03/18	31/03/17
	R'000	R'000	R'000	R'000	R'000	R'000
<b>Department</b>						
Gauteng Department of Education	32	32	-	-	32	32
Department of Water and Sanitation	-	22	-	-	-	22
Department of Cooperative Governance and Traditional Affairs	7	7	-	-	7	7
Department of Rural Development and Land Reform	-	9	-	-	-	9
ACB Parliament	-	(2)	-	-	-	(2)
Department of Higher Education and Training	191	-	-	-	191	-
<b>Subtotal</b>	<b>230</b>	<b>68</b>	<b>-</b>	<b>-</b>	<b>230</b>	<b>68</b>
<b>Other government entities</b>						
	-	-	-	-	-	-
<b>Subtotal</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Total</b>	<b>230</b>	<b>68</b>	<b>-</b>	<b>-</b>	<b>230</b>	<b>68</b>

# ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS

## FOR THE YEAR ENDED 31 MARCH 2018

### ANNEXURE 5

#### INTERGOVERNMENTAL PAYABLES

Government entity	Confirmed balance		Unconfirmed balance		TOTAL	
	31/03/17	31/03/17	31/03/17	31/03/16	31/03/17	31/03/17
	R'000	R'000	R'000	R'000	R'000	R'000
<b>Department</b>						
Current						
Department of International Relations and Cooperation	859	2,605	-	-	859	2,605
Department of Justice and Constitutional Development	-	799	-	-	-	799
Provincial Department of Eastern Cape:						
Safety and Liaison	4	-	-	-	4	-
Department of Water and Sanitation	7	-	-	-	7	-
<b>Subtotal</b>	<b>870</b>	<b>3,404</b>	<b>-</b>	<b>-</b>	<b>870</b>	<b>3,404</b>
<b>Other government entities</b>						
Current						
Government Technical Advisory Centre	360	-	-	-	360	-
<b>Subtotal</b>	<b>360</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>360</b>	<b>-</b>
<b>Total</b>	<b>1,230</b>	<b>3,404</b>	<b>-</b>	<b>-</b>	<b>1,230</b>	<b>3,404</b>

## ANNEXURE 6

### INVENTORY

Inventory	Note	Quantity	2016/17 R'000	Quantity	2016/17 R'000
Opening balance		-	-	-	-
Add/(Less): Adjustments to prior year balance		-	-	-	-
Add: Additions/Purchases - Cash		-	-	-	-
Add: Additions - Non-cash		-	-	-	-
(Less): Disposals		-	-	-	-
(Less): Issues		-	-	-	-
Add/(Less): Adjustments		-	-	-	-
<b>Closing balance</b>		-	-	-	-

The inventory was transferred to consumables in terms of the requirements of the modified cash standards and the accounting manual for departments. In terms of the Modified Cash Standards, the disclosure for inventory is not applicable in 2017/18 financial year.

## ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2018

### ANNEXURE 8A

#### INTER-ENTITY ADVANCES PAID (note 17)

	Confirmed balance		Unconfirmed balance		TOTAL	
	31/03/18	31/03/17	31/03/18	31/03/17	31/03/18	31/03/17
	R'000	R'000	R'000	R'000	R'000	R'000
<b>Government entity</b>						
<b>DEPARTMENTS</b>						
<b>Current</b>						
Department of International Relations and Cooperation	336	281	-	-	336	281
Government Communication and Information System	66	262	-	-	66	262
<b>Total</b>	<b>402</b>	<b>543</b>	<b>-</b>	<b>-</b>	<b>402</b>	<b>543</b>

### APPROVAL

The Annual Financial Statements set out from pages 146 to 282 for the financial year ended 31 March 2018 have been approved.



**Dr Phil Mjwara**

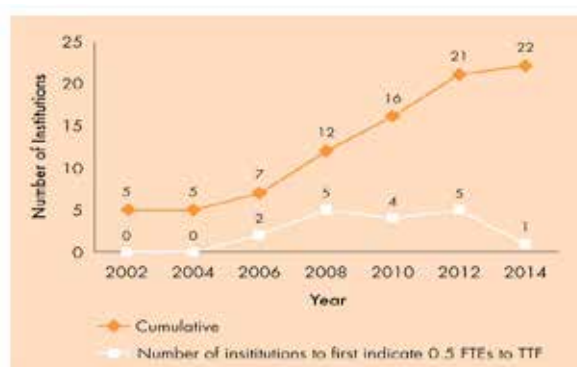
Director-General

## CASE STUDIES

### Offices of technology transfer – at the coalface of getting publicly financed research to have benefit society

The National Intellectual Property Management Office (NIPMO) provides financial and non-financial support to implement the Intellectual Property Rights from Publicly Financed Research and Development Act, 2008 (IPR Act), through instruments such as the Intellectual Property Fund and the Offices of Technology Transfer (OTT) Support Fund. The financial support provided to OTTs for human capacity and developmental needs amounted to over R150 million up to the end of 2017/18.

The IPR Act, 2008, came into force in 2010 with the mandate to ensure that “intellectual property from publicly financed research and development is identified, protected, utilised and commercialised for the benefit of the people of the Republic of South Africa”. To give effect to this mandate, the legislation established the National Intellectual Property Management Office (NIPMO) and offices of technology transfer (OTTs). Although some of the OTTs existed before the IPR Act came into effect, it was the promulgation of the legislation that saw the number of OTTs increase from seven in 2006 to 22 in 2014<sup>1</sup>.

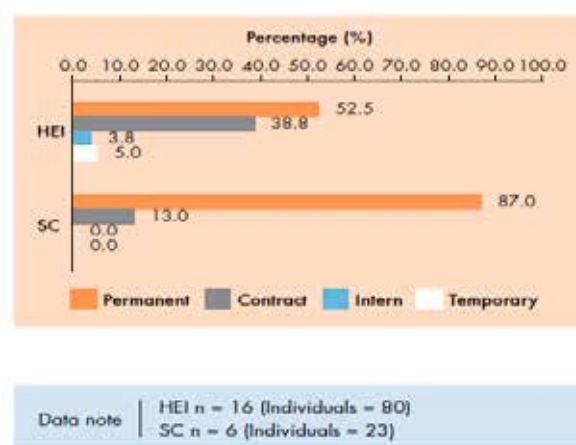


Data note | n = 22

**Number of institutions to report 0,5 full-time equivalent staff to the OTT Support Fund**

<sup>1</sup> The data and figures are from the “Inaugural South African Intellectual Property and Technology Transfer Survey of Publicly Financed Research and Development: 2008-2014”.

Of the 37 South African institutions receiving public funding for research (higher education institutions or institutions listed in Schedule 1 to the IPR Act, which are largely science councils), 33 have an OTT, a regional structure or a designated individual responsible for performing technology transfer activities. Capacity at these institutions has been greatly enhanced through the NIPMO OTT Support Fund, which pays for the salaries of individuals at the OTTs, as well as the operational costs of the OTTs, and costs associated with portfolio review (such as techno-economic feasibility analyses). NIPMO support for OTTs in the higher education institution sector is 38,8% of the total employment at the OTTs as at 2014. In the last four years, NIPMO’s contribution to employment at the OTTs has increased further, especially at historically disadvantaged institutions and universities of technology.

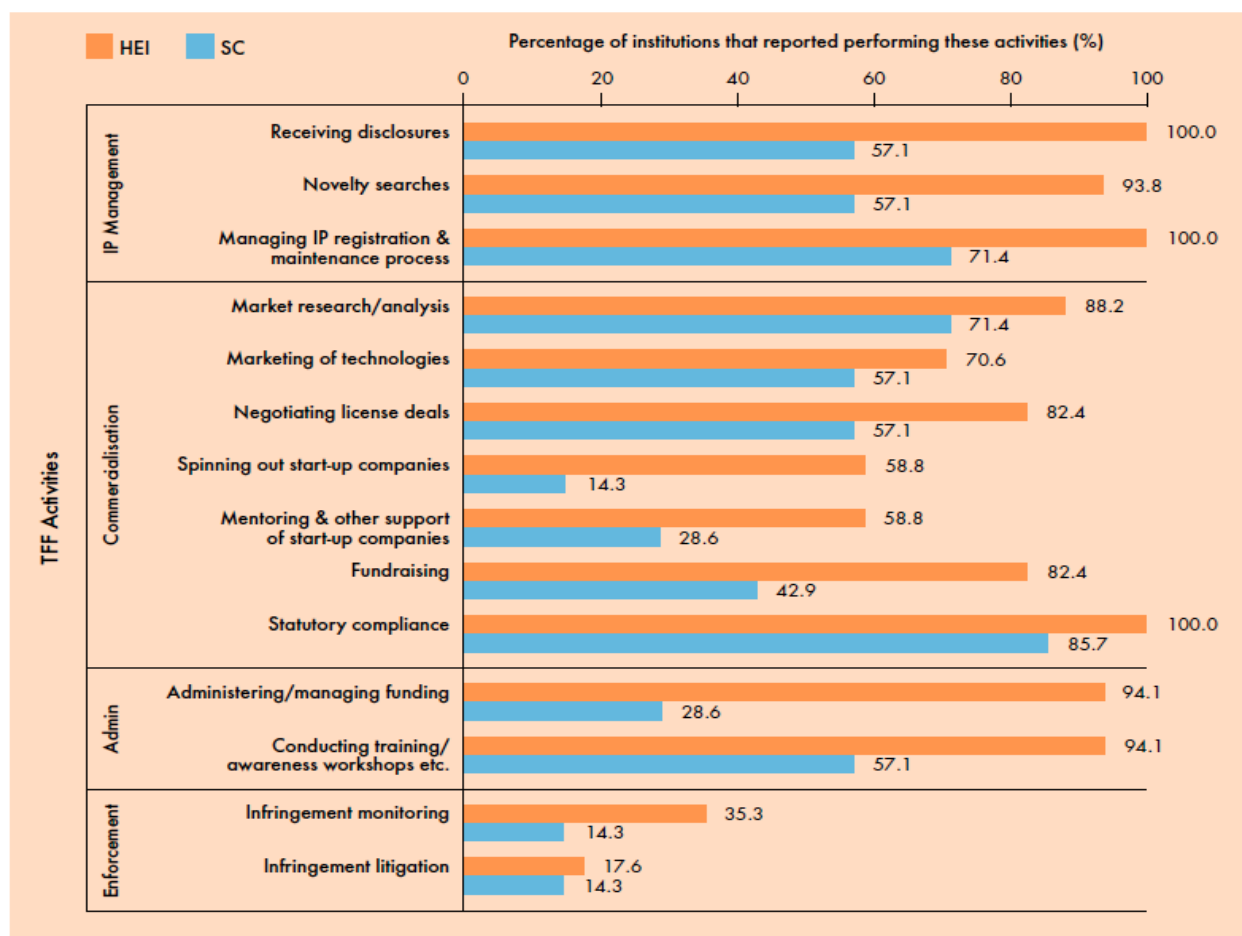


#### Percentage distribution of employment categories

Government support to keep the OTTs in operation remains critical, but appreciation of the value of the OTTs is gradually growing among senior managers at institutions, and investment in critical human resources with the required scarce skills is therefore increasing. OTTs are required to perform a plethora of functions, including intellectual property management, commercialisation (including marketing, negotiation and the conclusion of licensing contracts, the collection of royalties, benefit sharing, and establishing companies), training and awareness, and infringement monitoring.



## Case Studies (continued)



Data note | HEI n = 16 SC n = 7

### Technology transfer activities

The enforcement of IP rights is currently lagging behind somewhat, depending on the maturity of each institution's system and its intellectual property portfolio, but the other functions being carried out are bearing fruit.

The OTT functions are critical steps in transferring a technology at whatever readiness level from a publicly financed institution to the market or to be used for social benefit. The main reason for technology transfer is to ensure that taxpayers' money spent on research has a positive impact. Apart from commerce, IP can be used for the development of a new tuberculosis diagnostic,

green technologies to power clinics or schools, or water purifying technologies in rural areas, for example.

Intellectual property is at the heart of all the new technologies driving the development of new products, processes and services. The IP pipeline that is built through the work of the OTTs is growing, with the number of disclosures, new patent applications and patent families increasing at a rate that outstrips the increase in research expenditure. This increase is attributed to the work of the OTT professionals who drive this process within an institution.

## Case Studies (continued)



Data note | n = 21  
\*Plant Breeders' Rights (PBR) data was not included due to insufficient data.

### IP related activities managed per billion Rand of institutional research expenditure in constant 2010 prices

Not only the pipeline has increased. If licensing transactions are used as a measure, the number of commercial activities has increased too. OTT professionals have concluded a growing number of IP transactions over the period from 2008 to 2014, and the number of start-ups formed during the period has increased almost four-fold (although from a low baseline) (Figure 5).

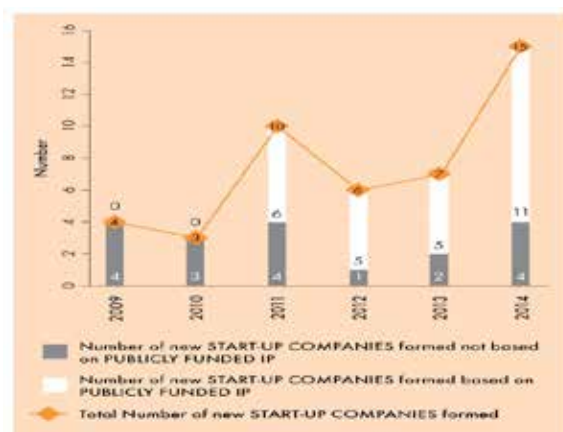


Figure 38: Number of start-ups formed to commercialise institutions' technologies\*

Data note | Data was not available from at least one major contributor, which means that this series is an underestimate.

### Number of start-ups formed to commercialise institutions' technologies and, of those technologies, the number based on publicly funded IP

Under the guidance of NIPMO, technology is being transferred from research and development institutions into new or existing companies, enhancing their competitive edge, leading to employment and contributing towards the country's GDP.

This is the beginning of the impact that NIPMO aims to achieve through the OTTs.

## Positioning South Africa to go green using platinum group metals

Hydrogen and fuel cell technologies (HFCT) have received considerable attention in South Africa from a mineral beneficiation perspective. Platinum group metals (PGMs) are the key catalytic materials used in most fuel cells and, with more than 75% of the world's known platinum reserves located in South Africa, benefiting the country's PGM resources has great potential for socio-economic benefits.

The Cabinet-approved National Hydrogen and Fuel Cell Technologies Research, Development and Innovation Strategy (HySA Strategy) is at the core of fuel cell technology development in South Africa. The strategy is intended to stimulate and guide innovation along the HFCT value chain, positioning the country to supply high-value-added products to both the domestic and international markets.

The three centres of competence established by the Department of Science and Technology (DST) to implement the HySA Strategy have made considerable progress in developing technology, human capital, and knowledge products such as publications and patents. The centres have also formed strategic partnerships with end users in the deployment of technology products. The partnerships provide a platform for technology testing and validation, in line with the second five-year phase (2014/15 to 2018/19) of the HySA programme. Technology demonstration is critical in the process of translating research and development outcomes from the laboratory into socially beneficial products and services, and creating early markets.

## Case Studies (continued)

Recently, several in the HySA portfolio have gained prominence at a global level. Renewable hydrogen production from water through electrolysis, metal hydride hydrogen storage material, and liquid organic hydrogen carriers are potential game changers in the area of hydrogen production, storage and distribution. This is a clear indication that the HySA programme is developing globally relevant technologies.

The use of renewable hydrogen and fuel cell technology to produce electricity has been demonstrated at Poelano Secondary School near Ventersdorp. The 2,5 kW HySA-developed fuel cell system, with renewable hydrogen production and storage on site, was launched by the Minister of Science and Technology towards the end of the financial year. It is estimated that more than 5 000 schools and clinics across the country have little or no access to reliable electricity. The 2,5 kW fuel cell system will be capable of powering classroom lights and some computers in rural schools. It should be noted that the modular nature of fuel cells makes it possible to combine similar units, with minimum changes to the balance of the plant, to make 5 kW, 7,5 kW or larger systems, as required. Given that many such facilities are located more than 20 km from the Eskom grid, and that installing the required transmission infrastructure in some of these areas would be extremely costly, distributed generation is the most feasible way to provide power to the communities.

Globally, wind and solar photovoltaic energy are being used to power megawatt electrolyzers to produce hydrogen as a viable way of decarbonising sectors using hydrogen as an input chemical. The Hydrogen Council, a global initiative of leading energy, transport and industry companies that see hydrogen as a key solution in transitioning to a low-carbon, sustainable economy, envisages that by 2050 hydrogen will be able to convert and store hundreds of terawatt hours of solar and wind power. This will enable the deployment of green energy that might otherwise be lost, and allow international distribution from regions where renewable resources are abundant to regions that need to import energy. Given its abundant renewable resources and the success of the Renewable Energy Independent Power Producer

Procurement Programme, South Africa could position itself to be a significant exporter of renewable hydrogen.

The 2015 Paris Agreement by the Conference of the Parties to the 1992 United Nations Framework Convention on Climate Change brought to the fore the role that HFCT could play in the decarbonisation of the energy and transport sectors in order to limit global warming. If the world's temperature is not to exceed the agreed maximum increase of two degrees, energy-related carbon dioxide emissions will have to be reduced drastically (by 60% in 2050). The Hydrogen Council, a global initiative of leading energy, transport and industry companies, estimates that by 2050, hydrogen could power 25% of passenger ships and 20% of locomotives on non-electrified tracks, in addition to powering about 400 million cars, 15 to 20 million trucks and 5 million buses.

For this to be achieved, there will need to be significant technological advances in hydrogen production, storage and distribution. Hydrogen storage poses challenges to researchers owing to the size of the molecule. Significant quantities of hydrogen gas can be put in a container at high pressures or cryogenic temperatures in liquid form, all of which are energy-intensive processes. Solid-state hydrogen storage using metal hydrides or hydrogen-absorbing materials has benefits in applications where weight is not an issue. A collaboration between the HySA Systems centre of competence at the University of the Western Cape and Impala Platinum has demonstrated that metal hydride hydrogen storage can enable a fuel-cell-powered forklift to operate at a pressure 150 bars lower than conventional systems. However, the need for reduced weight, and challenges related to using high-pressure hydrogen underground, has mining companies looking at alternative methods of transporting hydrogen.

HySA Infrastructure, at North-West University in Potchefstroom, is pursuing the use of liquid organic hydrogen carriers (LOHC) as a safe way of using hydrogen in underground mining equipment. Under appropriate conditions, the carriers absorb hydrogen, allow it to be transported in liquid form at room temperature, and release it at the point of use. Anglo American Platinum

## Case Studies (continued)

(Amplats) CEO Chris Griffith has indicated that a fuel cell dozer that runs on hydrogen using the LOHC technology is expected in 2019. Such technology has the potential to reduce the cost associated with extracting diesel fumes from underground. Furthermore, LOHC technology could play a leading role in the renewable hydrogen export market.

Significant progress has also been made in applications where hydrogen compression is still a requirement. Electrochemical hydrogen compression, with no moving parts, is more efficient and cleaner than conventional mechanical compression. HySA Infrastructure has been at the forefront of developing this technology, both for compression and hydrogen separation from mixtures with other gases. In April 2018, Amplats entered into a strategic partnership on electrochemical hydrogen compression and purification technology with Shell Technology Ventures BV and the Netherlands-based HyET Hydrogen. The partners believe that the technology can reduce costs and increase the reliability of the production and storage of high-pressure hydrogen, which could lead to the wider deployment of public hydrogen refuelling stations for automotive applications.

Through the HySA programme, know-how and capabilities in game-changing technologies have been acquired and developed so that South Africa can be a significant player in the HFCT sector. However, there is still plenty of scope for further innovation to develop better performing materials in the form of PGM-based catalysts for fuel cells, electrolyzers and LOHC technology, in line with the country's beneficiation strategy. This is the domain of HySA Catalysis, based at the University of Cape Town and Mintek in Randburg.

The shift towards a less carbon-intensive energy mix is not unique to South Africa, but is a global phenomenon that South Africa has to accept and innovate towards in order to remain globally competitive. The country is fortunate to have the resources (both renewable and mineral) that are the essential components of these low-carbon technologies, and government's foresight in establishing the HySA programme should be applauded.

### Use of the Umbiflow™ device to reduce stillbirths

The Department of Science and Technology contributes to ensuring a long and healthy life for all South Africans through a number of research and technology initiatives. The Umbiflow™ is one of these.

Through the Strategic Health Innovation Partnerships, the Department is supporting a project focusing on implementing the Umbiflow™ device as a routine screening tool for antenatal care. The Umbiflow™ is a sophisticated portable device that allows health care practitioners to assess placental function, and specifically its ability to supply sufficient oxygen and nutrition to the growing foetus. Umbiflow™ was designed and developed by the South African Medical Research Council and the CSIR for use by nursing staff and midwives at primary health care facilities and antenatal clinics in remote and low-resource settings. While it was initially aimed at reducing unnecessary referrals for pregnant women with foetuses that were small for gestational age, it has since been shown to be an effective tool for screening low-risk pregnancies and identifying those with at-risk foetuses requiring intervention.



#### *Umbiflow™ device*

In a study of conducted in the Mamelodi District in an unselected group of more than 2 000 low-risk pregnant women, the prevalence of a raised resistance index (abnormal Umbiflow™ reading) was 12,8% and of AEDF (which measures the velocity of blood flow in the umbilical artery) was 1,2%. This is approximately 10 times that recorded in low-risk pregnant women in high income countries. The Umbiflow™ test group had a significantly reduced perinatal mortality rate (11,4/1 000 in the Umbiflow™ group versus 20,0/1 000 in the

## Case Studies (continued)

control group) and stillbirth rate (4,3/1000 births in the Umbiflow™ group versus 10,2/1000 births in the control group). This study suggests that implementation of widespread Umbiflow™ screening in South Africa with a coverage of 95% could potentially reduce the stillbirth rate by up to 25% (from 16/1 000 to approximately 12/1 000 births) and decrease the perinatal mortality rate by up to 18% (from 22/1 000 to 18/1 000). The study has been extended to nine districts across South Africa and the project has also secured funding from the World Health Organisation (WHO) for an expanded study in Ghana, India, Kenya and Rwanda.

An economic analysis from the Mamelodi study suggests that Umbiflow™ screening during routine antenatal care is cost-effective when compared with similar neonatal life-saving interventions (the WHO distinguishes between non-cost-effective, cost-effective and highly cost-effective interventions). The SAMRC and CSIR have identified a commercial partner for the device and are negotiating a license agreement for the commercialisation of the device in South Africa and other countries.

### Open science will pave the way for more research and scientific discoveries

Major global trends such as the rise of digital networks, infrastructure and technology, are driving the uptake of open science and open data. Open science promotes the digital sharing of research results with as little restriction as possible to facilitate collaboration at all levels. This has social, economic and environmental benefits, enabling better decision-making and accountability, as well as innovation and knowledge.

In South Africa, the practice of open science and open data has tremendous potential for creating a more inclusive society. An important aspect of open science is that it enables “citizen science”, which sees the public taking a more active role in science, with unprecedented connections between researchers and the public transforming the way research is executed.

The Department of Science and Technology is currently developing a national open science framework

articulating a set of guidelines and principles for open science and open data in the South African context. It is expected that the framework will include action points for key stakeholders such as relevant government departments, universities, science councils, civil society and industry.

Mainstreaming science that is open to all and that is integrated across disciplines will enable the DST's stakeholders and society to take advantage of the benefits of collaborative, transdisciplinary approaches to knowledge development and sharing.

South Africa, represented by the DST, and the European Commission, has embarked on a joint open science dialogue initiative, which is using the know-how of South African and European experts to direct the institutionalisation of open science in South Africa.

As part of the process, a consultative workshop was held in November and December 2017, and a second will be held this month. The workshops are an opportunity for open science experts and stakeholders to engage on open science concepts, sharing knowledge, insight, and experience. Participation in the workshops makes it possible for stakeholders to co-produce and jointly endorse a concise set of principles founded on the understanding that all research should be easy to find, accessible, interoperable and reusable. The principles are intended to guide those wishing to embark on the open science journey.

Global experience has demonstrated convincingly that access to data leads to breakthroughs in scientific understanding, leading to economic benefits and the public good. Through a more open way of doing research, putting its entire research library in the public domain, research institutes such as NASA (the US National Aeronautics and Space Administration) have been able to achieve advances that they would otherwise not have been able to.

Closer to home, the Kruger National Park's experiment with open data has produced a sharp rise in the publication of new knowledge. Scientific data has been collected in the park since 1904, but was available

## Case Studies (continued)

to only a few people, with research done mostly in-house. Greater openness was gradually introduced from 1990, and with fully open data from 2000, the rate of publications has doubled.

The DST's open science work has resulted in growing appreciation by South African scientists of the potential of open science for scholarly research, insofar as it is collaborative, transparent and reproducible. Through open science, researchers can enhance the quality of curiosity-driven research, maximise the value and potential impact of their work to create new avenues of knowledge, and drive scientific progress and innovation in South Africa and beyond.

One of the challenges to open science is the scepticism of researchers, who have misconceptions about open science. It is important to communicate that open science is not "free" science, and that open data policies have to take into account issues such as privacy, data protection and the protection of personal information. Procedures and protocols for different types of data are needed, although some researchers may use the sensitivity of their data as an excuse not to share it.

The DST's open science project is changing such thinking, clarifying the value of science as a public enterprise.

The national open science framework will guide South

African scientists and other stakeholders to pursue the vision of science for the future in a big data world, helping them to understand the governance and regulation of open data, open science and open innovation (including in respect of intellectual property rights); metrics and incentives; infrastructure; and funding.

Researchers will realise the value of open science in enabling data-intensive research at the cutting edge of contemporary science; collaborating on an equal footing with colleagues from other parts of the world to solve major regional and global challenges.

Collaboration between scientists and members of the public can facilitate, for example, the collecting of local data, and give community members access to scientific information that can answer real-world questions. The diversity of people engaged in knowledge production, and the opportunities to enhance the socio-economic benefits of research, will transform the way in which research is conducted and used.

The DST is of the view that open science can help South Africa position itself for complex science undertakings, using transdisciplinarity and big data to address local needs.









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