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PART A
GENERAL
INFORMATION

## **PART A: GENERAL INFORMATION**

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## 2. List of abbreviations

ABIPP	Agricultural Bioeconomy Innovation Partnership Programme
AGSA	Auditor-General South Africa
AIS	automatic identification system
AMI	Advanced Materials Initiative
ARC	Agricultural Research Council
ASSAf	Academy of Science of South Africa
AU	African Union
BRICS	
CAPRISA	Brazil, Russia, India, China and South Africa  Centre for the AIDS Programme of Research in South Africa
CPGR	Centre for Proteomic and Genomic Research
CPUT	Cape Peninsula University of Technology  Council for Scientific and Industrial Research
DDM	District Development Model
DHET	Department of Higher Education and Training
DIRCO	Department of International Relations and Cooperation
DPME	Department of Planning, Monitoring and Evaluation
DPSA	Department of Public Service and Administration
DPWI	Department of Public Works and Infrastructure
DSI	Department of Science and Innovation
DTIC	Department of Trade, Industry and Competition
DWYPD	Department of Women, Youth and People with Disabilities
ERM	Enterprise Risk Management
EU	European Union
Ехсо	DSI Executive Committee
FDA	United States Food and Drug Administration
HCD	human capital development
НСТ	HIV counselling and testing
HDI	historically disadvantaged individual institution
HESTIIL	Higher Education, Science, Technology and Innovation Institutional Landscape
HOA	home owner's allowance
HSRC	Human Sciences Research Council
HySA	Hydrogen South Africa
ICT	information and communication technology
IIP	Industry Innovation Partnership Programme
IK	indigenous knowledge
IK Act	Protection, Promotion, Development and Management of Indigenous Knowledge Act
IKS	indigenous knowledge systems
IP	intellectual property
IPR Act	Intellectual Property Rights from Publicly Financed Research and Development Act
KRISP	KwaZulu-Natal Research, Innovation and Sequencing Platform
LAC	Labour Appeal Court
LED	local economic development
LIAT	Local Innovation Enhancement Toolbox
	Local innovation Enhancement Toolbox

## 2. LIST OF ABBREVIATIONS (CONTINUED)

MCS	Modified Cash Standards
MTEF	Medium-Term Expenditure Framework
MTSF	Medium-Term Strategic Framework
NACI	National Advisory Council on Innovation
NDP	National Development Plan
NEPAD	New Partnership for Africa's Development
NGS-SA	Network for Genomic Surveillance in South Africa
NICIS	National Integrated Cyberinfrastructure System
NIPMO	National Intellectual Property Management Office
NRF	National Research Foundation
NSI	national system of innovation
OHS	occupational health and safety
OTT	office of technology transfer
PFMA	Public Finance Management Act
PPP	public-private partnerships
PYEI	Presidential Youth Employment Initiative
R&D	research and development
RDI	research, development and innovation
RISDP	Regional Indicative Strategic Development Plan
RISP	Regional Innovation Support Programme
S&T	science and technology
SACNASP	South African Council for Natural Scientific Professions
SADC	Southern African Development Community
SAEON	South African Environmental Observation Network
SAHPRA	South African Health Products Regulatory Authority
SALGA	South African Local Government Association
SAMRC	South African Medical Research Council
SANReN	South African National Research Network
SAPRIN	South African Population Research Infrastructure Network
SARAO	South African Radio Astronomy Observatory
SCM	Supply Chain Management
SETA	sector education and training authority
SETI	science, engineering, technology and innovation
SIFs	Sector Innovation Funds
SITA	State Information Technology Agency
SKA	Square Kilometre Array
SMME	small, medium and/or micro-enterprise
SMS	Senior Management Service
SPRP	Space Propulsion Research Programme
STI	science, technology and innovation
TADF	Technology Acquisition and Deployment Fund
TIA	Technology Innovation Agency
TVET	technical and vocational education and training
UFS	University of the Free State
UHF	ultra-high frequency
UoT	university of technology
VVISDP	Viability and Validation of Innovations for Service Delivery Programme

#### **FOREWORD BY THE MINISTER**



Dr BE Nzimande, MP Minister of Higher Education, Science and Innovation

The year under review was overshadowed by the COVID-19 pandemic, which profoundly disrupted livelihoods, public health and economies worldwide. South Africa was compelled to take measures to respond expeditiously to the health crisis and the economic fallout that accompanied it.

The importance of science, technology and innovation (STI) and the role of the Department of Science and Innovation (DSI) was also curtailed by the COVID-19 pandemic. The Department amended its plans and rolled out initiatives to mitigate the impact of this pandemic and coordinated responses to the pandemic across the national system of innovation (NSI).

It is pleasing to note that in the midst of this pandemic, Cabinet approved our draft Decadal Plan for Science, Technology and Innovation (STI).

The Decadal Plan is premised on advancing a wholeof-government approach and ultimately a whole-ofsociety approach to innovation in South Africa. We currently are hard at work to finalise this plan.

The DSI leveraged the research and development infrastructure and skills of its entities, including the Council for Scientific and Industrial Research (CSIR), the National Research Foundation (NRF), the Technology Innovation Agency, the South African National Space Agency and the Human Sciences Research Council.

Substantial financial resources from the 2020/21 budget were reallocated to fund COVID-19 projects, including epidemiological studies and genomic surveillance that placed South African scientists on the international map, working with other countries to find solutions to the pandemic.

KwaZulu-Natal Research Innovation Sequencing Platform (KRISP) identified the coronavirus beta variant (501Y.V2 or B.1.351).

The KRISP team's genome sequencing demonstrated South Africa's leadership in this area on a world stage, and contributed to the understanding of emerging variants and their effect on the efficacy of COVID-19 vaccines.

This work informed government decision-making on which vaccines to procure, with genomic surveillance becoming a critical component of a targeted response to the epidemic throughout the country. KRISP's research has been used to inform the planning and responses of other countries too.

With a global shortage of ventilators to treat hospitalised COVID-19 patients, the DSI and the Department of Trade, Industry and Competition (DTIC) mandated the South African Radio Astronomy Observatory to use its existing capabilities to produce non-invasive ventilators for the National Ventilator Project.

#### 3. FOREWORD BY THE MINISTER (CONTINUED)

By November 2020, 20 000 ventilators had been produced and distributed to hospitals, contributing not only to the healthcare system, but also, by building manufacturing capacity, for the Economic Reconstruction and Recovery Plan.

Beyond COVID-19, the DSI plans to continue to align with the broader government agenda, based on the National Development Plan, which recognises the value of STI in South Africa's development.

Our Department's leadership of the national system of innovation is underpinned by the 2019 White Paper on STI and the STI Decadal Plan through which the White Paper is implemented. Guided by the new policy document, the DSI and its entities have begun adapting approaches and have established crosscutting innovation instruments and solutionoriented capabilities to enhance service delivery.

Notably, the DSI is in the process of establishing a "hydrogen valley" in South Africa, which will serve as a region or industrial cluster where several hydrogen applications are combined to form an integrated hydrogen ecosystem, facilitated by the South African National Energy Development Institute. Hydrogen valleys have been used successfully in other countries to promote hydrogen and fuel cell technologies in support of reduced greenhouse gas emissions.

The envisaged hydrogen valley will cover the Johannesburg-to-Durban corridor (OR Tambo International Airport to King Shaka International Airport). The work will be completed in partnership with other government departments, including the Department of Transport, the DTIC, and the Department of Mineral Resources and Energy.

The development of human capabilities and skills is a major driver of socio-economic change, particularly in previously marginalised communities. This includes the targeted human capital development initiatives introduced by the DSI which involves providing funds for STI-related education, skills development and work experience.

In the period under review, the DSI has contributed to government's socio-economic and transformation objectives by supporting 11 571 postgraduate students through various human capacity development initiatives.

In South Africa, unemployment is highest among young people aged 15 to 24 years. The DSI and its partners aim to address this situation using internship programmes in various sectors. During the 2020/21 financial year, this department supported a total of 1 085 graduates and interns in various programmes related to STI.

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.

In the year under review, the DSI awarded 3 000 research grants through programmes managed by the NRF, and NRF-funded researchers published over 8 150 research articles cited in the Web of Science citation database.

Over the reporting year, good progress was made in enhancing the modernisation and competitiveness of existing firms and sectors, including progress with the development of new drilling technology at the Mandela Mining Precinct.

Progress was also made in the development of new materials through the Advanced Materials Initiative, support to critical agricultural sub-sectors through the Sector Innovation Funds, and support to small and medium enterprises through the Technology Stations Programme and the Technology Localisation Programme.

The DSI, the CSIR and provincial human settlements departments are currently partnering on a project to monitor informal settlements using drones. This will assist with spatial planning, as well as supporting business opportunities for co-operatives, youth entrepreneurs and SMMEs.

## 3. FOREWORD BY THE MINISTER (CONTINUED)

Under the DSI-funded Biorefinery Research, Development and Innovation Consortium, which comprises the CSIR, the University of the Witwatersrand and Tshwane University of Technology, an additive manufacturing (3D printing) bionanocomposite filament technology from renewable biomass was developed to a technology readiness level 6. This offers an opportunity for product diversification in mature industries such as forestry and sugarcane.

During the 2020/21 reporting period, the National Intellectual Property Management Office (NIPMO) continued to play an enabling role in the use of knowledge for economic and social development through the Office of Technology Transfer (OTT) Support Fund.

NIPMO supported six new OTTs from three different provinces and 19 new and existing technology transfer jobs/positions through this fund. In particular, funding was provided to the Sefako Makgatho Health Sciences University, which, in the context of the ongoing pandemic, will use this funding to establish an OTT to ensure that publicly financed health research outputs are identified and find application in society.

Globally, the DSI continued to participate in a diverse portfolio of international partnerships, which provided a range of opportunities in global research programmes, such as with the European Union, Japan and the BRICS countries (Brazil, Russia, India, China and South Africa).

International bilateral and multilateral cooperation saw South Africa benefiting from 426 international human capital development opportunities, including for postgraduate qualifications and technical exchanges in support of the policy intents of the White Paper on STI.

The DSI supported 18 projects related to the African Union's Agenda 2063, such as the African Science Consultation Forum, advancing entrepreneurial universities in Africa and strengthening Africa's medicine manufacturing capacity.

Despite the COVID-19 implications and economic constraints, which affected operations and the compensation budget, the DSI operational efficiency remained a priority. Once more, it received a clean audit from the Auditor-General for both financial and non-financial operations for the year under review.

The DSI also continued with the implementation of the approved Employment Equity Plan, and achieved female representation of 49,48% at SMS level, and representation of people with disabilities at 3,4% of the total staff complement.

Business processes were adjusted to accommodate COVID-19 protocols and employees were informed of the protocols to ensure that they complied with the measures introduced at the workplace.

The Portfolio Committee on Higher Education, Science and Technology (PCHEST), led by Mr Mohlopi Philemon Mapulane, once again made a sterling contribution to our work. I thank Mr Mapulane for his leadership and welcome the new Chairperson, Ms Nompendulo Mkhatshwa who will be leading the PCHEST. I remain grateful to Deputy Minister Manamela, my Ministry Staff, Director-General Phil Mjwara, the DSI staff and the many NSI stakeholders who helped to make 2020/21 a successful year, despite the challenges of the pandemic.



Dr BE Nzimande, MP Minister of Higher Education, Science and Innovation

#### 3. AMAZWI ESANDULELA KANGQONGQOSHE

Unyaka esikuwo ugubezelwe ubhubhane lwe-COVID-19 oluphazamise indlela yokuphila, ezempilo kanye neminotho yamazwe jikelele. INingizimu Afrika yaphoqeleka ukuthatha izinyathelo eziphuthumayo nezinqala ukubhekana nenhlekelele yezempilo kanye nokuwa komnotho okuhambisana nobhubhane.

Ukubaluleka kwezesayensi, ubuchwepheshe nokusungula izinto ezintsha (STI) kanye neqhaza loMnyango Wezesayensi Nokusungula Izinto Ezintsha kwaphazanyiswe ubhubhane lwe- COVID-19. UMnyango kwadingeka ukuthi uhlele kabusha amasu awo ukwehlisa umthelela wobhubhane nokuqhamuka nezindlela ezintsha ezididiyele kuhlelo lukazwelonke lokusungula izinto ezintsha (NSI).

Nakulesi simo sobhubhane, kuyintokozo ukubika ukuthi iKhabhinethi iphasise uHlelo oluwuhlaka LoMnyango olwaziwa nge- Decadal Plan for Science, Technology and Innovation (STI).

Lolu Hlelo olwaziwa nge-The Decadal Plan lwakhelwe ekwenzeningcono ukusebenza kuka hulumeni okuzokwenza nokuthi umphakathi uhlome kancono ngamasu okusungula izinto ezintsha eNingizimu Afrika. Sifinqe imikhono kuyimanje ukuqedela lolu hlelo

UMnyango (DSI) kumanje welekelela ngezokucwaninga nokuthuthukiswa kwenqgalasizinda kanye namakhono ezikhungo zocwaningo ezifana nalezi, iCouncil for Scientific and Industrial Research (CSIR), iNational Research Foundation (NRF), iTechnology Innovation Agency, iSouth African National Space Agency kanye ne-Human Sciences Research Council.

Isamba esikhulu semali kwibhajethi yonyakamali wezi 2020/21 ihlelwe kabusha ukuze ixhase imiklamo yobhubhane lwe-COVID19, kubalwa izifundo ngokusabalala kwegciwane nokuqapha ukuthi lishintsha shintsha kanjani (kulibofuzo) lokhu osekubeke ososayensi base Ningizimu Afrika eqhulwini nakwibalazwe lomhlaba besebenzisana namanye amazwe ukuqhamuka nesisombululo salolu bhubhane.

UPhiko olwaziwa nge-KwaZulu-Natal Research Innovation and Sequencing Platform (KRISP) luhlonze uhlobo olusha lwegciwane olubizwa nge- (501Y.V2 or B.1.351).

Leli thimba le-(KRISP) liveze iNingizimu Afrika njengehamba phambili kulo mkhakha emhlabeni jikelele labuye laba negalelo ekuqondeni kancono izinhlobo zalolu bhubhane nomthelela obakhona ekusunguleni umgomo we- COVID-19.

Lo msebenzi usize uhulumeni ukuthi akwazi ukuhlela ukuthi yiluphi uhlobo lomgomo okufanele uhulumeni aluthenge, nalolu hlelo lokuqapha ukushintsha kwegciwane lubaluleke kakhulu ukubhekana nobhubhane ezweni lonke. Ucwaningo olwenziwe yi-KRISP lusetshenziswe ngamanye amazwe ukuhlela izindlela zokulwisana nalolu bhubhane.

Ukushoda kwemishini yokuphefumula kwabahaqwe ubhubhane ezibhedlela (COVID-19) emhlabeni jikelele, uMnyango (DSI) noMnyango Wezohwebo NeziMboni,kanye Nezokuncintisana (DTIC) usugunyaze uphiko- olwaziwa nge-South African Radio Astronomy Observatory ukuthi lusebenzise amandla nolwazi olunalo ukukhiqiza imishini yokuphefumula engafakwa emzimbeni ohlelweni lukazwelonke olubizwa nge-National Ventilator Project.

Kuthe kushaya uLwezi wezi- 2020, imishini yokuphefumula eyizi -20 000 bese ikhiqiziwe yafakwa ezibhedlela, lokhu kube nomthelela omuhle hhayi ezibhedlela kuphela kodwa nasohlelweni lokukhiqiza oluxhasa uHlelo Lokuvuselela uMnotho olubizwa nge-Economic Reconstruction and Recovery Plan.

UMNyango uhlele ukuthi sekwedlule lolu bhubhane (COVID-19) uqhubeke ulungise amasu awo ahambisane nohlelo oludididyele luka hulumeni olubizwa nge-National Development Plan, olubeke eqhulwini igalelo elingadlalwa umnyango (STI) ekuthuthukiseni iNingizimu Afrika.

Uhlelo lobuholi loMnyango lukazwelonke lokusungula izinto ezintsha, lwakhelwe oHlakeni Lwezinhloso zoMnyango lwe- 2019 olubizwa nge-White Paper on STI and the STI Decadal Plan oseluqalisa lolu

#### 3. AMAZWI ESANDULELA KANGQONGQOSHE

hlelo. UMnyango nezikhungo (DSI) ezingaphansi kwawo, ulawulwa inqubomgomo entsha usuqalile ukuhlelemba izinhlelo zawo nezindlela zokusebenza ukuze usungule izinto ezintsha ezigxile kwizisombululo nasekwenzeningcono ukulethwa kwezidingo.

umnyango Okunye okuqaphelekayo, (DSI) usohlelweni lokusungula okubizwa nge "hydrogen valley" eNingizimu Afrika,okuzosiza isifundazwe noma ezezimboni lapho kuzosetshenziswa khona uhlobo lwegesi i- (hydrogen) ididiyelwe kwimvelo isiKhungo esaziwa nge-South African National Energy Development Institute. Lezi zigodi noma amathafa abizwa nge-Hydrogen valleys asebenze ngempumelelo kwamanye amazwe ukukhuthaza ukusetshenziswa kwegesi noketshezi lwe-hydrogen ukwelekelela ukuhlisa ukufudumala nokuncola komhlaba ngenxa yamalahle.

Lama thafa noma izigodi ze-hydrogen ezihlelwayo zizosuka eJohannesburg kuya eDurban (OR Tambo International Airport kuya eKing Shaka International Airport). Lo msebenzi uzophothulwa ngokubambisana phakathi kweminyango ofaka owezokuThutha, DTIC, kanye noMnyango Wezamandla Nezimbiwa.

Ukuthuthukiswa kwamakhono abasebenzi kuzogugula inhlalomnotho vezwe nabantu ikakhulukazi leyo miphakathi yababencintshwe amathuba ngaphambilini. Kuhloswe ukuthuthukisa amakhona athile athulwe uMnyango ukufaka phakathi ukuhlinzeka ngezimali ezemfundo (STI), ukuthuthukiswa kwamakhono nolwazi oluthola usebenza.

UMnyango kuyimanje ube negalelo kwinhlalomnotho nakwizinjongo zokuguqula umphakathi ngokuthi uxhase izitshudeni eseziphothule iziqu zokuqala eziyi-11 571 emikhakheni eminingi yamakhono.

Izinga lokungasebenzi kubantu abaphakathi kweminyaka eyi- 15 kuya ema- 24 liphezulu kakhulu eNingizimu Afrika. UMnyango (DSI) nebambisene nabo bahlose ukubhekana nalesi simo ngokusebenzisa uhlelo lokuqeqeshwa usebenza emikhakheni eminingi ehlukene. Kulonyaka wezimali wezi-2020/21, uMnyango uxhase isibalo sabaneziqu abayi- 1 085 emikhakheni eminingi ehambisana nezobuchwepheshe, isayensi nokusungula izinto ezintsha (STI).

Izimali zoxhaso nezibonelelo zihlinzekwe ngezindlela eziningi ukuqinisekisa izinga lokwenza ucwaningo emayunivesithi amaningi,njengokusungula izinhlelo ezibizwa ngama-South African Research Chairs Initiative nama-Centres of Excellence Programme.

UMNyango kuyimanje (DSI) uxhase ngezibonelelo eziyizi- 3 000 zokwenza ucwaningo usebenzisa izinhlelo ezingaphansi nezilawulwa i- NRF, ne- NRF lapho abacwaningi sebeshicilele ngaphezulu kwezi- 8 150 ezinto abazicwaningile eziphinde zasetshenziswa kwisigcinalwazi abanye abacwaningi be- Web of Science.

Kulo nyaka esikuwo, imibiko emihle ibisangena ngenqubekela phambili ekwenzeni ncono izinto zokusebenza nokuncintisana okusezingeni elihle kwimikhakha nezinhlaka ezahlukene okubandakanya nendlela entsha yokumba ngobuchwepheshe esetshenziswa eMandela Mining Precinct.

Kube nenye futhi inqubekela phambili ebikiwe ekukhigizweni kwezinto ezintsha kusetshenziswa uhlelo olwaziwa nge-Advanced Materials Initiative, ukwelekelela imikhakha yezolimo kusetshenziswa isikhwama esibizwa nge-Sector Innovation Funds, kuxhaswa izinkampani ezincane nezinkulu ngaphansi kohlelo olubizwa nge-Technology Stations Programme kanye ne-Technology Localisation Programme.

UMnyango (DSI), ne-CSIR kanye neminyango yezifundazwe yokuhlaliswa kwabantu bayasebenzisana kumklamo wokuqapha izindawo zasemikhukhwini kusetshenziswa ama-robhothi andizayo (drones). Lokhu kuzosiza ekuhleleni izindawo zokwakha kuxhase amathuba okusungula amabhizinisi ukuze kusetshenziswane. intsha engosomabhizinisi nezinkampani ezincane (SMMEs).

Ngaphansi kohlelo oluxhaswe uMnyango olubizwa Biorefinery Research, Development and Innovation Consortium, oludidiyele nenkampani i-CSIR,

#### 3. AMAZWI ESANDULELA KANGQONGQOSHE

inyuvesi yase- Witwatersrand ne-Tshwane University of Technology, kusungulwe uhlelo lokuphrinta olwaziwa nge (3D printing) olwenziwe kuhlanganiswe izithako zezilwane nezitshalo kwathuthukiswa kwafika ezingeni lesi-6. Lokhu kuveza amathuba amasha ezinkampanini ezinkulu ezifana nezamahlathi nomoba.

Kulo nyaka wezimali wezi-2020/21 iHhovisi Elibhekele Amalungelo Obunikazi elibizwa nge -National Intellectual Property Management Office (NIPMO) lisaqhubeka nokusiza ekusetshenzisweni kolwazi ukufukula umnotho nezenhlalakahle kusetshenziswa isikhwama esibizwa nge- Office of Technology Transfer (OTT) Support Fund.

I-NIPMO ixhase ama-(OTTs) amasha ayisithupha kwizifundazwe ezintathu nezinye ezintsha eziyi-19 nebezikhona kusetshenziswa lesi sikhwama. Okugqamile ngalolu xhaso kwahlinzekwa ngemali inyuvesi i-Sefako Makgatho Health Sciences, njengoba lusaqhubeka lolu bhubhane, kuzosetshenziswa lolu xhaso ukusungula i(OTT) ukuqinisekisa ukuthi ucwaningo olwenziwe kusetshenziswa izimali zomphakathi kufanele imiphumela izosetshenziswa ukusiza umphakathi.

Ngokwamazwe ngamazwe, uMnyango (DSI) uyaqhubeka nokubamba iqhaza emikhakheni enhlobonhlobo lokhu okuveza amathuba amaningi okwenza ucwaningo ezingeni lomhlaba njengokusebenzisana ne- European Union, Japan ne-BRICS (Brazil, Russia, India, China ne-South Africa).

Ukusebenzisana nokubambisana namanye amazwe kuholeleukuthiiNingizimuAfrikaihlomulengamathuba okuthuthukisa amakhono angama -426 okufaka phakathi iziqu eziphezulu kanye nokushintshisana ngama khono ezobuchwepheshe ukufezekisa inqubomgomo namasu akumhlandlandlela womnyango (STI).

UMnyango (DSI) uxhase imiklamo eyi-18 ehambisana nombono Wobumbano Lwamazwe ase Afrika obizwa nge- African Union's Agenda 2063, njenge sigcawu esibizwa nge-African Science Consultation Forum,ukuthuthukisa amanyuvesi ase Afrika akhiqiza osomabhizinisi kanye nokuqinisa amathuba okuthi i-Afrika ikwazi ukukhiqiza imithi.

Nakuba ubhubhane lwe-COVID-19 lube nomthelela omubi lwakhubaza nomnotho, kwaphazamiseka isabelomali sokusebenza nokuholelwa emnyangweni kodwa ukusebenza ngendlela koMnyango kuseseqhulwini.UMnyango uqhubekile wathola umbiko omuhle ongenachashaza kuMncwaningi-Mabhuku-Jikelele kwezezimali nokungafaki izimali kulo nyaka esikuwo.

UMnyango ukwazile ukuqalisa uHlelo olwase luphasisiwe Lokulingana Emsebenzini (Employment Equity Plan), kwenyuswa isibalo sabesifazane ezikhundleni zokuphatha (SMS) saba ngama phesenti angama-49,48% kwathi amaphesenti ama-3,4% kwaba abasebenzi abakhubazekile. Izinhlelo zokusebenza zihlelwe kabusha ukuhambisana nemigomo ye-COVID-19 abasebenzi bazisiwe ngalemigomo ukuqinisekisa ukuthi bayazilandela lezi zindlela ezifakiwe emsebenzini.

IKomidi lase Phalamende elibhekele uMnyango Wemfundo Ephakeme, Sayensi Nezobuchwepheshe (PCHEST), liholwa uMnu. Mohlopi Philemon Mapulane,lenze umsebenzi oncomekayo emsebenzi wethu. Ngiyabonga ubuholi buka Mnu Mapulane, bese ngemukela uSihlalo omusha Nksz. Nompendulo Mkhatshwa osezohola i-PCHEST. Ngibonga njalo uSekela Ngqongqoshe Manamela, Abasebenzi Ehhovisini LikaNgqongqoshe, uMqondisi-Jikelele uPhil Mjwara, Abasebenzi boMnyango (DSI) nabo bonke abambe ighaza (NSI) abenze unyaka wezimali wezi-2020/21 ube impumelelo phezu kokuba khona kwezinselelo zobhubhane.



**Dkt BE Nzimande, Ilunga LePhalamende** UNgqongqoshe Wemfundo Ephakeme, Sayensi Nokusungula Izinto Ezintsha.

#### 3. KETAPELE KA TONA

Ngwaga wo re lego go wona o beilwe swiswing ke leuba la COVID-19, yeo e šašarakantšhitšego boiphedišo, maphelo a setšhaba le ekonomi lefaseng ka bophara. Afrika Borwa e ile ya gapeletšega go tšea magato a go potlakela go hlokomela leemaema leo le bego le le gona ka lehlakoreng la maphelo le phutlhamo ya ekonomi yeo e bego e sepetšana tsela le tšona.

Bohlokwa bja saentshe, theknolotši le boithomelo (STI) le tema yeo e kgathwago ke Kgoro ya Saentshe le Boithomelo di tshwentšwe ke leuba la COVID-19. Kgoro e fetotše maano a yona gomme ya diragatša matsapa a go fokotša bogale khuetšo ya leuba le, le go kopanya dikarabo ka moka mabapi le leuba go phatlalala le lenaneo la bosetshaba la boithomelo (NSI)

Go a thabiša go lemoga gore le ka gare ga hlakahlakano ya leuba le, Kabinete e amogetše lengwalokakanya la rena. Leano la Ngwagasome la Saentshe, theknolotši le boithomelo (STI).

Leano la Ngwagasome le theilwe godimo ga phethagatšo yeo e feleletšego ya mmušo leo mafelelong le tlago aparetša setšhaba ka moka morerong wa boithomelo ka Afrika Borwa. Ga bjale re tsene fese ka go feleletša leano le.

DSI e tiišeditše dinyakišišo le tlhabollo ya infrastraktšhara le bokgoni makaleng a yona go akaretšwa Lekgotla la Saentshe le dinyakišošo tša Diintaseteri (CSIR), Setheo sa Bosetšhaba sa Dinyakišišo (NFR), Etšentshi ya Theknolotši ya Boithomelo, Eetšenshi ya Afrika Borwa ya Bosetšhaba ya tša Lefaufau, le Lekgotla la Dinyakišišo tša Disaentshe tša Botho.

Methopo ye mentši ya ditšhelete go tloga ka ditekanyentšo tša 2021, e be abetšwe gape sekhwama sa diprojeke tša COVID-19, go akaretšwa dithuto tša thibelo ya go phatlalala ga malwetši le tekolo ya ona yeo e beilego borasaentshe ba Afrika Borwa maemong a a godimo mmapeng wa boditšhabatšhaba, ka go šoma le dinaga tše dingwe go hwetša tharollo ya leuba le.

Platofomo ya Tatelanyo ya KwaZulu Natala ya Dinyakišišo tša Boithomelo (KRISP) e tsupollotše

mohuta wa twatši ya Corona wa beta (150.V2 goba B.1.351).

Sehlopha sa KRISP sa tatelanyo ya dinyakišišo tša madi genome se laeditše boetapele bja Afrika Borwa lefelong le sefaleng sa lefase, le go tsenya letsogo kwešišong ya mehutahuta yeo e ropotšago le khuetšo ya yona dipoelong tša go retega tša dinyakišišo tša meento ya COVID-19.

Mošomo wo o dirile gore mmušo o dire kgetho ya gore ke meento efe yeo o swanetšego go e reka, ka ditekolo tša madi tšeo e bilego karolo ye kgolo ya phetolo yeo šedi e bego e beilwe godimo ga yona nageng ka bophara. Dinyakišišo tša KRISP di šomišitšwe le ke dinaga tše dingwe go rulaganya diphetolo.

Ka tlhokego ye kgolo ya difehlamoya lefaseng go thuša go alafa balwetši ba COVID-19 bao ba lego ka dipetlela, DSI le Kgoro ya Kgwebo le Diintaseteri le Phadišano, (DTIC) e laetše South African Radio Astronomy Observatory go šomiša bokgoni bja go tšweletša difehlamoya tšeo di sa phatlalatšego gabonolo tša projeke ya Bosetšhaba ya Difehlamoya.

Ka Nofemere 2020, go be go tšweleditšwe difehlamoya tše 20 000 le go phatlalatšwa le dipetlela, go sa direlwe fela lenaneo la tlhokomelo ya maphelo, eupša le ka go aga bogolo bja tšweletšo, Leanong la Tsošološo ya Ekonomi le Tlhamoleswa.

Morago ga bolwetši bja COVID-19, Kgoro e loga leano la go tšwela pele go nyalanya le lenaneo leo le phatlaletšego la mmušo, go beilwe šedi godimo ga Leano la Tlhabollo la Bosetšhaba, leo le lemogago bohlokwa bja STI tlabollong ya Afrika Borwa.

Boetapele bja Kgoro ya rena bja lenaneo la Bosetšhaba la boithomelo bo thekgilwe ke Kuranta ya mmušo ya 2019 mabapi le STI le Leano la STI la ngwagasome leo Kuranta ya mmušo e phethagatšwago ka lona. Ka tlhahlo ya sengwalwa se seswa. DSI le makala a yona go thomilwe ka ditsela tša go momaganya le go hlama boithomelo bja didirišwa tša mahlakore ka moka le tharollo ya bokgoni bja go lebana le ditharollo go kgonagatša kabo ya ditirelo.

#### 3. KETAPELE KA TONA

Go bonala DSI e tsene fase ka go hlama moedi wa haedrotšene ka Afrika Borwa, yeo e tlago šoma bjalo ka selete goba sekgao sa diintaseteri moo ditiragatšo tše mmalwa tša haedrotšene tšeo di hlakantšhitšwego go hlama lenaneo leo le tswakilwego la haedrotšene, leo le kgonagatšwago ke Institšhute ya Afrika Borwa ya Tlhabollo ya Enetši ya Bosetšhaba Meedi ya haedrotšene e šomišitšwe ka katlego dinageng tše dingwe go tšwetša pele haedrotšene le ditheknolotši tša makhura go thekga lesolo la phokotšo ya tšhilafatšo ya moya ka digase.

Moedi wa haedrotšene woo o ukangwago o tla aparetša mosele wa magareng a Johannesburg le Durban (Boemafofane bja Boditšahatšhaba bja OR Tambo go ya go Boemafofane bja boditšhabatšhaba bja King Shaka). Mošomo o tla phethagatšwa ka tirišano le dikgoro tše dingwe tša mmušo, go akaretšwa Kgoro ya Dinamelwa, le DTIC, le Kgoro ya Methopo ya Dimenerale le Enetši.

Tlhabollo ya bokgoni bja batho le tsebo, ke kgato ye kgolo ya phetogo ya leago le ekonomi, kudu ditšhabeng tšeo di dikilego di phaetšwe ka thoko. Tšona di akaretša matsapa a tlhabollo ya letseno ao a tsebišitšwego ke Kgoro go akaretšwa go tšweletšwa ga ditšhelete tša thuto bokgoni bja go sepelelana le STI, tlhabollo ya bokgoni le boitemogelo mošomong.

Gona nakong yeo re lego go yona, Kgoro e bile le kabelo ye kgolwane dinepong tša mmušo tša ekonimi ya leago le tlhamoleswa ka go thuša baithuti ba 11 571 bao ba šetšego ba na le digrata ka matsapa a tlhabollo ya matlafatšo ya motho.

Ka mono Afrika Borwa tlhokego ya mešomo e atile kudu gare ga baswa ba mengwaga ya magareng a 15 go iša go 24. DSI le badirišani ba yona ba ikemišeditše go lebelelana le bothata bjo ka go diriša mananeo a barutwana ba go hlahlwa mošomong makaleng a go fapafapana. Ka ngwaga wa ditšhelete wa 2020/21, Kgoro e thušitše baithuti bao ban ago le mangwalo a digrata ba 1 085 le barutwana ba go hlahlwa mošomong ba Makaleng a go fapafapana ao a amanego le STI.

Dikerante di filwe ka didirišwa tše mmalwa tšeo di diretšwego go matlafatša bokgoni bja dinyakišišo diyunibesithing, go akaretšwa le Matsapa a baduladitulo ba Afrika Borwa ba Dinyakišišo le Mafelo a Lenaneo la bokgoni.

Ngwaga wo re lego go wona, DSI e ntšhitše dikerante tša dinyakišišo tše 3 000 ka mananeo ao a laolwago ke NRF, gomme banyakišiši bao ba thušwago ka ditšhelete ke NRF ba phatlaladitše dingwalwa tša dinyakišišo tša go feta 8 150 tšeo di tšweletšego databeising ya Web of Science.

Ngwageng wo re lego go wona, kgatelopele ye botse e tšwetše pele go kgontšheng mphsafatšo le phadišano ya difeme le Makala ao a lego gona, go akaretšwa kgatelopele yeo e bilego gona ka tlhabollo ya teknolotši ye mphsa ya go bora Lefelong la Meepo la Mandela.

Go bile le kgatelopele ye nngwe gape tlhabollong ya materiale wo moswa ka Boithomelo bja Materiale wa maemo a Godimo, thekgo ya Makala a bohlokwa a temo ka ditšhelete tša Lekala la Boithomelo, le thekgo ya dikgwebopotlana le tša magareng ka Lenaneo la Ditiše tša Theknolotši le Lenaneo la go latišiša Theknolotši.

DSI, CSIR le dikgoro tša kabo ya dintlo ga bjale di a thušana projekeng ya go lekodišiša mafelo a mekutwana ka tirišo ya didroune. Se se tla thuša ka thulaganyo ya phatlalatšo ya batho gotee le go thekga dibaka tša dikgwebo tša bošomammogo, dikgwebo tša baswa le di-SMME.

Ka fase ga Tlhabollo ya dinyakišio tša Biorefinery le Sehlopha sa yeo e thekgilwego ka ditšhelete ke DSI Boithomelo yeo e bopilwego ke CSIR, Yunibesithi ya Witwatersrand le Yunibesithi ya Tshwane ya Theknolotši, tšweletšo ya tlaleletšo ya (kgatišo ya 3D) go dirilwe filament ya theknolotši ya diphatišišo tšeo di tseneletšego tša malwetši ka biomass yeo e mphsafatšegago ya go lokela legato la 6. Se se nea sebaka sa go phatlalaletša setšweletšwa diintasetering tšeo di butšwitšego go swana le kagodikgwa le moba.

Ka nako ya dipego tša 2020/21, Kantoro ya Bosetšhaba ya Taolo ya Bongthoto bja Mahlale (NIPMO) e tšwetše pele go kgatha tema ya go kgonagatša tšhomišo ya tsebo ya ekonomi le tlhabollo ya leago ka Sekhwama sa Thekgo sa Kantoro ya Phetišo ya Theknolotši (OTT).

#### 3. KETAPELE KA TONA

NIPMO e thekqile di-OTT tše diswa tše tshela go tšwa diprobentsheng tšeo di fapafapanego le phetišetšo ya mešomo ya theknolotši ye 19 ye meswa le yeo e lego gona ka sekhwama se. Botsebotse thekgo e filwe Yunibesithi ya Maphelo le Saentshe ya Sefako Makgatho, yeo ka kamanyo le leuba le le lego gona, e tlago šomiša ditšhelete go hlama OTT go kgonthišiša gore ditšweletšo tša dinyakišišo tša maphelo di a šupša le go go diragatšwa setšhabeng.

Maemong a lefase DSI e tšwela pele go kgatha tema potefoliong ya bodirišani bja maemo a boditšhabatšhaba, bjoo bo tlišitšego dibaka tše dintši mananeong a dinyakišišo a lefase, go swana le European Union, Japane le BRICS (Brazil, Rašia, India, Chaena le Afrika Borwa).

Tšhomišano ya Boditšhabatšhaba le go gata ka mošito o tee di dirile gore Afrika Borwa e holege dibakeng tše 426 tša tlhabollo ya bokgoni bja batho, go akaretšwa dithuto tša ka morago ga grata le phetolelanyo ya botegeniki go thekga maikemišetšo a Kuranta ya mmušo mabapi le STI.

DSI e thekgile diprojeke tše 18 tša go amana le Lenaneo la African Union 2063, le bjalo ka Foramo ya Tšhomišano ya Saentshe, ka go batamela diyunibesithi tša kgwebo Afrika le go matlafatša bokgoni bja Afrika bja go dira dihlare.

Godimo ga hlakahlakano yeo e hlotšwego ke mahata a COVID-19 le kimelego yeo e bilego gona ekonoming, yeo e amilego mešomo le ditekanyetšo tša meputso, bokgoni bja Kgoro bo sa fiwa šedi ya pele. Gape go bile le bohlakiši bja dipuku bjoo bo se nago bosodi go tšwa go Mohlakiši pharephare mešomong yeo e amago tšhomišo ya ditšhelete le yeo e sa e amego ngwageng wo go bolelwago ka wona.

Kgoro e tšwetše pele ka go diragatša Leano leo le amogetšwego la Tekatekano Mešommong, le go fihlelela boemedi bja basadi ka dipersente tše 49.48 legatong la SMS, le kemedi ya batho bao ba golofetšego ka dipersente tše 34 tša palomoka ya bašomi. Ditshepedišo tša kgwebo di ile tša beakanywa gore di sepelelane le magatotatelanyo a COVID-19 gomme bašomi ba ile ba tsebišwa ka magatotatelanyo ao go netefatša gore bašomi ba latela magato ao a tsebišitšwego lefelong la mošomo.

Komiti ya Potefolio ya thuto ya godimo, Saentshe le Theknolotši (PCHEST), yeo e etilwego pele ke Mna. Mohlopi Philemon Mapulane, e sa bušitše e bile le kabelo ya go retega mošomong wa rena. Ke leboga Mna. Mapulane mabapi le boetapelle bja gagwe le go amogela modulasetulo wo moswa, Mtšana. Nompendulo Mkhatshwa yoo a tlago eta pele PCHEST. Ke leboga Motlašatona Manamela, Bašomi ba kgoro ya ka, Molaodipharephare Phil Mjwara, bašomi ba DSI le benditseka ba bantši ba NSI bao ba thušitšego go dira gore ngwaga wa 2021 e be wa katlego, le ge go bile le dihlohlo tšeo di tlišitšwego ke leuba.



Dr BE Nzimande, MP Tona ya Thhuto ya Godimo, Saentshe le Boithomelo

#### 4. STATEMENT BY THE DEPUTY MINISTER



**Mr KB Manamela, MP**Deputy Minister of Higher Education, Science and Innovation

As part of its strategic outcome-oriented goals, the Department of Science and Innovation (DSI) seeks to harness science, technology and innovation to contribute to a long and healthy life for all South Africans, decent employment, inclusive economic growth, and the development of a skilled and capable workforce.

The National Development Plan (NDP) puts the issue of skills development at the centre of all our development goals and interventions. Through the National Research Foundation (NRF), the DSI co-funded a total of 11 571 students in the 2020/21 financial year. This comprised 8 610 pipeline students (BTech/honours equivalent and master's) and 2 961 doctoral students.

Related to this, the DSI supported a total of 1 085 graduates and interns during the reporting period. This programme makes a significant contribution to the absorption of postgraduate students in the job market, while also attracting them to research careers, thereby contributing to the reduction of unemployment and inequality.

In support of the Presidential Youth Employment Initiative, the DSI has tentatively secured an amount of R67 811 773 from the Presidency for initiatives such as the Enviro Champs programme, implemented by the Duzi Umngeni Conservation Trust. Support for this programme resulted in the creation of 310 jobs for previously unemployed youth in the Imbali District of KwaZulu-Natal.

As part our efforts to formalise recognition of prior learning (RPL) in indigenous knowledge systems, an RPL assessment workshop was held in KwaZulu-Natal in November 2020. The workshop was aimed at inducting new members of the KwaZulu-Natal Pilot Steering Committee, and finalising the peer-to-peer assessment of Steering Committee members for the domains of izangoma and ababelethisi (healers and midwives under African traditional medicine).

In partnership with the South Africa National Chapter for the Organisation for Women in Science for the Developing World, Black Women in Science, and Nka'Thuto Edu Propeller, the DSI hosted four webinars under the 2020 South African Women in Science Awards, attracting a total of 663 participants. The webinars explored subjects including gender-based violence and women in innovation, and the fourth webinar doubled as a platform for the launch of the Women in Science, Engineering and Technology Organisation South Africa.

Given the critical role of research and innovation in South Africa's response to COVID 19, our Indigenous Knowledge-Based COVID-19 Research Team made excellent progress in investigating the use of herbal medicines against COVID-19.

Of particular interest are two multi-herbal formulations, Product Nkabinde and Phela, and a mono-herbal ingredient coded BD01, that have demonstrated good activity against both the SARS-CoV-2 and MERS-CoV viruses.

## 4. STATEMENT BY THE DEPUTY MINISTER (CONTINUED)

To enhance our efforts in technology localisation, beneficiation and advanced manufacturing, the DSI funded a number of instruments in support of increased localisation, competitiveness and R&Dled industry development in aerospace, advanced manufacturing, chemicals, mining, advanced metals and ICTs through the Industry Innovation Programme and the Sector Innovation Funds.

The DSI continued to implement its Sector Innovation Funds programme through ongoing support for a portfolio of seven industries, namely, horticulture, post-harvest innovation, viticulture, forestry, minerals processing, paper manufacturing, and agroprocessing.

The research, development and innovation (RDI) portfolio of each sector aims to address key competitiveness challenges including sustainability, pest and disease control, and accessing new export markets. In the past year, the Sector Innovation Funds portfolio has supported 104 postgraduate students and enabled the development of around 10 new knowledge products.

To promote grassroots innovation, the DSI has supported 100 beneficiaries and continues to increase the number of innovators supported by the Grassroots Innovators programme. Through the Living Labs Programme, the DSI is supporting 296 beneficiaries through five community-based Living Labs established in the Western Cape, KwaZulu-Natal, the Free State and the Eastern Cape.

In an effort to develop sustainable bio-enterprises in support of economic growth and development, seven SMMEs were assisted with technology upscaling, business development, and commercialisation interventions under the Strategic Industrial Bioinnovation Partnership. The supported SMMEs were AfriBodies, Eco Invaders, Sawubona Mycelium, Kusini Water (Pty) Ltd, Bind Biotech (Pty) Ltd, UBA Biologix, and CapeBio (Pty) Ltd.

Agriculture has been identified as a key industry for revitalising existing (traditional) industries that can benefit from RDI in support of development and economic recovery. Through its Agricultural Bioeconomy Innovation Partnership Programme (ABIPP), the DSI supported a number of initiatives aimed at developing the agricultural sector and supporting economic recovery, with special emphasis on smallscale and emerging black farmers. In total, 220 black emerging farmers benefited from technology/ innovation support programmes.

A Technology Availability and Readiness Atlas, a portal aimed at providing the mining industry with access to the capabilities and offerings of local original equipment manufacturers, was launched.

Related to this, a technology for a visual positioning system capable of performing real-time predictive scenario analyses and reporting, extending beyond traditional warning and vehicle control systems for proximity detection/collision avoidance, was demonstrated in 2020.

As part of taking advantage of the Oceans Economy, the DSI continued to support the National Oceans and Coastal Information Management System. The system's decision-support tools are being improved on a regular basis, and through the South African National Space Agency, we are providing the relevant satellite data needed to monitor and protect our oceans and coasts.

As part of improving the capacity of municipalities to deliver services, the DSI's Viability and Validation of Innovations for Service Delivery Programme (VVISDP) was presented to over 50 municipalities. This is in line with Department's commitment to piloting technologies for improved service delivery in water, energy, waste management, housing and sanitation.

The DSI also developed the first version of the Schools ICT Maturity Assessment Tool, which is being used to assess the level of ICT readiness and maturity of

## 4. STATEMENT BY THE DEPUTY MINISTER (CONTINUED)

schools across five readiness perspectives. The initial paper-based tool was refined, piloted and digitised by Nelson Mandela University's Centre for Community Technologies.

To date, approximately 5 000 schools across the country have been assessed for their connectivity infrastructure for ICT, Internet access and computer equipment, and whether they are active online in terms of content presentation and communication.

None of these achievements would have been possible without the support of our local and international stakeholders. I wish to commend the Minister for his political guidance, to the executive and staff of the DSI for their commitment to the Department's vision, and to the Department's entities for their continued support.

Deputy Minister of Higher Education, Science and Innovation

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#### 5. REPORT OF THE ACCOUNTING OFFICER



**Dr MP Mjwara Accounting Officer** 

#### 5.1 Introduction

The COVID-19 pandemic made the 2020/21 financial year one of the most challenging years the Department of Science and Innovation (DSI) has experienced. The Department's budget was reduced from R8,7 billion to R7,3 billion to provide funds to government to address the effects of the pandemic. This meant that many targets had to be revised downwards. However, despite these challenges, the DSI was able to achieve most of its targets, as indicated in the performance section of this report.

In the 2021/22 financial year, the Department will focus on the finalisation of the Decadal Plan, the high-level direction and thrusts of which have been endorsed by Cabinet. The Decadal Plan will assist the DSI to ensure that it realises the full potential of science, technology, and innovation (STI) to contribute to the country's priorities through the development, coordination and management of the national system of innovation (NSI), the provision of policy leadership and the creation of an enabling environment.

#### 5.2 Overview of the operations of the **Department**

During the period under review, the implementation of the Department's strong governance programmes assisted in the management of scarce resources to ensure that the DSI met its objectives.

During the period under review the governance programmes such as Audit Committee and Enterprise Risk Management Committee meetings took place as expected. These assisted in ensuring that all risk mitigation strategies and combined assurances that assisted in the integration and alignment of assurance processes in order to maximise risk and governance oversight, control efficiencies and optimise overall assurance, were achieved. Furthermore. the Department reported on its activities to the Portfolio Committee as its oversight body. Some of the activities reported to the Portfolio Committee were included in the 2019/20 annual reports for the Department and its entities, as well as 2020/21 budgets and quarterly performance reviews.

#### 5.3 Significant events and major projects of 2020/21

Below are some of the significant events that took place in the 2020/21 financial year. More details are provided in the performance overview sections for the specific Programmes.

### **Knowledge utilisation for economic** development

The CoalCO2 to X Research, Development and Innovation (RDI) Roadmap was approved by the DSI Exco on 8 December 2020. The roadmap highlights that the investments made in green hydrogen production through the Hydrogen South Africa (HySA) Programme can be leveraged to produce value-added products

using the green hydrogen and flue gas coming out of the coal-fired boilers used in electricity generation and other industrial sectors such as cement production and incinerators. The roadmap articulates how South Africa could still continue to use its abundant coal resources for power generation while also producing sellable commodities such as green ammonia and fertilizers, and reducing greenhouse gas emissions and their negative impact on society and the environment. This would allow the country to manage the transition to low carbon technologies in a less disruptive way through job preservation in the coal industry and the creation of new industries and jobs. The CoalCO2 to X programme also supports the increased uptake of renewable energy and gas in the energy mix as articulated in the Integrated Resource Plan. The programme could further stimulate domestic demand for green or renewable hydrogen and build capacity that could position South Africa as a major exporter of green hydrogen to resource-poor countries.

#### National Intellectual Property Management Office

During the 2020/21 review period, the National Intellectual Property Management Office (NIPMO) continued to provide financial and non-financial support to offices of technology transfer (OTTs). In the period under review, NIPMO approved funding to support six new OTT Support Fund agreements totalling R23 276 280 over a three-year funding cycle. These agreements will support 19 new and existing positions within the OTTs.

Taking their training sessions online owing to COVID-19, NIPMO was able to reach a greater number of people than expected (346 instead of 225), and also expanded their training to technical and vocational education and training colleges, which will assist in securing IP rights resulting from publicly financed research and development.

#### **Bioeconomy mission**

Following the emergence of COVID-19 in late 2019, the Department has been working with a range of partners to coordinate the research and innovation sector's response to the pandemic. Recognising the critical role of research and innovation in South Africa's response to COVID-19, the DSI invested in interdisciplinary research including the development of point-ofcare diagnostics for detection of COVID-19, targeted surveillance, the development of new technologies for preventing or controlling COVID-19, and genomic surveillance to understand the evolution of SARS-CoV-2 and track the dynamics of its transmission. Genomic surveillance played a critical role in the identification of the B.1.351 variant, which became the dominant lineage in South Africa. This information led to vaccine manufacturers assessing whether the new variant changed the effectiveness of their vaccines, and to the national Department of Health adapting its interventions and recommendations for the public. Current priorities are to continue to increase local capacity for SARS-CoV-2 molecular testing and genetic sequencing, strengthen the monitoring of virus' evolution and increase understanding of the identified variants and their effects on vaccines, therapeutics and diagnostic efficacy.

The indigenous knowledge-based technology innovation initiative continues to strengthen knowledge holders and their communities in the development of indigenous-knowledge products and services. With the onset of the COVID-19 pandemic, substantial funding was reprioritised to support the development, validation and commercialisation of indigenous-based therapeutics and immune boosters.

A variety of other initiatives continued in support of the national Bio-economy Strategy. For instance, the DSI has continued to develop and support the Agricultural Bioeconomy Innovation Partnership Programme. This programme, with support from the Technology Innovation Agency and GrainSA, is focusing research

and innovation towards the development of the agricultural sector, with special emphasis on smallscale and emerging black farmers.

#### **Operation Phakisa: Oceans Economy**

The National Oceans and Coastal Information Management System continues to be supported by the DSI.

The decision-support tools are improved on a regular basis and the DSI, through the South African National Space Agency, is providing the relevant satellite data needed to monitor and protect the oceans and coasts. A new contract between the DSI, the Department of Forestry, Fisheries and the Environment and the Council for Scientific and Industrial Research (CSIR) is in the process of being concluded.

#### Maritime Domain Awareness Cube Satellite Constellation

The most advanced South African nanosatellite to date, ZACube-2, was completed and launched in December 2018.

The Cape Peninsula University of Technology, through funding from the DSI, is leading a consortium that will develop a South African constellation of low-cost nanosatellites to facilitate South African Marine Domain Awareness (MDA) in support of Operation Phakisa: Oceans Economy. The MDA Sat-1 and 2 missions will address the challenge of ocean governance as identified by Operation Phakisa. The primary objective of these is to provide South Africa with the sovereign capability to monitor maritime communications within its exclusive economic zone, including the use of an automated information system (AIS) and VHF data exchange system (VDES).

In a first for the African continent, the first phase of the constellation (MDA Sat-1) has been completed and consists of three 2U form factor CubeSat nanosatellites, each carrying a software-defined radio payload based

on the same hardware as that in ZACube-2, but with upgraded firmware to support more of the AIS services in the VHF maritime radio frequency band. Although the constellation will have worldwide coverage, the initial ground segment will be based in South Africa, to enable the rapid download of maritime data collected over South African waters. Over time, the constellation's services can be extended into other SADC countries or internationally, as needed.

The DSI has invested R27 million in the MDA CubeSat constellation to develop the first three of nine CubeSats. Additional funding of around R60 million will be required for the other six satellites.

#### **Space Weather Regional Centre**

South Africa, through the South African National Space Agency (SANSA), was appointed as one of the Regional Centres for Space Weather Information by the International Civil Aviation Organisation. The DSI has funded the upgrade of the 24/7 operational space weather information centre. As part of the upgrade for the Space Weather Information Centre, the SANSA will appoint a Research Chair that will be instrumental in developing human capital and increasing the South African capabilities in space weather.

#### **South African Mercury Network Project**

The DSI has funded a mercury monitoring project aimed at developing a coordinated South African observation network for mercury in order to measure the temporal and spatial distributions of mercury concentrations in ambient air, and precipitation over land and surface waters across South Africa. This will provide high quality data for the validation of local and regional models that can ultimately be used in the global GEOS-Chem model. The project is South Africa's contribution to the Global Observation System for the Mercury flagship programme of the Group on Earth Observations.

# The upgrade of the Houwteq assembly, integration and testing facility

Houwteq, South Africa's only assembly, integration and testing (AIT) facility, is situated in close proximity to the satellite industry in the Western Cape. The facility was designed for analysing and testing the final assembly, alignment, heat, vacuum and electromagnetic wave properties of satellite and launch-vehicle systems that require a high degree of reliability. Most of the work is done in clean rooms that protect sensitive sensors from dust particles. Satellite AIT facilities are specially designed and form an integral part of a satellite build programme.

#### Launch capability

In 2014, the School of Mechanical Engineering at the University of KwaZulu-Natal (UKZN) built their own sounding rocket vehicle, which was tested in 2016 at the Overberg Test Range. The sounding rocket vehicle was built under the UKZN's Space Propulsion Research Programme (SPRP). Additional funding from the DSI over the years led to the first successful African rocket launch test in March 2020. The altitude reached was 17.9 km.

In 2020/21 a further amount of R7,997 million was transferred to the UKZN SPRP for the university to design and develop a launch gantry at the Overberg Test Range in 2021. A static test of SAFFIRE (the South African First Integrated Rocket Engine) will be performed in June/July 2021 through the Aerospace Systems Research Group.

The DSI investment in the SPRP at UKZN from 2018 to 2021 produced 19 engineers (16 master's degrees and 3 PhDs). Going forward, SANSA and Armscor will join the programme to provide technical oversight and systems engineering processes. The project leaders of the SPRP also played a key role in the development of the economic case for launch capabilities, which was approved by the DSI Exco in March 2021.

#### **AfriGEO**

In April 2019, South Africa, through the DSI, confirmed the Regional Centre for Mapping of Resources for Development as the host of the AfriGEO Secretariat for a period of three years until 2021. AfriGEO is the Group on Earth Observations' regional initiative in Africa, aimed at providing a coordination framework and platform for Africa's participation in the Group on Earth Observations (GEO). The aim of the AfriGEO Secretariat is, among other things, to strengthen connections with GEO's global partners and expand regional engagements. SANSA is responsible for the project management of the Secretariat.

The AfriGEO Secretariat plays an important role in ensuring increased awareness and use of Earth observation data in Africa, promoting long-term human capital development programmes, and driving programmes to contribute to achieving global, regional and African goals like the Sustainable Development Goals and the African Union Agenda 2063.

#### International cooperation and partnerships

The DSI engaged in 46 resource-leveraging engagements with a range of international partners and had significant success in forging partnerships on COVID-19 and other areas of collaboration. The European Union remained one of the largest contributors during the financial year, through its General and Sector Budget support programmes. The leveraging of partnerships within the South African NSI, such as the partnership with the Department of International Relations and Cooperation, which made a co-investment of R25 million through the African Renaissance Fund to leverage an international partnership on COVID-19.

The DSI itself has invested in 18 projects supporting the African Union' Agenda 2063 and 17 initiatives supporting the objectives of the Southern African Development Community (SADC) Regional Indicative Strategic Development Plan. During the year under

review, 11 STI plans of action were implemented as part of bilateral cooperation agreements with African partner countries.

## The National Big Data Strategy for Research, **Development and Innovation**

The Minister of Higher Education, Science and Innovation approved the National Big Data Strategy for Research, Development and Innovation for implementation.

The primary aim of this strategy is to maximise the return on investments in research big data, and hence to realise the economic, social, educational, scientific and industrial beneficiation potential of research big data for South Africa. This strategy relates to research big data in the public research sector and not big data in the private realm. As such, its focus and scope align with and complement other national strategies and agendas for public sector investment in big data and ICT. In particular, the strategy harmonises with the mission, policies and strategies of the Department of Communications and Digital Technologies (DCDT). The development of the National Big Data Strategy can be regarded as a major intervention by the research sector and several government departments. The successful implementation of the strategy is therefore essential since it will provide guidelines on how research data can be managed in the country.

## **National Institute for Theoretical and Computational Sciences**

On 1 March 2021, the Minister endorsed the Exco's approval for the restructuring and reconfiguration of the National Institute for Theoretical Physics (NITheP) to form the National Institute for Theoretical and Computational Sciences (NITheCS). In the light of the Higher Education, Science, Technology and Innovation Review, South Africa's institutional landscape of science and technology institutions has expanded far less than the scope and scale of its research, scientific and technological activities. The intent is to step up research programmes by improving economies of scale, and thereby increase global competitiveness. The strategic focus is therefore the creation of a coherent, productive, multidisciplinary institute with four pillars: Africa, training, research and engagement.

The reconfiguration of NITheP is in accordance with the intent expressed in the 2019 White Paper on STI, which identifies relevant key points: (a) improving inclusion, (b) enhancing policy coherence and programme coordination, and (c) expanding research outputs and transforming the research institutional landscape. These points are further unpacked in the drafting of the Decadal Plan, in the DSI's Basic Sciences Development and Support Framework, and in the draft National Big Data Strategy.

Restructuring NITheP and consolidating related theoretical and computational sciences, including data science, offers a broader sectoral impact, while enhancing the benefits of the investment already made. Elements of the 4th industrial revolution (4IR) are incorporated, and innovation and internal crossdisciplinary exchange are expected to make a positive impact on 4IR achievements. Internal overlaps between fields to facilitate new contributions have been explored, and collaborations with related institutions have been identified.

The decision to restructure arises from the fact that the data sciences and the basic sciences are driving one another in a period of intense growth. It is in line with the policy of enhancing coherence and programme coordination to align the themes of theoretical physics, mathematics, statistics, astronomy and astrophysics, data sciences, data science in quantitative finance, quantitative biology and bioinformatics, and climate and earth systems modelling in a single institute, to have greater impact on human capabilities and research capacity development, and to improve financial sustainability. The opportunity in human capacity development is to provide a new generation of highly data-literate scientists, researchers and advisers.

## Framework for Quantum Technology Driven Research and Innovation in South Africa

The Quantum Technology Framework drafted by the National Working Group for Quantum Computing and Quantum Technology was approved by the DSI Exco on 10 March 2021. The framework focuses on the key areas of quantum technologies under development in South Africa, the advantages quantum technologies could offer over existing technologies (so-called "quantum superiority"), the major sectors that may be impacted by these emerging technologies, while pointing to existing and prospective markets, and the prospects for commercialisation, taking into consideration the international context.

South Africa has the expertise to develop quantum-computing solutions for the local industry. The country has demonstrated all the sub-components for prototype quantum communication and quantum sensing solutions. There is an innovative industry that could be users and producers of quantum technology, as well as a large student body that could become part of a quantum workforce and a pool of quantum entrepreneurs.

Implementing the Framework will result in benefits such as a diverse workforce trained in all aspects of quantum technologies, a healthy research base consisting of senior and junior academics in physics and engineering, collaborating on joint projects/goals and commercial opportunities, an innovation chain for quantum technologies linking academia and industry, and a national industry in which quantum technologies are developed and commercialised for local and international markets.

#### **Human capital development**

The National Research Foundation (NRF) Amendment Act, 2018 (Act No. 19 of 2018), became effective as of 1 April 2020. The Act has expanded the mandate of the NRF beyond supporting research through human resource development and the provision of research infrastructure, to include science engagement. The

new Act also empowers the Minister to determine: (a) national policies for research and funding to be implemented by the NRF, (b) national research facilities, and (c) declare research institutions eligible for the NRF support.

# Migration of the management and implementation of the Internship Programme to the Human Sciences Research Council

The Minister of Higher Education, Science and Innovation approved the migration of the management and implementation of the Internship Programme to the Human Sciences Research Council (HSRC) with effect from the 2021/22 financial year. This was done in consultation with the Chairperson of the NRF Board, Dr Nompumelelo Obokoh, and the Chairperson of the HSRC Board, Prof. Mvuyo Tom, who both concurred with the decision. The migration was done to ensure that the programme maintains its original objective of providing work experience for unemployed graduates, as the Department's contribution towards addressing youth unemployment in the country. At the HSRC, the programme will be subjected to regular impact assessments using in-house tools, which is an element that is critical in an era in which the country's economic development is of the utmost importance. Task teams have been established to ensure a smooth transition. Extensive strategic and operational discussions have taken place, with important aspects being staff that is employed by the NRF to implement the programme and the data that the NRF have collected in terms of interns applying and those that participated in the Programme.

#### The SKA, astronomy and the SKA Observatory

The African Astronomical Society (AfAS) became operational as of 1 April 2020 and is funded by the DSI. It is located on the campus of the South African Astronomical Observatory (SAAO) and an interim project manager and an intern have been appointed to run the office in support of the AfAS Executive Committee.

SARAO was mandated by the Minister of Trade, Industry and Competition to manage and coordinate the National Ventilator Project, the main objective of which is to design, manufacture and deliver ventilators to the national health sector for the treatment of COVID-19 positive patients. The first 10 000 ventilators were made available by the end of August. No funding was made directly to SARAO for this activity, and existing engineering and project management resources were utilised. The manufacturing and distribution of the ventilators is funded by the Solidarity Fund.

The SKA Observatory (SKAO) was formally established on 4 February 2021, signalling a new era for radio astronomy. It is the world's second intergovernmental organisation to be dedicated to astronomy. With its headquarters in the United Kingdom and sites in Australia and South Africa, the SKAO is tasked with building and operating the two largest and most complex radio telescope networks ever conceived to address fundamental questions about our universe.

The SKAO published construction proposal and delivery plan for the SKA telescopes on 25 February 2021. The construction proposal for the SKA telescopes includes a summary of the scientific motivation, the so-called "baseline design" the Observatory will be building, as well as presenting details on the project engineering, computing, and many broader impacts the project is expected to have on society over the years. The Observatory Establishment and Delivery Plan is a 10-year look ahead covering Observatory operations, business support functions, staffing across the SKAO facilities in the UK, Australia and South Africa, as well as a Development Programme to support the scientific development of SKAO.

## Recognition of prior learning in indigenousknowledge systems

A recognition of prior learning (RPL) assessment workshop was held in November 2020 in KwaZulu-Natal with the aim of inducting the new members of the KZN Pilot Steering Committee, and finalising the peer-

to-peer assessment of Steering Committee members for the domains of ubungoma and ababelethisi. This pilot will facilitate the accreditation of assessors and certification of practitioners in indigenous-knowledge systems. In addition to the above, the RPL pilot process was rolled out in North West and Limpopo. Stakeholder workshops were held in Rustenburg, North West, and Thohoyandou, Limpopo. Both provinces are ready to host RPL pilots.

## Biocultural diversity, biocultural rights and community rule making

On 5 November 2020, DSI officials attended a virtual international conference on the theme "Theoretical Insights: Biocultural Diversity, Biocultural Rights, and Community Rule-Making" held by the Université Grenoble Alpes, with speakers from France, the USA, Australia, Canada and Switzerland. The DSI presentation covered the origins of biocultural community protocols and the links between cultural protocols and community research protocols, (b) binding and non-binding community protocols as legal, ethical and/or political tools, (c) the ethics of stewardship and biocultural community protocols as environmentally conditioned tools, and (d) biocultural community protocols, the interlinkage between local and global levels, and engaging in transnational environmental discourses.

#### **Grassroots Innovation Programme and Living** Labs

The Grassroots Innovation Programme (GIP) and Living Labs Programme support the realisation of the White Paper policy intended to strengthen the skills in the economy and support social innovation. In this context the GIP has been instrumental in ensuring an inclusive and responsive NSI characterised by equitable access to knowledge infrastructure, where support for technology product development, commercialisation, IP protection and mentorship is provided to beneficiaries in a manner that encourages the participation of women, youth and people living with disabilities. During this reporting period, the

DSI supported 100 beneficiaries and continues to increase the number of innovators supported by the programme. The GIP has set a target of 300 additional beneficiaries to be supported over the MTSF period. About 40% of innovators have successfully developed their products and protected their intellectual property.

Through the Living Labs Programme, the DSI is supporting 296 beneficiaries through five communitybased living labs established in Athlone (Western Cape), KwaMashu and Cato Manor (KwaZulu-Natal), Phuthaditjhaba (Free State) and Bofolo (Eastern Cape). The labs provide a full suite of support and infrastructure to emerging innovators, including design-thinking training, solution development, prototype development, intellectual property advice and registration, pitching and investor readiness, and basic enterprise development support. Positioned to support innovation-driven local economic development, the locally embedded living labs are stakeholder-driven in partnership with local government, community forums, local businesses and other relevant local stakeholders. Therefore, the work of the labs is intended to respond to local challenges and be aligned to the local economic agenda.

The Viability and Validation of Innovations for Service Delivery Programme (VVISDP) was presented to over 50 municipalities through the consultation workshops. In line with the commitments of the DSI in the five-year strategic plan, the DSI has prioritised the piloting technologies for service delivery in water, energy, waste management, housing and sanitation. VVISDP activities strengthen government's role as an enabler for innovation and the creation of an enabling environment for a capable state through the use of innovation to improve the delivery of basic services and build the innovation capacity of municipalities. Since basic service delivery is implemented at local government level, that is where technology deployment in support of a capable state is needed.

The DSI committed to better alignment of its innovation support interventions with the District

Development Model (DDM) over the MTSF period. During the reporting period, the DSI implemented a DDM portfolio analysis and definition process to select over 30 high-impact responsive projects and initiatives to support the DDM. These include initiatives that catalyse and advance the economic inclusion of the youth - supporting youth-owned enterprises and innovations, developing skills for employability and entrepreneurship, and enhancing the engagement of youth as active citizens. Twenty-two additional projects from the DSI entities responding directly to the DDM One Plan and the four DDM impact areas defined by the DSI were also selected. The DDM projects were prioritised mainly to address challenges identified in the district development profiles as well as crime, drugs, health, drought and climate change, including risk and vulnerability profiles, and supporting the roll-out of innovative solutions to deliver basic services in municipalities such as water. sanitation, energy, education and connectivity, local systems of production, the circular economy and innovation for local economic development.

## Innovative technology solutions for the human settlement sector

The DSI has made commitments in its five-year Strategic Plan to increase the number of use cases of decision-support systems, to demonstrate and pilot technologies that can be successfully introduced for different options to deliver services, and to support technology-based applications in district and metropolitan municipalities as part of its contribution to the DDM.

The DSI is contributing to the development of innovation ecosystems and a capable and developmental state through the use of decision-support tools to improve service delivery and evidence-based policy interventions, e.g. enabling properly guided public investments in the integration of innovation in schools for teaching and learning, and encouraging innovation uptake in municipalities and the delivery of human settlements, were supported. The DSI developed the first version of the Schools

ICT Maturity Assessment Tool that is being used to assess the level of ICT readiness and maturity for schools across five readiness perspectives. The initial paper-based tool was refined, piloted and digitised by Nelson Mandela University's Centre for Community Technologies (CCT). Phase 1 of the pilot comprised a collaborative project between the DSI, the CCT and TIA, with support from the Department of Basic Education (DBE). A total of 3 782 multigrade schools across all nine provinces were invited to use the tool to determine their ICT readiness level. To date, approximately 5 000 schools across the country have been assessed to determine existing connectivity infrastructure for ICT, internet access and computer equipment, and whether schools are active online in terms of content presentation and communication.

The initial results of this e-readiness survey has been packaged into a Schools e-Readiness Report, which is to be published soon. This report provides a clear picture of schools that are far behind in terms of readiness and schools that have moderate and advanced conditions for the use of ICT in learning and teaching. The initial results show that, from those that participated in the pilot, less than 2% of schools have some level of ICT readiness. The majority of schools that completed the pilot were categorised as either Level 2 (poor ICT capacity) or Level 3 (moderate ICT capacity). There are engagements between the DSI, DBE and National Treasury to determine the support required to assess the e-readiness of 100% of schools. The survey assessment will inform government and private sector efforts in rolling out connectivity and technology for education infrastructure in schools.

In order to contribute towards improving the capacity of municipalities and enhancing the delivery of basic services, the Department was able to expand the number of municipalities participating in the Municipal Innovation Maturity Index (MIMI) during the period under review. MIMI provides critical information on the innovation capabilities and readiness of local government to deliver effective services. In providing insight on readiness for the deployment of innovative service delivery technology solutions, MIMI continues to be valuable in informing the efficient deployment of resources for service delivery.

MIMI has attracted the interest of private sector partners working on smart city initiatives as a proxy instrument for encouraging smart city practices in municipalities and cities. In the context of scaling up MIMI, and further refining and realigning the tool with existing initiatives to encourage innovation in government, the innovation capacity of a total of 24 municipalities have been assessed. The target is to assess the innovation capacity of 60% of municipalities across the country by the end of the MTSF. This will encourage innovation in municipalities by providing awards and other incentives for innovation.

The Local Innovation Advancement Toolbox (LIAT) comprises a set of tools to advance the innovationdriven local economic development (LED) agenda by assisting municipalities and LED stakeholders to conduct participatory monitoring, evaluation, reflection and learning and self-horizon exploration workshops. The aim is to assist local stakeholders to envision an innovation-driven local economy and identify high impact local innovation catalytic interventions. LIAT also assists with innovation infrastructure to support innovation activities, measuring innovation prevalence in the region, and establishing innovation networks.

The toolkit was further advanced during the reporting period through the addition of a tool to assess the orientation of local government towards innovation for LED. The advanced version of the LIAT was applied in 16 local municipalities in the following Karoo district municipalities: Namakwa, Pixley ka Seme, Central Karoo and Sarah Baartman.

#### The Waste Research, Development Innovation Roadmap

The Waste Roadmap Implementation Unit, based at the CSIR, participated in a two-year project as an

expert group member of the project "Global roadmap to achieve near-zero ocean plastic leakage", which resulted in a publication in the prestigious journal *Science*. The DSI will be taking this work forward by running the global model at a local level in 2021 to identify the specific intervention strategy that South Africa should adopt to curb ocean plastic leakage, thereby using the scientific knowledge gained towards the development of a key public good in the long term.

#### The Enviro Champs programme

The DSI supported the Enviro Champs programme implemented by the Duzi Umngeni Conservation Trust under the Presidential Stimulus Package. This provided jobs to 310 previously unemployed young people. The DSI also partnered with the Water Research Commission (WRC) to place 214 graduates under the Graduate Employment Programme. Some of the graduates were placed with the Enviro Champs to assist in technical data collection that is contributing to the State of the Rivers Report being prepared by Umngeni Water. Enviro Champs is a great example of how citizen science can contribute to the scientific knowledge base.

# The Sector Innovation Fund and Industry Innovation Partnership Programme

The DSI has continued to implement the Sector Innovation Fund, through the ongoing support for horticulture, post-harvest innovation, viticulture, forestry, mineral processing, paper manufacturing, and agroprocessing. Each of the industries' RDI portfolios address key competitiveness challenges for the industry, including sustainability, pest and disease control, and accessing new export markets. In the past year, the SIF portfolio has supported 104 postgraduate students and the development of around 10 knowledge products in the last year.

In addition, the Department's efforts to support innovation-led industrial development, includes

support for four industrial development centres at the CSIR (the Biomanufacturing Industry Development Centre (BIDC), the Biorefinery Industry Development Facility (BIDF), the Nanomaterials Industry Development Facility (NIDF) and the Photonics Prototyping Facility (PPF). As at December 2020, the BIDC, NIDF and PPF cumulatively supported 11 small, medium and micro enterprises (SMMEs) (a number of which secured additional funding support after the support they received from the centres), 17 interns (five of whom have since found permanent jobs – some at the CSIR), and three undergraduate students (who have since been employed by the CSIR as technicians). In the past year, the BIDF was supported by other DSI sources of funding, including a donor funded programme aimed at developing a circular economy in South Africa, which has resulted in 4 SMMEs being supported in the past year. Both the Sector Innovation Fund and the Industry Development Centres are aimed at providing the private sector with incentives to increase investment in research, development and innovation, and thus increase their competitiveness.

### **The Regional Innovation Support Programme**

As part of its efforts in support of the White Paper policy intended to increase the spatial footprint of innovation, the Department has continued to implement the Regional Innovation Support Programme (RISP), through a Programme Management Unit, based at the CSIR. The current RISP portfolio has nine Regional Innovation Networking Platforms, aimed at bringing together research, development and innovation communities, technology SMMEs, industry and government to establish an innovationenabling ecosystem that could also support socioeconomic development through innovation. It also has five feasibility studies aimed at facilitating the planning and establishment of innovation enabling mechanisms such as science and technology parks, technoparks, innovation hubs and other similar concepts in particular areas, with the aim of strengthening or expanding regional innovation

systems. Finally, the RISP has one innovation baseline study aimed at assessing and analysing the status of regional innovation systems, in a particular location, with respect to their effectiveness and readiness to promote and support innovation in the regions. This portfolio is managed in collaboration with various entities. In the past year, the potential impact of the interventions in the RISP portfolio were highlighted by the Limpopo Science and Technology Park going on to become an important component of the DSI's Hydrogen Valley developments.

In April 2020, as part of its efforts to continue research, development and innovation in emerging technology areas, the South African National Blockchain Alliance was launched. It is funded by the DSI and is a distributed, decentralised and autonomous network of blockchain ecosystem players, consisting of government, academia, business, start-ups and civil society. The aim is to connect the South African blockchain community to leverage this linked ecosystem optimally to move blockchain forward in the country. It will actively assist existing initiatives such the South African Financial Blockchain Consortium, the Intergovernmental Fintech Working Group and the Blockchain Entrepreneurship Club of South Africa. The ultimate objective is to create a supportive innovation environment so that South Africa emerges as the blockchain innovation hub of Africa, and is capable of building solutions beyond just cryptocurrencies.

### Science and technology investment

The Department expanded its support for a transformed, inclusive, responsive and coherent NSI by producing six statistical reports and/or policy briefs. Notably, the Baseline Report of the South African Agricultural Business Innovation Survey 2016-2018 was produced during the year, providing valuable information on innovation in the national ecosystem

of agricultural firms. The Innovation Survey in the Informal Sector Report and two case studies on textiles and food give a taste of informal sector innovation. The 2014-2018 Second South African National Survey of Intellectual Property and Technology Transfer highlights progress made at publicly funded research institutions in terms of the commercialisation of intellectual property rights from publicly funded R&D.

The R&D tax incentive programme continued its support for RDI investments by the private sector through the receipt and processing of 114 R&D tax incentive applications during the period 1 January 2020 to 31 December 2020. Of these applications, 97 (85,1%) have been adjudicated, while final decisions from the Minister have been provided to applicants on 76 applications. Twenty-three of these applications received decisions within 90 days.

## **Technology localisation**

Many technology stations responded to the COVID-19 pandemic in innovative ways. For example, the Vaal University of Technology (VUT), together with North-West University and the Central University of Technology (CUT), consulted with specialists from other universities and industry and worked on reverse engineering the Bird ventilator, designed in the late 1950s. This mechanical pressure-controlled ventilator (no electricity needed) is known by older anaesthetists as reliable and easy to use, and the medical fraternity has indicated that uptake would be good. The CUT has successfully reverse-engineered the various components of the Bird Mark 8 ventilator. VUT has done a critical design review of the original ventilator and determined that almost 60% of the components can be manufactured using additive manufacturing. Collaboration with a local industry partner that could assist with the manufacturing of the high tolerance metal component is currently being explored.

## 5.4 Future plans of the Department

The Department's future plans will be guided by the Decadal Plan on STI.

# 5.5 Discontinued activities/activities to be discontinued

The Department will be guided by the Decadal Plan on STI.

### 5.6 New or proposed activities

There are no new or proposed activities that will be implemented in the next financial year. However, the Department will be guided by the Decadal Plan on STI.

# 5.7 Overview of the financial results of the Department

#### **Departmental receipts**

The table below indicates receipts collected by the Department in the financial year under review and the past financial year (2020/21 and 2019/20).

	2020/21			2019/20		
Departmental receipts	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 and sale of scrap, waste and other used current goods	60	70	(10)	66	63	3
Interest, dividends and rent on land	13	13	-	15	12	3
Sale of capital assets	-	-	-	-	-	-
Financial transactions in assets and liabilities	2 003	2 157	(154)	20 000	19 328	672
Total	2 076	2 240	(164)	20 081	19 403	678

The Department does not generate revenue on a recoverable basis from the general public. The revenue collected was from surpluses on project funds, commission from Persal transactions, interest received from a deposit account held with a commercial bank,

payments of bursary debts by officials and other recoverable expenditure. The Department collected less revenue than in the previous financial year. The decrease was due to collecting less in surpluses on project funds compared to the 2019/20 financial year.

#### **Spending trends**

The Department's appropriation for the year under review was R7,278 billion, which was a 10,9% decrease from R8,172 billion in 2019/20. The Department started the financial year with an original budget of R8,797 billion. A cut of R1,436 billion was effected, reducing the budget to R7,362 billion.

The following changes were made on the budget during the Adjusted Estimates of National Expenditure: Additional funds of R44,999 million for the Presidential Employment Stimulus Package, cuts of R87,085 million for the recapitalisation of South African Airways (SAA) and R41,520 million for the compensation of employees adjustment. These changes reduced the budget from R7,362 billion to R7,278 billion.

The table below shows budget and actual expenditure per Programme for the financial year under review (2020/21) and the previous financial year (2019/20).

	2020/21			2019/20		
Programme	Final appropriation	Actual expenditure	(Over)/Under expenditure	Final appropriation	Actual amount collected	(Over)/Under expenditure
	R′000	R′000	R′000	R′000	R′000	R′000
Administration	294 416	262 240	32 176	372 313	323 170	49 143
Technology Innovation	1 397 065	1,379,841	17,224	1 280 292	1 236 673	43 619
International Cooperation and Resources	119 302	114 229	5 073	149 131	136 027	13 104
Research Development and Support	3 735 718	3 730 976	4 742	4 583 676	4 578 431	5 245
Socio-Economic Innovation Partnerships	1 731 786	1 677 979	53 807	1 786 892	1 778 196	8 696
Total	7 278 287	7 165 265	113 022	8 172 304	8 052 497	119 807

The Department's spending performance has been consistently above 90% since its inception. It was 98,4% for 2020/21 financial year.

#### Summary of budget expenditure analysis per economic classification

Details	2020/21 R'000	2020/21 %
Amount voted	7 278 287	100
Actual expenditure	7 165 265	98,4%
Unspent funds	113 022	1,6%
Economic classification		
Current payments	428 954	5,99%
Transfer payments	6 729 702	93,92%
Payments for capital assets	6 062	0,08%
Payments for financial assets	547	0,01%
Total payments	7 165 265	98,4%

#### **Virements**

The Department effected virements estimated at R133,9 million after the Adjusted Estimates of National Expenditure process, which represents 1,8% of the adjusted budget. An amount of R20,6 million was moved between major items and R19,2 million was moved between Programmes.

In addition to funds moved from other items, an amount of R111,3 million was shifted within transfers and subsidies. The funds were used for the following, among other things: Industrial Biocatalysis Hub, market intelligence for sugar diversification, synthetic aperture radar payload, Space Propulsion Programme, International Atomic Energy Agency, DSI-NRF centres of excellence, extension support for doctoral and master's students, the Southern Ocean Carbon-Climate Observatory, the National Recordal System, the Square Kilometre Array (SKA) and the Industry Innovation Partnerships Programme.

#### **Supply chain management**

The Department continues to implement the Supply Chain Management Policy and all relevant prescripts for the prevention and detection of unauthorised, irregular and fruitless and wasteful expenditure.

The Department also developed the Preferential Procurement Strategy that it will implement in the 2021/22 financial year. Among other things, the Preferential Procurement Strategy will assist the Department to ensure that the procurement of certain commodities is set aside for previously disadvantaged groups.

The Department has functional bid management committees in place. Although the COVID-19 pandemic caused practical difficulties, the bid committees continued to meet virtually to ensure that their functions were carried out. There was no unsolicited bid procured during the year under review.

The Directorate: Supply Chain Management is currently experiencing capacity constraints owing to the budget constraints under compensation of employees that are experienced throughout the Department. To address this challenge, the Department sourced resources from temporary employment agencies. The capacitation of the directorate will be prioritised in the next financial year.

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

No gifts or donations in kind were received from nonrelated parties.

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

There were no SCOPA resolutions.

#### **Prior modifications to audit** 5.10 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 raised by National Treasury.

#### 5.12 **Events after the reporting date**

No significant events occurred after the reporting date

#### 5.13 Other

The COVID-19 pandemic continued to affect the Department negatively. However, the DSI did everything in its power to ensure that the impact was minimised.

#### 5.14 Conclusion

The Department is currently operating in a difficult environment owing to COVID-19. Guided by the protocols and measures provided by the Department of Health and other relevant organisations, the Department does everything it can to minimise the impact of the pandemic on its employees and operations.

#### 5.15 **Acknowledgements appreciation**

I would like to thank the staff of the Department for their dedication and hard work in these trying circumstances. I would also like to thank Minister Nzimande and Deputy Minister Manamela for their support and leadership.

#### 5.16 **Approval and sign-off**

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

me Mywara

Dr PM Mjwara

**Accounting Officer** 

31 May 2021

# 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);
- a system of internal controls that has been designed to provide reasonable assurance as to the integrity and reliability of the performance information, the human resources information and the Annual Financial Statements, has been established and is being implemented.

In my opinion, the Annual Report fairly reflects the operations, the performance information, the human resources information and the financial affairs of the Department fort the year ended 31 March 2021.

Dr PM Mjwara

Director-General

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31 May 2020

#### 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 highquality 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

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

The 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.

#### **Astronomy Geographic Advantage Act, 2007**

The 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.

#### **Human Sciences Research Council Act, 2008**

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

#### **Income Tax Act, 1962**

Section 11D of the Income Tax Act gives the Minister responsible for 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.

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

The 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)

# National Advisory Council on Innovation Act, 1997

The Act establishes the National Advisory Council on Innovation to advise the Minister responsible for 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.

#### **National Research Foundation Act, 1998**

The 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.

#### **Natural Scientific Professions Act, 2003**

The 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.

#### **Scientific Research Council Act, 1988**

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

# South African National Space Agency Act, 2008

The 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.

#### **Technology Innovation Act, 2008**

The 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 Higher Education, Science and Innovation Dr BE Nzimande, MP



The Deputy Minister of Higher Education, Science and Innovation Mr KB Manamela, MP



Director-General Dr Phil Mjwara



Acting Deputy Director-General: Institutional Planning and Support Mr David Mmakola



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



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



Deputy Director-General: Technology Innovation Dr Mmboneni Muofhe



Acting Deputy Director-General: Research **Development and Support** Dr Yonah Seleti



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.

Some of the highlights for the period under review are presented below.

#### Membership

As the country's official academy of science, ASSAf has the core function of honouring the country's most outstanding scholars by electing them to membership of the Academy. During the reporting period, 31 more of South Africa's leading scholars and scientists were inaugurated as ASSAf members, and three honorary foreign associates were appointed by the ASSAf Council, bringing ASSAf's total membership to 594 at the end of the 2020/21 financial year. Black membership increased from 31% in the previous reporting period to 33%, while the percentage of women members grew from 27% to 28%.

#### Studies for evidence-based advice

In fulfilment of its mandate to provide evidence-based science advice to government on matters of national importance, ASSAf produced 15 publications in the period under review. These comprised one consensus study, five proceedings reports, one peer-reviewed panel report, two books and six statements. The statements were produced in response to a number of national issues, including matters related to the

COVID-19 pandemic. One consensus study, "Provider Core Competencies for Improved Mental Health Care of the Nation", presents a vision for a workable and appropriate system of health promotion, treatment, care and rehabilitation for people with mental, neurological and substance use disorders.

#### SciELO SA

The Scientific Electronic Library Online South Africa (SciELO SA) is the first fully open access platform for scholarly publishing on the African continent. It is a full-text searchable database of selected, high-quality South African scholarly journals, aimed at raising the global visibility and indexability of South African research. Since its inception in 2009, the SciELO SA collection has grown to 82 titles.

#### **South African Journal of Science and Quest**

2020 marked the 116th year of publication of the South African Journal of Science. Seven issues were published in the period under review, including a special issue on "Intellectual and Social Critique", while the number of submissions continued to grow, with a total of 440 received in 2020/21. Through its science magazine, *Quest*, ASSAf participated in three outreach activities in Gauteng and KwaZulu-Natal. Some 800 learners were involved, and more than 1 500 copies of the magazines were distributed.

#### National and international liaison

ASSAf continued to strengthen and grow its national, regional and international partnerships. ASSAf established a Forum on Just Transition to bring various stakeholders together to develop a plan to transition from a coal-dominated energy economy to one with lower transmissions in such a way that no one is left behind.

ASSAf and the South African National Space Agency have a partnership to carry out collaboration activities that will ensure that policy formulation is evidence based and that science engagement is advanced to increase science awareness in communities.

#### 10. **ENTITIES REPORTING TO THE MINISTER (CONTINUED)**

ASSAf and the Embassy of Italy brought together experts from South Africa and Italy to discuss and raise awareness of the mental health challenges confronting the elderly during the COVID-19 pandemic.

In Africa, ASSAf participated in activities in support of science academies in eSwatini, Botswana and Lesotho, among others. It also led a survey among science academies in the SADC region to measure academy capacity and activities related to COVID-19, with the aim of demonstrating the value science academies add to their respective countries in responding to matters of national and global importance.

#### Women in science

ASSAf and the DSI partnered with the Organisation for Women in Science in the Developing World in South Africa, Black Women in Science and Nka'Thuto EduPropeller to hold a South African Women in Science Awards (SAWiSA) webinar series. Four webinars, featuring previous SAWiSA winners, were held to celebrate women's achievements in science and engage on challenges limiting the participation and success of women in science, research and innovation.

#### 10.2 **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 that was established through an Act of Parliament in 1945. The CSIR undertakes directed. multidisciplinary research and technological innovation that contributes to improved quality of life for all South Africans. The organisation plays a key role in supporting 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 presented below.

#### Geophysics and deep-level mining

In the period under review, as part of a project to enhance the CSIR's geophysics offering to the mining industry, the CSIR compiled a book on the application of geophysics to deep-level gold and platinum mining in South Africa. The book, for which a formal publication offer has been received from Springer, a leading global scientific publisher based in the Netherlands, will provide decision-makers at mines with a better understanding of the various geophysical methods that may apply to standard deep-level gold and platinum mining problems. It will also serve as a much-needed source of training material for mining professionals and students at tertiary education institutions.

#### **VeristicPrint Visitor Identification System**

The CSIR's Information and Cybersecurity Centre has completed the development of the VeristicPrint Visitor Identification System, which combines an inhouse veristic biometric algorithm, a web camera and contactless fingerprint scanners. The core components of the system, including the back-end, web app and mobile app designs, have been completed. The new base system configuration has also been completed, tested and deployed in the ICT servers, and integrated into mobile and web apps. End-to-end testing has been completed, and a pilot study is planned for 2021/22.

#### **New-generation radar technology**

The CSIR and Hensoldt South Africa are co-developing a new generation of tactical 3D surveillance radar systems for naval and land deployment. German parent company Hensoldt AG chose South Africa for this development after finding that the CSIR had the appropriate technology and capability to develop the new radar technology with Hensoldt SA as an industry partner. Hensoldt SA has signed co-development

## 10. ENTITIES REPORTING TO THE MINISTER (CONTINUED)

and licensing agreements with the CSIR and will be leveraging its radar expertise, built up over the past 75 years, to modernise and extend its radar portfolio. The CSIR and Hensoldt technical teams have formed an effective joint project team to develop the radar. In the period under review, the team completed the preliminary design phase, leading to an initial design review in which Hensoldt highly commended the quality of the design phase output. The licensing agreement will enable Hensoldt to manufacture and sell the South African radar worldwide, and royalties will be paid to the CSIR.

The development of world-class, disruptive radar technologies at the CSIR has successfully attracted significant foreign direct investment to develop an advanced product in South Africa, while enabling the establishment of industry in South Africa. This will result in the export of a high-value South African product in partnership with one of the premier radar companies in the world, and will contribute passive income to CSIR revenues, helping the CSIR to achieve its the objective of income diversification.

# Biomanufacturing Industry Development Centre

The CSIR's Biomanufacturing Industry Development Centre (BIDC) has provided product scale-up support to the black female-owned SMME Sawubona Mycelium. The CSIR team, working with the SMME, used the BIDC's world-class equipment and research and development expertise to successfully produce 800 litres of product by cultivating enokitake, a species of edible mushroom, using a liquid-based cultivation process, a first in South Africa.

Producing this organism in liquid form, as opposed to conventional soil-based cultivation, is not only a technology shift, but has also allowed the SMME to derive more value from the mushroom. From the liquid-based production process designed by CSIR researchers, a high-value compound known as beta-

glucan can be extracted. Beta-glucan can be used in cosmetic products as an alternative, cost-effective compound in product formulation. The team was also able to extract enough biomass to be converted into dried mushroom, which can be used as a food additive or flavourant.

With the SMME now taking liquid cultivation to scale, it will continue to explore new product offerings. So far, two technology products have been developed, and the process has been assigned a technology readiness level of 8, which is an indication of technology maturity. The BIDC has produced market samples for these products and has licensed the production technology to the SMME.

#### **Ground-penetrating radar to protect facilities**

The Department of Defence (DOD) has contracted the CSIR to provide synthetic aperture radar (SAR) and ground-penetrating radar (GPR) research support. These technologies play a crucial role in identifying hazardous areas that may have been compromised by subsurface cavities or developing sinkholes – particularly in dolomitic areas and where DOD infrastructure and facilities are at risk. The CSIR's NextGen Enterprises and Institutions cluster is responsible for the SAR component, and the Defence and Security cluster has been tasked with handling the GPR component.

Owing to the promising performance of GPR in past joint projects, the DOD identified the need to build an in-house GPR capability to enable the ongoing and sustainable application of the technology at its facilities. The CSIR advised the DOD on the GPR equipment required and assisted in procuring a suitable system, which was assembled, deployed and tested in January 2021. The CSIR also provided training to selected DOD staff to establish an in-house capability for the DOD to perform GPR surveys across its various facilities in the country.

#### 10. **ENTITIES REPORTING TO THE MINISTER (CONTINUED)**

#### Support for road asset management

The CSIR has entered into an agreement with the Gauteng Department of Roads and Transport (GDRT) to support road asset management for three years. The agreement is an extension of two similar contracts, the first of which started in 2014. The CSIR will assist the GDRT to qualify for funding from the Provincial Roads Maintenance Grant through various activities to maintain, support and update the province's current road asset management system (RAMS) and the collection and analysis of data on the condition and maintenance needs of the provincial road network and bridges. The CSIR will also present training courses for GDRT staff.

#### 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 presented below.

## Understanding attitudes, behaviour and perceptions in respect of COVID-19

The HSRC conducted a number of surveys aimed at informing government planning and messaging for coordinated and effective COVID-19 responses. The nature of the pandemic and the COVID-19 safety protocols necessitated an agility and innovation in how the HSRC conducted its research. Much of the work was conducted using online platforms, primarily the data-free BiNu Moya Messenger. Moya Messenger

has a large user base of about four million, many of whom are from less privileged and more vulnerable communities.

The first survey began on 27 March 2020, the day on which South Africa entered alert level 5 of its national lockdown. It aimed to gain an understanding of what the South African public knew and felt about COVID-19. Moya Messenger enabled the HSRC to reach 19 330 respondents. Starting on 8 April, qualitative interviews were held with participants using telephone communication, video platforms or an internet-based questionnaire to obtain better insight into the impact of the lockdown on lived experiences of respondents.

Another HSRC survey conducted using the Moya platform was carried out in partnership with the University of Johannesburg's Centre for Social Change. The multilingual COVID-19 Democracy Survey was used to determine public perceptions of the economic, social and political impact of COVID-19 on life across the country. Data were rapidly analysed, and results released in a timely and effective manner. As one of the world's most unequal societies, the circumstances of South Africans under lockdown differed dramatically from those of people in other countries. The data demonstrated that there was broad support for policy interventions that would assist the poorest sections of society, including the distribution of food parcels, the introduction of a basic income grant and increased social grants. Later rounds of the survey focused on attitudinal and behavioural dynamics, the reopening of schools and vaccine hesitancy.

The HSRC, with the University of KwaZulu-Natal's School of Medicine, conducted a survey looking at the impact of COVID-19 on health workers. Support was received from various associations for healthcare professionals and the departments of health in all nine provinces. The study results included information on the demographics of respondents, their knowledge of the incubation period, symptoms and transmission of COVID-19, their sources of information, the training they received, their perceptions of risks, their use of

#### 10. ENTITIES REPORTING TO THE MINISTER (CONTINUED)

personal protective equipment and their general physical and mental health.

Other studies included the National COVID-19 Antibody Survey (in partnership with Epicentre, the National Institute for Communicable Diseases, the National Health Laboratory Service and the South African Medical Research Council) and research into the impact of lockdown restrictions on funerals and customary practices in the rural Eastern Cape (in partnership with Walter Sisulu University and the Office of the Eastern Cape Premier).

# Contributing to the quest for equitable education in South Africa

Since 1995, the HSRC has carried the responsibility of conducting the Trends in International Mathematics and Science Study (TIMSS) in South Africa. TIMSS is a project of the International Association for the Evaluation of Educational Achievement (IEA), and allows participating nations to monitor their educational achievements and compare them across borders in the key subjects of mathematics and science. In addition to achievement data, TIMSS collects contextual information about the home, school and classroom to explain learner achievement.

Since 1995, the HSRC has been responsible for conducting the TIMSS study in South Africa. South Africa is one of the worst performing countries. The TIMSS data, when disaggregated by school poverty quintile, provides important information on the inequalities in the education system in relation to resources, infrastructure, teacher experience, and support, both at home and in the classroom. While the TIMSS 2019 scores were up from the previous (2015) TIMSS cycle, the rate of improvement in achievement is decreasing. For South Africa to meet the TIMSS developmental objectives set in the 2019-2024 Medium Term Strategic Framework, strategically targeted interventions and additional efforts from all education role players will be required.

# Contribution to the Presidential Youth Employment Intervention

The unemployment rate in South Africa rose from 29% in 2019 to an all-time high of 32,5% at the end of 2020 (affecting approximately 7,2 million people). Over 40% of young people are unemployed, including thousands with university degrees. Modelling by National Treasury indicates that the COVID-19 pandemic and the consequences of the national lockdown will decrease employment prospects further.

Government is committed to reducing youth unemployment through the Presidential Youth Employment Intervention (PYEI), which is the largest and most comprehensive plan to address youth unemployment in South Africa's democratic history. The amount of R100 billion has been allocated to the PYEI for the development of young people and the creation of meaningful employment opportunities. Socio-behavioural data gathered by the HSRC during the pandemic has provided evidence that can be used for PYEI interventions at grassroots level in collaboration with community-based organisations. The HSRC is running a pilot project providing sixmonth paid placements in socio-behavioural health surveillance for 1 000 graduates across academic disciplines. This will help prepare the graduates for future employment.

#### **Green economy research and development**

The HSRC's Centre for Science, Technology and Innovation Indicators (CeSTII) worked with Trade and Industrial Policy Strategies (TIPS) to produce assessments of investment in green economy research and development.

# Policy forum on the state of innovation in South Africa

In the wake of COVID-19, innovation will be critical for the country's economic recovery. It is therefore vital to interrogate the available evidence on innovation to enable it to be used to inform optimal policy mixes

#### 10. **ENTITIES REPORTING TO THE MINISTER (CONTINUED)**

in response to fast-changing national, global and sectoral issues. The DSI, the National Advisory Council on Innovation (NACI) and CeSTII jointly organised a virtual forum on 28 August, which featured high-level presentations and a panel discussion on key aspects of the country's innovation performance.

#### Surveys on research, development and innovation

The HSRC has performed national innovation surveys since CeSTII was established in the early 2000s. South African innovation surveys follow the widely adopted OECD Oslo Manual methodology to enable international comparisons, and are conducted using a random sample of businesses stratified by size-class and across the industrial and services sectors. Data is then weighted to reflect innovation performance across the national population of businesses in those sectors, allowing for a unique snapshot of innovation performance in the formal economy. The 2014-2016 Business Innovation Survey results, released in the year under review, provide critical data on the kinds of barriers (cost, market, knowledge or institutional factors) that prevent more firms from innovating.

The 2018/19 national survey on research and experimental development was released in the year under review. The survey offers important information for stakeholders across sectors to understand the trends in national R&D expenditure and human resources devoted to R&D. The statistics show that South Africa's expenditure on R&D has declined for the first time since recovering from the contractions experienced in 2009/10 and 2010/11. Given the immense benefits of past investments, there needs to be a greater focus on increasing investment in R&D across government and the private sector.

Small and informal businesses play an important role in South Africa. The first (baseline) Innovation in the South African Informal Sector Survey report, covering 2017-2018, was released in March 2021 at a workshop jointly organised by CeSTII and the HSRC's Centre for Community-based Research in Sweetwaters, KwaZulu-

Natal. Research into innovation also shows that when small businesses work together in a network, they are able to support and learn from one another.

#### 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 body that advises the minister responsible for 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 the 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 presented below.

#### Sovereign innovation fund

The White Paper on Science, Technology and Innovation (STI) recognised the need for substantial funding to commercialise innovations, and proposed the establishment of a sovereign innovation fund (SoIF) to leverage private sector investment. The Department of Science and Innovation (DSI) began considering the concept for such a fund in 2014, and in 2018 the fund was included in the Department of Small Business Development's Small Business Innovation Fund, which was granted an MTEF budget of R3,17 billion. In 2019, after discussions with the Department of Small Business Development and National Treasury, the DSI decided to set up the SoIF as a standalone public-private funding partnership.

#### 10. ENTITIES REPORTING TO THE MINISTER (CONTINUED)

The rationale for SoIF, in support of the NDP vision and the White Paper, is to serve as an investment platform to develop a strategic portfolio of investment opportunities to foster high-tech and technology-enabled entrepreneurial initiatives; to create funding certainty for high-technology developments, particularly those that will serve to modernise the South African economy (and embrace the opportunities of the 4th industrial revolution); and to establish policy coherence through the coordination and integration of funding activities across government.

The NACI produced a report entitled "Guidelines and Toolkit for the Design and Implementation of the Sovereign Innovation Fund", which offers advice on how to structure and manage the sovereign innovation fund.

# 2020 South African Science, Technology and Innovation Indicators Report

The 2019 White Paper on STI advocates the use of STI to address societal challenges and contribute towards the creation of an inclusive and sustainable economy. It also clearly states the need to strengthen the monitoring and evaluation capability of the NSI. The STI Indicators Report is part of the NACI's contribution to building the monitoring, evaluation and learning capability necessary for assessing the state of the NSI.

The 2020 STI Indicators Report reflects progress on some indicators, while pointing to areas of concern. Although South Africa's research system, particularly public institutions such as universities and science councils, has shown a steady increase in scientific publications over many years, more recent performance indicates a decline. South Africa's publications per million population declined from 371 in 2017 to 360 in 2018.

Most of the doctoral degrees produced in South Africa are in the field of natural and agricultural sciences, with 1 051 doctorates produced in 2018. Only 7% of the doctoral degrees produced were in the field

of engineering. Between 2016/17 and 2017/18, the number of researchers in the business and higher education sectors increased by 14,7 and 15,7%, respectively. Unemployment is generally lower among those with higher levels of education. However, among those with master's and doctoral degrees, unemployment increased from 2,4% in 2018 to 2,8% in 2019.

The financing of the national system of innovation continues to be a challenge. In 2017/18, South Africa's gross domestic expenditure on R&D (GERD) remained below the target of 1,5% of GDP. Business expenditure on R&D as a percentage of GERD also declined, from 58,6% in 2008/09 to 41,0% in 2017/18, and as a percentage of GDP from 0,52% in 2008/09 to 0,34% in 2017/18.

In terms of innovation, several indicators suggest that the innovation system is not very efficient. Despite the best efforts of policy makers, new policies and additional resources, technology and innovation outputs have stagnated or risen only very slowly. It is necessary to ensure that policies and resources are rendered more effectively in respect of technology and innovation. There is considerable scope for efficiency gains within the existing resource constraints.

The findings of the report are intended to improve stakeholders' understanding of current factors and opportunities for enhancing the NSI's performance and contribution to socio-economic development in South Africa.

#### Review of the National Research and Development Strategy and Ten-Year Innovation Plan

The first major review of the 2002 National Research and Development Strategy and Ten-Year Innovation Plan (2008-2018), which were the instruments used to implement the 1996 White Paper on Science and Technology's broad vision and framework for STI activities, was intended to identify, map and reflect on all related activities or policy initiatives (in and outside

#### 10. **ENTITIES REPORTING TO THE MINISTER (CONTINUED)**

the DSI) to develop a better understanding of the progress or lack of progress in implementing the two policy instruments. To ensure that review results could find immediate application in the development of the decadal plan for STI, the emphasis was on advising on what had worked and what had not, recommending actions to address current policy gaps, and informing the development of future strategies or plans. The review started in January 2019 and extensive interactive engagement by the international reference group and the NACI Council enhanced the draft report.

While the review process began in a largely business-as-usual context, by the time it came to synthesising the research findings and finalising the recommendations, COVID-19 had changed the global situation dramatically, and the world was facing increasing social and economic crises. It is therefore necessary to consider the aspects that can be applied to shape a national system of innovation that is responsive and relevant to the current state of affairs.

#### **Development of monitoring and evaluation** framework for the NSI

The 2019 White Paper on STI advocates strengthening the monitoring and evaluation (M&E) capability in the NSI to bolster policy performance, assigning the NACI the task of developing an M&E framework to address, among other things, in adequate mechanisms for policy learning. A workable and effective framework requires a sound theoretical and understandable foundation, a transparent and relevant analytical model, appropriate information sources and contextualised performance indicators. The NSI M&E framework incorporates the views and interests of all major stakeholders and actors in the STI system, both public sector and private sector perspectives were considered.

The NSI M&E framework is aimed at overarching systems (not sector, programme or other lower levels). Developing a systems-level M&E framework was challenging. The proposed multi-perspective framework, built on decades of M&E traditions and best practices in South Africa and elsewhere, has five core

components, namely, (a) an adaption of the national system of innovation, (b) theory-based evaluation derived from Theory of Change and an associated logic model, (c) an integrated set of domain-specific evaluation questions and system-level evaluation questions, (d) applying a wide range of quantitative performance indicators, and (e) introducing M&E information platforms, such as an STI scoreboard with an STI index, to track and measure the general performance of the entire system and how it moves forward.

The M&E framework makes a clear distinction between monitoring objectives and evaluation goals. In respect of monitoring, the framework presents the criteria for systems-level performance indicators and a variety of possible candidates, ranging from background or context indicators to high-priority key performance indicators. The NACI took cues from the European Innovation Scoreboard, an indicator-based model, for the design of an analytical tool for South Africa. It is important that the tool distinguishes between two important complementary functional approaches to assessing the general health of the South African NSI, namely, international and domestic benchmarking. An analysis of the currently available indicators, and how they map onto the structure of the STI model, offers many options for applications in M&E settings, but also reveals important information gaps and missing indicators that need to be developed.

In respect of evaluation, the framework applies the theory-based evaluation approach and focuses on systems-level evaluation questions related to previous or ongoing STI policies and (proposed) interventions. The STI policy intents and ambitions in the White Paper on STI were used as input, as were relevant systems-level issues in South African STI domains, and international and global trends in STI. The framework's tailormade approach puts heavy emphasis on connections between actors and processes in the system, both national and international.

## 10. ENTITIES REPORTING TO THE MINISTER (CONTINUED)

#### 10.5 National Research Foundation



#### **Overview of objectives**

The National Research Foundation (NRF) is an agency of the government. Its primary objective is to contribute to the improvement of the quality of life of all South Africans through the promotion of an economy based on the generation, transfer and use of knowledge. The organisation 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 a mix of programmes and funding mechanisms aligned to national priorities. The NRF also supports and promotes awareness of and engagement with science to improve science literacy and public participation in science, technology, engineering, mathematics and innovation.

Some of the highlights for the period under review are presented below.

# Collaboration to promote and support research and innovation

The contracting agreements with partners for the COVID-19 Africa Rapid Grant Fund have been finalised, bringing the total investment leveraged from international funding partners for this fund to approximately R80 million, with an additional R25 million investment from the DSI/NRF. The first interim report of the COVID-19 Africa Rapid Grant Fund was successfully submitted to all funding partners.

The NRF and the Swedish International Development Cooperation Agency signed an agreement to support the Belmont Forum research call on oceans, as part of Belmont's collaborative research action programmes. The project is aimed at strengthening transdisciplinary research capacity to grow regional knowledge of sustainability solutions, in addition to developing innovative solutions. The Belmont Forum is an international partnership that mobilises funding of environmental change research and accelerates its delivery to remove critical barriers to sustainability.

An agreement with Mitacs, a Canadian non-profit organisation, has been finalised. The agreement focuses on the placement of students and postdoctoral fellows at Canadian and South African-based research and industry institutions. Through this partnership, qualified graduate students and postdoctoral fellows will be recruited to carry out joint internships in industry that will further strengthen international research collaboration between South African and Canadian companies and universities. The agreement will be implemented from 2022.

#### Science engagement

In the period under review, the NRF developed a project brief for a system-wide science engagement management and information system. The brief was approved by the DSI, and the Council for Scientific and Industrial Research was appointed to develop the Science Engagement Information Management System.

A portfolio of science engagement and communication skills training for students and researchers across the NRF research investment areas was developed. Six chapters of the new framework for the development and support of science centres have been completed, incorporating recommendation from stake-holders. The existing skills development programme for science centres was reviewed and a new plan was developed for implementation in 2021/22.

#### **ENTITIES REPORTING TO THE MINISTER (CONTINUED)** 10.

#### **Human capacity development**

The NRF supported 11 103 postgraduate students at honours (4 320), master's (3 986) and doctoral (2 797) levels. Three thousand researchers were supported by the NRF, of whom 1 455 (49%) were black and 1 320 (44%) were women. The DSI-NRF Postgraduate Funding Policy commenced with a call for applications in 2020 for funding in the 2021 academic year (2021/22 financial year). The NRF established the Leading Researchers and Scholars Programme to create a sustainable intervention that accelerates the career progression of exceptional researchers and scholars in all disciplines and fields of research, and at all stages of their careers – early, mid-level and advanced.

#### **National Equipment Programme**

A total of 132 progress reports were received, of which 112 (86%) indicated the equipment as being fully commissioned. A total of 113 grant holders reported that the equipment was operational, while 66 out of the 113 reported on users linked to outputs. In the 2020 academic year, 1 496 people used the research equipment and a total of 394 publications (365 articles) emanated from this access to the equipment.

Researchers are supported by the NRF in various ways, including funding, research platform use and access to research data. The total number of publications from those supported was 8 150. This figure includes 655 publications from national facilities. National research facilities supervised 368 students during the year.

#### Nuclear science (iThemba LABS)

The procurement of a 70 MeV cyclotron for the South African Isotope Facility remains on track.

The plant for the nitrogen liquefier project, due for commissioning in April 2021, will be capable of supplying up to 300 litres of liquid nitrogen per day for experimental research projects. As a strategic intervention to mitigate against delivery shortcomings on the part of liquid nitrogen suppliers, the in-house liquefier will also provide significant cost savings.

#### Astronomy

In April 2020, the Department of Trade, Industry and Competition tasked the South African Radio Astronomy Observatory (SARAO) to assist with the National Ventilator Project. SARAO repurposed the capabilities developed for the MeerKAT/Square Kilometre Array and built 20 000 non-invasive ventilators by November 2020. The ventilators, being simple and safe to use, with no intubation required, freed up ICU beds and nurses.

An addendum to the MeerKAT Extension Agreement between SARAO and the Max Planck Institute for Radio Astronomy, to include the Italian National Institute for Astrophysics as a partner, was agreed on. The MeerKAT Extension Infrastructure tender was awarded following approval by the NRF Board.

With funding from the Department of International Resources and Cooperation, SARAO helped to ensure the conclusion of negotiations between the Ghana Space Science and Technology Institute and a commercial satellite operator for the hosting of a satellite ground station at the Ghana Radio Astronomy Observatory (GRAO). This will result in long-term operational funding to support the GRAO.

The 1.5 generation (MaxE) project involves many engineers and astronomers from the South African Astronomical Observatory (SAAO)/Southern African Large Telescope (SALT) and SARAO engineers. It passed the concept design review in the year under review.

The Intelligent Observatory project highlights include new web interfaces to the Lesedi and 1,9 m telescopes, autoguider development, and work on an instrument selector port for the 1,9 m telescope, a project also involving collaboration with the Indian Institute of Astrophysics in Bangalore. A totally new operations room in Cape Town is approaching completion.

The SALT high resolution spectrograph high-stability mode, useful for exoplanet studies, achieved crucial milestones when the analysis of a calibration data

## 10. ENTITIES REPORTING TO THE MINISTER (CONTINUED)

set was successfully completed with encouraging preliminary results, suggesting the instrument is indeed capable of a precision of at least one to three square metres. The SALT Board approved the purchase of a laser frequency comb calibrator.

# Environment and biodiversity (South African Environment Observation Network and South African Institute for Aquatic Biodiversity)

Two infrastructures under the South African Research Infrastructure Roadmap, Expanded Freshwater and Terrestrial Environmental Observation Network and Shallow Marine and Coastal Research Infrastructure. are currently being implemented. A third, the South African Polar Research Infrastructure, will be implemented from 2021 onwards. The eventual integration of these into a single platform will create a holistic environmental research infrastructure of unparalleled size and scope. Similar research infrastructures of this size, incorporating a multitude of terrestrial and marine sites, have not been developed elsewhere in the world due to institutional legacies and boundaries. The combination of the three infrastructures would integrate research sites from the Limpopo River in the north to the SANAE IV Base in Antarctica in the south, 6 000 km apart, and will fully exploit South Africa's geographic advantage. This will be highly attractive to the international earth system science community and international funders.

The South African Institute for Aquatic Biodiversity's coastal fleet has been rearranged since the addition of Research Vessel (RV) Observer. RV uKwabelana and RV Phakisa are now both based in Durban and will service the Durban and Richards Bay areas. RV Observer is based in Gqeberha and will service Algoa Bay, East London and Mossel Bay as required.

# 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 presented below.

The 2020/21 financial year was a demanding year for most organisations. SACNASP, an office-based organisation, created systems and processes to facilitate remote working during the COVID-19-related lockdowns, and the entity remained fully functional during COVID-19 lockdowns. The effectiveness of these systems is evident from the higher-than-expected number of registrations and the effective execution of SACNASP's regulation mandate. Prior to the limitations imposed by the pandemic, SACNASP had embarked on numerous outreach activities, but in the year under review, hosting and attending face-to-face activities, which were pivotal for its marketing function, were constrained. The organisation addressed this by ensuring a strong online presence.

To alleviate the financial burden faced by some scientists during the ongoing pandemic, SACNASP decided not to increase annual fees for the 2021/22 financial year.

During the year under review, SACNASP registered 1 413 new scientists, 151 up from the previous year. This better than anticipated uptake in registration can be attributed to the scientific community becoming more aware of the benefits of registering with the

#### 10. **ENTITIES REPORTING TO THE MINISTER (CONTINUED)**

SACNASP, which is an indication that marketing efforts are bearing fruit. A more streamlined website has made the application process simpler to navigate.

The promotion of lifelong learning and transformation in the natural science sector remains a priority. A total of 1 324 events were accredited by the Continuing Professional Development (CPD) service provider website. In April 2020, in response to the COVID-19 pandemic, the CPD online portal was created to give remote access to CPD activities. SACNASP, supported by the voluntary associations (VAs), offered online activities to enable scientists to gain CPD credits, most of them at no cost. Fifty-eight activities are currently available.

For candidate scientists, there has been significant progress towards the implementation of the pilot Candidate Mentoring Phase programme at SACNASP. Participating VAs collaborated with SACNASP, with 17 candidates participating from three VAs. Of the candidates, 75% were female. SACNASP hopes to expand this programme in the 2021/22 financial year. SACNASP believes that soft skills are also crucial to the development of a professional scientist and has embarked on hosting a series of webinars targeted at candidates, at no cost to them, that addresses this. The first, "Business Environment Skills", was attended by more than 250 candidates.

The enrolment of students at higher education institutes continues. The lockdowns posed challenges in terms of communicating with students, and SACNASP is exploring different media avenues to engage with students.

A draft report on "Tracking of Employed, Unemployed and Underemployed Natural Science Graduates", compiled in conjunction with the Human Sciences Research Council, was completed in the year under review. The final report will be presented to the Minister in 2021/22.

SACNASP regulatory function continued remotely and the Council handled eight complaints about the alleged unethical conduct of registered scientists.

Investigation committees were appointed and SACNASP conducted two tribunals during this period. A whistleblowing hotline is now available to scientists and the public to lodge complaints about unethical conduct with SACNASP.

Collaboration with regulation authorities and other entities is important for effective coordination between key stakeholders, the sharing of knowledge and information, and the identification of possible regulatory overlaps that may exist. SACNASP held engagements with other regulatory councils to gain insights into best practices and areas for collaboration. These entities included the Independent Regulatory Board for Auditors, the South African Dental Technicians Council, the SA Council for Social Science Professions, the Allied Health Professions Council, the Environmental Assessment Practitioners of South Africa, and the South African Council for the Project and Construction Management Professions.

SACNASP engaged with the Council for Higher Education on academic programme evaluation and developing standards for qualifications in the natural sciences, and with the National Science Deans Forum, which led to valuable insights into their views on the role of SACNASP in academic programmes offered at universities. This is an ongoing engagement.

There were engagements with the voluntary associations and the South African Qualifications Authority in relation to issuing professional titles, and nine VA events were supported during the financial year.

SACNASP attended various engagements with the Minister of Higher Education, Science and Innovation during the year under review, including with the chairpersons and CEOs of entities reporting to the Minister on departmental COVID-19 interventions. Following the meeting, the SACNASP engaged with the VAs to deliberate on their role in the country's response to the pandemic. A report on the discussions was presented to the Minister.

## 10. ENTITIES REPORTING TO THE MINISTER (CONTINUED)

SACNASP received funding from the DSI to ensure that the objectives of its 2021/22 Annual Performance Plan were met. The funding assists the Council to reach out to the science community more effectively, and is also used for projects involving local communities, for example, protecting indigenous knowledge in communities, and assisting communities and municipalities in terms of their scientific needs to enable district development.

Another area of focus is CPD content development. For South Africa to be truly competitive in the global scientific community, it needs to ensure that the training of the country's scientists meets or exceeds international standards. In addition, the exposure and continuous training they receive throughout their careers in each field of practice must prepare them adequately for a changing scientific world. SACNASP will focus on the developments needs per field of practice. The Council also focuses on academic programme evaluation, to ensure that academic programmes offered at higher educational institutions lead to professional registration.

## 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 presented below.

#### **Space science awareness**

SANSA is working together with the Cape Peninsula University of Technology to develop an exhibit on space science and technology for the science centre in Cofimvaba with grants from the NRF. The exhibit will showcase the space value chain to support science, technology, engineering and mathematics education in the Chris Hani District of the Eastern Cape. The DSI has a collaboration agreement with the Eastern Cape Department of Basic Education and the Intsika Yethu Local Municipality.

SANSA supports other science centres too. A model of the ZACube-2 satellite model and an A0-size poster on the National Oceans Information Management System were delivered to the Sci-Bono Discovery Science Centre in Newtown, Johannesburg, the University of Limpopo Science Centre in Polokwane, the Mondi Science Centre in Mkhondo, the Unizulu Science Centre in Richards Bay, and the Nkomazi Mathematics and Science Centre in Shongwe. SANSA also established 16 science clubs in the Capricorn District in Limpopo.

SANSA contributed to an international science communication at a webinar, part of Scifest's virtual AstroFest, on best practices for science communication using digital platforms, and made a presentation at the 4th African Science Buskers Festival in August 2020.

SANSA also made a presentation to the Southern African Geography Teachers Association, sharing various classroom activities that can be developed from space science and technology, to support the teaching of remote sensing and GIS in grades 10 to 12.

Other science engagement activities included radio interviews in celebration of World Space Week, and filming videos on grade 7 to 12 Physical Science material with funding from the South African Institute of Physics. The videos are a compilation of experiments performed to demonstrate classroom concepts and

#### 10. **ENTITIES REPORTING TO THE MINISTER (CONTINUED)**

examples of real-world applications. The team of demonstrators specifically included young women physicists.

#### Regional space weather centre

By the end of the 2020/21 financial year, SANSA had exceeded its targets for the Space Weather Project. SANSA awarded a tender for the construction of new buildings for the 24-hour Regional Space Weather Centre on the Hermanus site. Construction commenced in April 2021.

SANSA finalised the appointment of the Research Chair in Space Weather under the South African Research Chairs Initiative. This research chair is Dr Martin Snow, who has done pioneering work in the field of solar physics in South Africa. SANSA also participated in international forums related to the Space Weather Project, including the International Civil Aviation Organisation (ICAO) Meteorology Panel's Coordination Group on Space Weather, the third meeting of the Infrastructure and Information Management Sub-Group of the ICAO Africa-Indian Ocean Planning and Implementation Regional Group, and meetings of the Partnership of Excellence for Civil Aviation Space Weather User Services (PECASUS). These meetings are critical to ensure that consistent, globally recognised mechanisms are put in place to provide the required space weather information to the aviation sector, and that awareness of the requirements for space weather information is created within the African region. SANSA also accepted an invitation to become a member of PECASUS.

Product and service developments for the Space Weather Project are showing promise, especially in the Global Navigation Satellite System impact area, with the completion of AfriTEC, an African forecasting model for total electron content (TEC). This is one of five new products that have been developed within the research environment and are being validated and refined for transition from research to operations.

A total of 28 products and services have been defined within the entire project. The different stages of the

research to operations process have been defined with three main environments identified, namely, research and development; demonstration and testing; and in-house approvals and pilot runs. An additional environment has been included to manage and respond to client needs and feedback. This is important for establishing a reliable service that depends on the products developed. The research to operations and release procedure and process are about 50% complete. A verification and validation project has commenced and will be focused on in 2021.

#### 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 presented below.

#### Innovation Fund

DSI has established an Innovation Fund that will enhance South Africa's capacity to commercialise technological innovations. TIA was selected as one of the implementing partners during the initial deployment of the Innovation Fund by the DSI, alongside the SA SME Fund, the Public Investment Corporation and the Industrial Development Corporation (IDC). This R150 million public-private funding instrument aims to facilitate and accelerate commercialisation and will be scaled up in the next financial year.

## 10. ENTITIES REPORTING TO THE MINISTER (CONTINUED)

In the period under review, TIA received an allocation of R80 million. Of this, 87,5% has been committed to approved projects and R25,2 million disbursed to project recipients based on the achievement of milestones.

A notable development is the commitment of R12,5 million to Msizi Pharmaceuticals, a black-owned pharmaceutical company, established to manufacture and sell active pharmaceutical ingredients. This illustrates TIA's commitment towards the meaningful empowerment of black professionals in developing high-end technology and market-attractive products.

TIA disbursed R21,5 million (R20 million from the Innovation Fund plus R1,5 million from TIA's Medium-Term Expenditure Framework allocation, a prior commitment) under the Natural Indigenous Products Fund, a partnership with the IDC, established to advance the development and commercialisation of indigenous knowledge. This initiative builds on the historical investments made by the DSI through identifying and supporting six indigenous knowledge projects.

#### **Co-funding successes**

Cape Bio Pharms is a University of Cape Town spin-out company that aims to commercialise the biotechnology developed to produce recombinant proteins and antibodies from Nicotiana benthamiana plants. Often referred to as the "cousin" of tobacco, Nicotiana benthamiana contains nicotine and similar alkaloids. In 2014/15, the company received R500 000 from TIA's Seed Fund.

TIA and the SA SME Fund are partners in the University Technology Fund (UTF). An initial investment of R3 million by the UTF into Cape Bio Pharms for the precommercialisation of plant-based protein products leveraged a further R67 million in grant funding from the European Commission towards commercialisation and industrialisation.

The European Investment Bank, the Foundation for Innovative New Diagnostics and local funding initiatives have collectively invested R900 million in Cape Bio Pharms to further its COVID-19 antigen and antibody research. Funding from the European Investment Bank, which accounts for 70% of total investments, will be used to open a new COVID-19 research facility in Mauritius, operated by Cape Biologix Technologies, a subsidiary of Cape Bio Pharms. The Mauritius facility will consist of laboratories, processing plants and climate-controlled hydroponic grow rooms to provide stable plant-made proteins. Funding from the Foundation for Innovative New Diagnostics, which covers approximately 7% of investments, will be used to scale up the pilot production programme currently under way in Cape Town.

These developments demonstrate TIA's critical role in early-stage, high-risk pre-commercialisation activities, and how TIA can unlock further funding for commercialisation and industrialisation. The UTF also made two investments totalling R13 million to address urgent diagnostics and antibody sequencing related to immunisation. Both investees, Cape Bio Pharms and Hyrax, are university spin-outs.

TIA and the SA SME Fund are also partners in the Savant Venture Fund, which has a portfolio of 11 projects, six of them TIA projects. The Savant Venture Fund has succeeded in attracting the IDC as a partner. The IDC's commitment of R44 million in funding will serve to increase the investment capacity of the fund, specifically to consider more and larger deals.

The Department of Small Business Development's Small Enterprise Finance Agency has signed up to the UTF partnership between TIA and the SA SME Fund, and will contribute R30 million to the initiative. This expands the reach and impact of the UTF, as well as indirectly strengthening the partnership between the DSI and the Department of Small Business Development.

#### **ENTITIES REPORTING TO THE MINISTER (CONTINUED)** 10.

#### **Medical Device and Diagnostic Innovation** Cluster

TIA contracted with the South African Medical Research Council (SAMRC) to host the national Medical Device and Diagnostic Innovation Cluster in 2020/21. TIA's investment in this sector is aimed at addressing South Africa's reliance on imported medical diagnostics and devices, and aims to stimulate local manufacturing capability. The COVID-19 pandemic has underscored South Africa's limited ability to respond to health crises, and the need for the country to ensure security of supply and access to critical medical supplies and equipment. The medical device industry was identified by the Gauteng provincial government as a sector that could have a significant impact on its economy, and the Gauteng Department of Economic Development has earmarked R9,4 million over a three-year period to support the activities of the cluster.

#### Pelebox smart lockers

The Internet-enabled Pelebox smart locker system, developed by social impact start up Technovera, enables patients to collect their repeat chronic medication in minutes instead of having to queue for hours at public clinics. Pelebox continues to garner accolades as a breakthrough social innovation. It was named one of Time Magazine's 100 Best Inventions of 2019, and scooped the United Kingdom's Royal Academy of Engineering 2019 Africa Prize for Engineering Innovation, as well as the 2019 State Information Technology Agency Digital Public Service Award for Digital Social Transformation.

#### **Building on international relationships** through the Technology Platforms **Programme**

Funds leveraged through TIA's technology platforms or obtained directly through contracts amounted to R63,7 million. Ninety per cent of this amount was derived from an existing relationship with the Centre for Proteomic and Genomic Research and highlights the continuing benefits of TIA's targeted partnerships with technology platforms. Other partners in the

innovation ecosystem through whom additional funds were leveraged include the Human Heredity and Health in Africa Consortium and the SAMRC.

#### Multifractal semiconductors secure multimillion-dollar support from Silicon Catalyst

Multifractal Semiconductors (Pty) Ltd, an investee of TIA, was awarded in-kind services and design tools worth US\$8,5 million by Silicon Catalyst, the world's only incubator focused exclusively on accelerating solutions in silicon-based applications in the lucrative semiconductor market. This award is significant, as it will assist Multifractal's development team with chip design and fabrication, without which this TIA-funded development would not be possible.

#### **SwiftVEE Online Livestock Auction Platform** secures follow-on funding

SwiftVEE is an agritech start-up that operates as an online platform for livestock auctions. The company previously received R500 000 from TIA's Seed Fund through the Cape Design Institute, one of TIA's implementing partners. SwiftVEE has secured an investment of US\$1,5 million from a consortium of private investors and Subtropico Limited, a public investment holding company that focuses on the agricultural services sector and related value chain. The funding will be used to expand the company's offering in South Africa and in neighbouring countries, including Namibia and Botswana. It will also enable SwiftVEE to be included in Zire, a multiindustry agricultural services platform that provides technology services to industry stakeholders in the livestock, fruit and vegetable sectors. Zire is expected to launch in 2021 and will enable SwiftVEE to extend its market reach to new customers across multiple industries.





PART B
PERFORMANCE
INFORMATION

#### 1. AUDITOR-GENERAL 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 of the Auditor-General, published in Part E: Financial Information, on page 172.

#### 2. OVERVIEW OF DEPARTMENTAL PERFORMANCE

#### 2.1 **Service delivery environment** and alignment with broader government policies

This section provides high-level information about the Department's service delivery imperatives and its contributions to government's transformation agenda and development priorities. These achievements emanate from various commitments made in the Department's plans and are consistent with its six strategic outcome-oriented goals for the Medium-Term Expenditure Framework (MTEF) period, which is aimed at facilitating the Department's contributions to the National Development Plan (Vision 2030). These goals are a transformed, inclusive, responsive and coherent national system of innovation; human capabilities and skills for the economy and for development; increased knowledge generation and innovation output; knowledge utilisation for economic development in (a) revitalising existing industries and (b) stimulating research and development-led industrial development; knowledge utilisation for inclusive development; and innovation in support of a capable and developmental state.

During the period under review, the service delivery environment of the Department of Science and Innovation (DSI) was greatly affected by the outbreak of the COVID-19 pandemic across the world. In South Africa, the spread of COVID-19 and the required lockdown had devastating health, social and economic effects on citizens, and the government had to change its plans and redirect its budget to address the situation.

The Department, too, amended its plans to roll out initiatives aimed at mitigating the impact of COVID-19.

The DSI coordinated responses to the COVID-19 pandemic across the national system of innovation (NSI). For example, through the Strategic Health Innovation Partnerships (SHIP) programme at the South African Medical Research Council (SAMRC), the DSI diverted substantial financial resources from the 2020/21 budget to fund 21 COVID-19 projects. The following COVID-19 research and innovation priority areas received attention:

- Epidemiological studies and genomic surveillance.
- Clinical management.
- Infection prevention and control, including the protection of healthcare workers.
- Candidate therapeutics.
- · Candidate vaccines.
- Social sciences related to the outbreak response.

To further assist the government's response to the pandemic, the DSI leveraged the research and development capabilities of its entities, including the Council for Scientific and Industrial Research (CSIR), the National Research Foundation (NRF), the Technology Innovation Agency (TIA), the South African National Space Agency (SANSA) and the Human Sciences Research Council (HSRC). Various technology platforms established by TIA, such as the Centre for Proteomic and Genomic Research (CPGR), and the KwaZulu-Natal Research, Innovation and Sequencing Platform (KRISP), also played a critical role. The Network for Genomic Surveillance in South Africa (NGS-SA), involving a number of universities and government laboratories, was created to enhance the country's ability to carry out genomic surveillance of the SARS-CoV-2 virus. South Africa exploited expertise

through this platform to identify emerging variants and how they would affect the efficacy of COVID-19 vaccines. This work informed government decision-making on which vaccines to procure, with genomic surveillance becoming a critical component for a targeted response to the pandemic throughout the country, and is informing planning and responses in other countries as well.

The Department also tapped into the experience and expertise gained in the development of complex systems for the MeerKAT radio telescope, a precursor to the Square Kilometre Array, by the South African Radio Astronomy Observatory (SARAO), which is managed by the NRF on behalf of the Department. With the global shortages of ventilators needed to treat hospitalised COVID-19 patients, the DSI and the Department of Trade, Industry and Competition (DTIC) mandated SARAO to manage the national effort required for the local design, development, production and procurement of respiratory ventilators to support the government's National Ventilator Project.

STREAM 1 of the National Ventilator Project was aimed at meeting the anticipated demand for simple, low-cost ventilators that could be rapidly produced, certified and deployed in large numbers. To date, 20 000 ventilators have been produced and distributed to hospitals. This project serves a dual purpose, not only making a meaningful contribution to the government's health response to the pandemic, but also contributing directly to the Economic Reconstruction and Recovery Plan. It is envisaged that, going forward, the project will provide a much-needed science, technology and innovation-related enabler of manufacturing for the local market, with potential for export to the rest of the continent.

Beyond COVID-19, the DSI's planned service delivery initiatives are aligned with the broader government service delivery agenda, which is based on South Africa's National Development Plan (NDP). The NDP, the blueprint for tackling South Africa's challenges of

poverty and inequality, highlighted the importance of science, technology and innovation (STI) in addressing novel societal challenges. The NDP acknowledges that developments in STI fundamentally change the way people live, communicate and transact, with profound effects on economic growth and development. Science, technology and innovation are key to equitable economic growth, and underpin not only economic advances, but improvements in health systems, education and infrastructure. The NDP maintains that countries characterised by strong STI capabilities are able to address poverty more effectively.

The DSI and its NSI stakeholders understood the need for a new approach to optimise the contribution of STI to achieving the NDP's goals, and developed a White Paper on STI, which was approved by Cabinet in 2019. The new STI policy document spells out how the NSI can contribute to national priorities and the country's socio-economic development as a whole.

The new White Paper is premised on the following objectives:

- Improved coherence and coordination.
- Increased NSI partnering between business, academia, government and civil society.
- Strengthened and transformed NSI institutions.
- Increased human capabilities.
- An expanded research enterprise.
- An enhanced enabling environment for innovation.
- Improved funding across the NSI.

Guided by the new White Paper, the Department began communicating the ways in which its work and that of the national system of innovation could confront the deep societal challenges of poverty, inequality and unemployment. The DSI and its entities, recognising that the developmental approach adopted by the government requires STI-related initiatives to achieve national priorities, have established implementable

cross-cutting innovation instruments and solutionoriented capabilities to enhance service delivery.

Human capabilities and skills development are major drivers of socio-economic change, particularly in previously marginalised communities. There is a relationship between interventions to improve human capacity and economic development. The DSI, in designing its strategies, sees development as the process of continuously growing the capabilities of all citizens, particularly those in previously disadvantaged groups. The targeted human capital development initiatives introduced by the Department include providing funds for STI-related education, skills development and work experience.

Education remains key to people's prospects of participation in the labour market and the pursuit of socio-economic goals. In support of the government's socio-economic and transformation objectives, the Department in the period under review, through various human capabilities development initiatives, supported 11 571 postgraduate students.

The persistently high youth unemployment rate has long been one of the most pressing socio-economic problems in South Africa. Young people aged from 15 to 24 years are the most vulnerable in the South African labour market; the unemployment rate in this age group was 59% in the first quarter of 2020. Among young graduates, 31% are unemployed.

The DSI and its partners aim to address these challenges in a variety of sectors through internship programmes, placing students and graduates in STI environments to gain work experience. During the 2020/21 financial year, the Department supported a total of 1 085 graduates and interns in various programmes.

The STI-related services provided by the Department include knowledge-generation stimulus packages in the form of research grants and innovation infrastructure development grants. 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. In the year under review, the DSI awarded 3 000 research grants through programmes managed by the National Research Foundation (NRF), and NRF-funded researchers published over 8 150 research articles cited in the Web of Science citation database.

Some of the achievements in the realisation of the knowledge utilisation for economic development include (a) revitalising existing industries and (b) stimulating research and development-led industrial development; knowledge utilisation for inclusive development; and innovation in support of a capable and developmental state goals, which are summarised below.

Over the reporting year, good progress continued to be made in strategically deploying technology support to enhance the modernisation and competitiveness of existing firms and sectors. This included progress with the development of new drilling technology as part of the Mandela Mining Precinct; continued development of new materials through the Advanced Materials Initiative; continued support to critical agricultural sub-sectors through the Sector Innovation Funds (SIFs), and support to small and medium enterprises through the Technology Stations Programme and the Technology Localisation Initiative.

The President introduced the District Development Model (DDM) to express and actualise the intergovernmental relations framework as per the Constitution, and to coordinate the planning of budgets, initiatives and projects to support district municipalities through 'One Plans'. The DSI is aligning its approach to ensure the inclusion of STI in the DDM One Plans.

In partnership with the European Union (EU), the DSI is implementing the Viability and Validation of Innovations for Service Delivery Programme (VVISDP) to demonstrate, pilot and evaluate the suitability of technologies and innovations that can improve the delivery of basic services at municipal level, and improve municipalities' performance and functioning.

The programme is designed to build partnerships between technology developers (in both publicly funded research institutions and the private sector) and municipalities. The VVISDP will also facilitate technology transfer and encourage the adoption of innovative practices and technologies that improve the quality of basic services in municipalities.

To position government as an enabler of innovation and to support the commercialisation of locally developed technologies, the Department introduced a Technology Acquisition and Deployment Fund (TADF). The TADF is an instrument designed to promote the uptake of South African-developed technology solutions by government departments, public entities and municipalities by facilitating their commercialisation and/or market entry, and through this to improve government operations, enhance service delivery, and address persistent socioeconomic challenges.

In respect of the utilisation of innovation to support a capable state, decision-support tools designed to enable and guide public investments in the integration of innovation in schools for teaching and learning, as well as in encouraging innovation uptake in municipalities and the delivery of human settlements, were supported. In this context, the Schools ICT Maturity Assessment Tool was introduced by the DSI in partnership with the Department of Basic Education and the universities supporting the implementation of this tool. To date, over 5 000 schools have been assessed to determine their level of readiness to use ICTs to improve teaching and learning.

The DSI, the Council for Scientific and Industrial Research, and provincial departments of human settlements are currently partnering on a project to monitor informal settlements using drones. This will assist with spatial planning, as well as supporting business opportunities for co-operatives, youth entrepreneurs and small, medium and micro enterprises (SMMEs), who will be helped to acquire drone operating licences. Further areas for drone technology applications are being considered.

The Grassroots Innovation Programme is expanding. The programme involves partnerships and co-funding arrangements with other government departments to develop and support youth innovation products for specific sectors such as tourism, insurance, and infrastructure development. The programme strategy has been reviewed, and the programme is being redesigned to expand its geographic footprint and support more beneficiaries.

Detailed STI-related service delivery outputs aimed at contributing to the realisation of the NDP goals are shown in Table 1 below and are presented comprehensively in the section covering the Department's performance against its strategic outcome-oriented goals.

#### Service delivery improvement plan 2.2

The Department has completed a service delivery improvement plan.

**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 the financial year	All funding transferred by the end of the financial year
Financial support for offices of technology transfer (OTTs) located at higher education institutions and science councils	Recipients include OTTs at 26 higher education institutions and 10 institutions listed in Schedule 1 of 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 the financial year	OTTs financially supported by the end of the financial year
Support uptake of space applications by government departments and agencies	Government departments (national, provincial and local) and agencies	National geospatial decision-support tool Base maps for national land use and cover layer (human settlement layer, water bodies layer, disaster management and national vegetation maps) Coordination of national Earth observation activities and promotion of the uptake of Earth observation applications	Up-to-date national geospatial decision-support tool     Up-to-date base maps for national land use and cover layer (human settlement layer, water bodies layer, disaster management and national vegetation maps)     Better coordination and increased uptake of Earth observation applications	2 decision-support tools were developed through SANSA.     Base layers are updated annually, but during 2020/21, the layers on informal settlements and spaza shops were targeted in order to assist the Departments of Human Settlements and Small Business Development with the provision of relevant services during the COVID-19 pandemic.     In 2020-21, the National Earth Observation and Space Secretariat was re-established. The Secretariat will be responsible for coordination of Earth observation activities in South Africa.

Table 1: Main services and standards (continued)

Main services	Beneficiaries	Current/actual standard of service	Desired standard of service	Actual achievement
Postgraduate bursary support	University students (honours, master's, doctoral) and postdoctoral researchers	Full cost of support provided to about 50% of total funded postgraduate students at universities	Full cost of support provided to a minimum of 60% of total funded postgraduate students	No baseline data, as this is per the new Postgraduate Funding Policy which was approved in 2020 for implementation in 2021.
Placement of graduates and postgraduate students in science, engineering, technology and innovation (SETI) institutions for workplace experience	Graduates and postgraduate students	Support provided to about 15% of qualifying graduates	Support provided to about 30% of qualifying graduates	Support provided to 15% of graduates in 2020/21
Research grants to researchers	Researchers in universities, science councils and other national research facilities	Support provided to about three of every 10 qualifying researchers	Double the support to about six of every 10 qualifying researchers	Three of 10 qualifying researchers supported in 2020/21
Financial and strategic support of research and development (R&D) initiatives that will lead to patents and prototypes	Universities, science councils, public- private partnerships	Ongoing support provided for 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	9 intellectual property rights were filed and 15 protypes were generated during 2020/21.

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

Current/actual arrangement	Desired arrangement	Actual achievement
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 has been 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.

## **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 DSI 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> <li>Strategy approved by Exco</li> <li>Exhibitions held at all public participation programmes were affected by COVID-19</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 has an appeal process for researchers who are not awarded grants.	Framework with more cificient processes	Appeal framework approved
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

## 2.3 Organisational environment

Owing to the magnitude and severity of the COVID-19 outbreak, declared a global pandemic by the World Health Organisation (WHO) and a national disaster by the Head of the National Disaster Management Centre, and taking into account the need to augment the existing measures undertaken by organs of state to deal with the pandemic, the DSI had to adjust its internal operations to the prevailing environment without compromising its service delivery mandate. The implementation of COVID-19 regulations, which included measures critical to saving lives and limiting the risk and spread of the virus, was introduced by the Disaster Management Act, 2020. In response to various alert levels, the Department implemented hybrid working arrangements, which included physical reporting to the Department's building and remote working.

The DSI organisational environment operations are founded on principles of good corporate governance. Despite the COVID-19 implications and economic constraints, which affected operations and the compensation budget, the Department's operational efficiency remained a priority. During the period under review, the DSI was rated among the best performing national departments for the third year in a row. The Department also received a clean audit from the Auditor-General for both financial and non-financial operations for the previous financial year.

The Department's internal processes and systems ensured that good corporate governance prevailed through sound administrative practices, effective operational systems, mechanisms to ensure financial oversight, information technology, and the IT Steering Committee. Combined assurance involved governance structures such as Exco, the Enterprise Risk Management Committee and the Audit Committee, as well as regular reporting and face-to-face interactions. There was also collaboration with the Audit Steering Committee convened by the Auditor-General.

The Department has continued with the implementation of the approved Employment Equity Plan, and achieved female representation of 49,48% at Senior Management Service (SMS) level and representation of people with disabilities at 3,4% of total staff. A women in management leadership development programme has been adopted to build a competent pool of female managers. Nineteen women at Middle Management Service (MMS) and SMS levels were identified in 2020/21 to participate in a programme aimed at creating a leadership pipeline for women and supporting the achievement of the Department's gender equity targets at SMS level.

The Department implemented its Skills Development Plan as part of the capacity development programme to improve service delivery. However, the COVID-19 lockdown restrictions under levels 5, 4 and 3 affected the roll-out of targeted learning programmes that included leadership and management development programmes, as well as generic and core competency development programmes. Employees attended virtual employee wellness and talent management seminars and workshops. The Department also implemented orientation programmes for newly appointed employees, covering legislation and policies relevant to the DSI and government in general.

Employees mainly attended virtual seminars, workshops and orientation/advocacy sessions on policies and legislation applicable to government, particularly the Department's corporate and administrative work functions.

During the period under review, 100% of SMS members submitted their financial disclosures by the due date. There was a significant improvement in the level of compliance on the Performance Management Development System, with 100% compliance by members of the SMS and non-SMS employees.

The Department has complied fully with the Disaster Management Act, 2020, the Occupational Health and Safety Act, 1993, and the Occupational Health and

Safety Workplace Directive, 2020, to manage the risks posed by COVID-19. A Departmental Compliance Officer for COVID-19 was appointed to oversee the implementation of the COVID-19 protocol. A hazard identification and risk assessment was conducted and measures were put in place to mitigate and manage risks related to COVID-19.

Business processes were adjusted to accommodate COVID-19 protocols, and employees were informed of COVID-19 protocols to ensure that they complied with the measures introduced at the workplace. The Department continued with the implementation of the Employee Assistance Programme, which supported employee wellness to mitigate the impact of the pandemic, especially during alert levels 5 and 4.

## 3. STRATEGIC OUTCOME-ORIENTED **GOALS**

The Cabinet-approved White Paper on Science, Technology and Innovation (STI) was developed in response to rapid global technological advancement and megatrends such as geopolitical shifts and climate change. A transformed, inclusive, responsive and coherent national system of innovation (NSI) underpins the new White Paper. The NSI concept is an enabling framework for the development of STI. It can be understood as a set of functioning institutions, organisations and policies that interact constructively in the pursuit of a common set of social and economic goals and objectives, including the promotion of change through the introduction of innovations. In order to realise the mandate, the Department's six strategic outcome-oriented goals, detailed in the 2020-2025 DSI Strategic Plan, guided the Department's annual performance plan.

During the year under review, the DSI played a significant role in either leading or supporting the following Medium-Term Strategic Framework (MTSF) priorities of government that will contribute directly or indirectly to the realisation of the NDP:

- Priority 1: A capable, ethical and developmental state.
- **Priority 2:** Economic transformation and job creation.
- Priority 3: Education, skills and health.
- Priority 4: Consolidating the social wage through reliable and quality basic services.
- Priority 5: Spatial integration, human settlements and local government.
- Priority 6: Social cohesion and safe communities.
- Priority 7: A better Africa and world.

# Goal 1: A transformed, inclusive, responsive and coherent national system of innovation

# Goal statement: Transform the national system of innovation and enhance its coherence, responsiveness and inclusivity

The 2019 White Paper on STI marked a shift from a primary focus on the development of the NSI, while continuing to develop the NSI and, creating an enabling policy environment for the NSI to enhance its contribution to addressing the national priorities of government. The pillars of this approach are the following:

- That the imperative of inclusivity be mainstreamed in all STI-related policies and programmes, to support research and innovation-driven economic and spatial transformation, as well as to empower civil society, industry (particularly small business) and rural communities to contribute to the NSI.
- That, as part of the drive towards inclusivity, initiatives to improve demographic representivity at all levels of the NSI be expanded and intensified.
- That the social contract between science and society be strengthened to tap into the potential of STI to respond to the national priorities around poverty, unemployment, inequality and environmental degradation (in line with the Sustainable Development Goals and the National Development Plan).
- That, to maximise the benefits of government's STI investments, there should be frameworks and instruments in place to ensure that departments pool their resources and work together on STI programmes that cut across departmental boundaries extending to aspects such as harmonising the governance and funding of science councils across the entire government (not just the DSI) and avoiding the duplication of innovation incentives which often leads to inefficiency.

In pursuit of these objectives, the following projects were undertaken during the year under review.

## Development of the 2021-2031 Science, Technology and Innovation Decadal Plan

The 2019 White Paper on STI, approved by Cabinet in March 2019, will be implemented through a series of decadal plans, which will be reviewed at least every five years. The high-level direction and thrusts of the 2021-2031 Decadal Plan were approved by Cabinet in March 2021. A milestone for the Department and the NSI was the Cabinet statement that the Decadal Plan would be a masterplan of government. Cabinet has given the Department the mandate to consult with other STI-intensive departments to finalise the details of interdepartmental initiatives in the Decadal Plan, a process that has started and is anticipated to be completed by June 2021.

As part of these consultations, another milestone was the in-principle agreement by the DSI and the National Treasury that a Public STI Budget Coordination Mechanism would be integrated into the annual Medium-Term Expenditure Committee processes to improve the allocation of funding for STI across government.

# The Higher Education, Science, Technology and Innovation Institutional Landscape Review

The Higher Education, Science, Technology and Innovation Institutional Landscape (HESTIIL) Review Panel started its work in November 2019, and completed its report in September 2020. The review answers questions like whether South Africa needs more institutions to implement the White Paper on STI, whether links between institutions should be strengthened, and what the requirements of a harmonised funding and management framework for all higher education and STI institutions would be. The recommendations of the HESTIIL Review Panel will be important for the National Plan for Post-School Education and Training. The DSI and the Department of Higher Education and Training (DHET) are analysing the recommendations, and those recommendations

accepted by the Minister will be incorporated into the final 2021-2031 Decadal Plan on STI during the 2021/22 financial year.

## Implementing government's Gender-Responsive **Planning and Budgeting Framework**

The Department continued to take part in the Department of Women, Youth and People with Disabilities (DWYPD) High-Level Steering Committee for Planning, Research, Monitoring and Evaluation for Women's Empowerment and Gender Equality. The Department presented its annual report on Women's Empowerment and Gender Equality to the DWYPD in February 2021. The report showed that the Department is making progress in addressing the role of STI in women's empowerment, as well as optimising the role of women in STI and the benefits of STI for women. In terms of institutionalising formal planning and budgeting processes aimed at women's empowerment and gender equality (as required by the Gender-Responsive Planning and Budgeting Framework), the Department has included initiatives in the Decadal Plan with the expectation that these will be implemented by the Department and its entities.

## Goal 2: Human capabilities and skills for the economy and for development

# Goal statement: Improve the representivity of those with high-end skills and increase the development of technical and vocational skills for the economy.

The NDP identified skills development as a means to raise productivity and income to enhance the competitiveness of the economy. Human capital development (HCD) in various forms is central to addressing South Africa's socio-economic challenges and building an inclusive society. The DSI takes this into consideration when designing HCD initiatives. Investment in the development of skills and knowledge that can be used to create economic value for the country is vital. The ultimate aim of these investments is to ensure access and equity for all, more particularly marginalised communities. In the

period under review the Department, through the NRF, funded or co-funded a total of 11 571 students, comprising 8 610 pipeline (BTech/Hons equivalent and master's) students, and 2 961 doctoral students.

The DSI, through its programmes, supported a total of 1 085 graduates and interns during the 2020/21 financial year. The DSI-NRF Internship Programme is a workplace preparation programme that places undergraduate and postgraduate students in work environments to gain experience. The programme contributes significantly to the absorption of undergraduate and postgraduate students in the job market, while also attracting them to research careers, thereby contributing to the reduction of unemployment and inequality. This programme is complemented by the National Youth Service Programme, which places unemployed graduates as volunteers in institutions whose work complements the strategic intentions of the Department in one way or another, particularly institutions that offer a community service-related environment.

The Presidential Youth Employment Initiative was introduced in 2020/21 as an employment stimulus based on the announcement by the President in April 2020 of an allocation of R100 billion for job creation and retention as part of the R500 billion economic stimulus in response to the COVID-19 pandemic. The youth employment project management office in the Presidency is leading the effort. The Department has tentatively secured an amount of R67 811 773 from the Presidency for initiatives such as the Enviro Champs programme, implemented by the Duzi Umngeni Conservation Trust. This resulted into the provision of 310 jobs to previously unemployed youth in the Imbali District of KwaZulu-Natal. This programme has multiple facets, with the primary aim being to improve river health and water quality. This is done through the clearing of alien invasive species, the removal of litter and the monitoring of sewer spillages. In addition, the programme creates awareness in the community of the importance of maintaining a litterfree environment for the continued health of the river.

In the year under review, the DSI in partnership with the South Africa National Chapter for the Organisation for Women in Science for the Developing World (which is hosted by the Academy of Science of South Africa), Black Women in Science and Nka'Thuto Edu Propeller, hosted four webinars under the 2020 South African Women in Science Awards, attracting a total of 663 participants. The webinars looked at subjects such as tackling gender-based violence and women in innovation. The fourth webinar doubled as a platform for the launch of the Women in Science, Engineering and Technology Organisation South Africa.

Other HCD achievements for the period under review include the completion of a six-week training course in support of skills development toward the further roll-out of fuel cell technology. The training was conducted through the Bambili Energy Group and supported the DSI's implementation of the 15-year Hydrogen South Africa (HySA) programme under the Cabinet-approved National Hydrogen and Fuel Cell Technologies Research, Development and Innovation Strategy. The purpose of the training was to develop competent, capable and work-ready technicians for the deployment, installation and maintenance of hydrogen fuel cell systems around South Africa and beyond. Of the 17 trainees, 15 were unemployed graduates of technical and vocational education and training (TVET) colleges with a minimum of N4-level qualifications in chemical and electrical engineering. The remaining two trainees were from the Department of Defence. The seven fuel cell systems deployed at 1 Military Hospital in Pretoria as part of the DSI's COVID-19 response were used for the practical training of the students. The project highlights the importance of public-private sector partnerships in support of skills development and innovation, as articulated in the White Paper on STI.

The Department also worked closely with the Department of Higher Education and Training to secure international training and mobility opportunities for young South African researchers.

# Goal 3: Increased knowledge generation and innovation output

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

In promoting globally competitive research and innovation in South Africa, the importance of the knowledge-generating function of research, particularly in the higher education sector, needs to be recognised. Knowledge generation is crucial for STI prospects. Without investment in publications, research grants, and research and innovation infrastructure, knowledge generation is not possible. Research grants are provided through several instruments designed to strengthen research capacity at universities and research-performing institutions.

Over 8 150 research articles were published by DSI-NRF-funded researchers and cited in the 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 DSI awarded 3 000 research grants through DSI-NRF-managed programmes, 1 445 (49%) of which went to black researchers, of which 674 (46%) went to black women. During the 2020/21 financial year, the Department, through the NRF, awarded 30 research infrastructure grants under the South African Research Infrastructure Roadmap (SARIR).

During the 2020/21 reporting period, the National Intellectual Property Management Office (NIPMO) continued to play an enabling role in the utilisation of knowledge for economic and social development through the Office of Technology Transfer (OTT) Support Fund. The OTT Support Fund provides financial support to higher education institutions and science councils to assist with establishing and maintaining OTTs, building the human capacity and capabilities of OTTs, and empowering OTTs to identify intellectual property (IP), protect it (where appropriate), and ensure that IP is deployed for socioeconomic impact. During the period under review,

NIPMO supported six new OTTs from three different provinces and 19 new and existing technology transfer jobs/positions through this fund. In particular, funding was provided to Sefako Makgatho Health Sciences University, which, in the context of the ongoing pandemic, will use this funding to establish an OTT to ensure that publicly financed health research outputs are identified and find application in society.

The NIPMO Intellectual Property Fund provides financial support for a range of activities that secure IP rights generated following or associated directly with a product, process or service that resulted from publicly financed research and development. The IP Fund is an intervention intended to prevent IP leakage. During the reporting period, NIPMO refunded 50% (just under R21 million) of all eligible IP rights protection and maintenance costs following submissions to NIPMO by 23 higher education institutions and science councils.

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**NIPMO** continued providing training/skills development to personnel at OTTs and SMMEs. During the period under review, NIPMO and its partners, the Companies and Intellectual Property Commission, the World Intellectual Property Organization and the TIA, saw an influx of trainees being upskilled in intellectual property management and technology transfer. This was in part due to NIPMO being forced (due to COVID-19) to transfer training to online platforms. The transition to online platforms has been particularly successful, and will be considered for incorporation in all future training.

A particular highlight of the 2020/21 financial year was the extension of the NIPMO IP Wise™ sessions to TVET colleges around the country. IP Wise<sup>™</sup> sessions were carried out at Gert Sibande TVET College, and NIPMO will continue the IP awareness campaign at TVET colleges in the years to come.

The DHET is a custodian of vast databases that contain data sets collated or produced for information on enrolment and graduate statistics obtained from public universities (the Higher Education Management Information System), TVET colleges (the TVET Management Information System), private colleges, and community education and training colleges, as well as financial and workplace learning data obtained from the National Student Financial Aid Scheme, the National Skills Fund and the sector education and training authorities. The DHET seeks not only to improve the quality of data collected from different post-school institutions, but also to gain better insight in the data, and to use it for improved planning and allocation of budgetary resources in the post-school education and training system.

To support this, the DSI is supporting a two-year internship programme that focuses on developing data-driven, augmented reality and artificial intelligence-enabled solutions to the DHET's large data sets. The team working on this has capability, competency and expertise in data analytics, machine learning and artificial intelligence domains built from other DSI-supported programmes, such as the Data Science Impact and Decision Enhancement (DSIDE) training programme and the Internet of Things Factory, a DSI-funded project hosted at the CSIR.

Goal 4: Knowledge utilisation for economic development in (a) revitalising existing industries and (b) stimulating R&D-led industrial development

Goal statement: Improve the sustainability and competitiveness of traditional sectors of the economy and initiate/continue research and development in emerging technology areas that could enable the creation of non-traditional South African economic sectors

STI initiatives have been identified as primary drivers of economic growth, job creation and the socio-economic reform agenda in the country. During the period under review, the Department focused on the stimulation and intensification of technological innovation in order to improve economic growth.

In partnership with other government departments and economic actors, the DSI spearheaded efforts to exploit knowledge capabilities for economic benefit, including the development of advanced technologies and industries, improved government service delivery, improved productivity and competitiveness, and technology transfer and support to SMMEs and manufacturing firms in the supply chains of large-scale public procurement programmes.

#### Revitalisation of the agricultural sector

In the reporting period, the Department continued to implement the Sector Innovation Fund Programme through ongoing support for the portfolio of seven industries, namely, horticulture, post-harvest innovation, viticulture, forestry, mineral processing, paper manufacturing, and agroprocessing. In addition, the Department's efforts to support innovation-led industrial development includes support for four industrial development centres at the CSIR (the Biomanufacturing Industry Development Centre, the Biorefinery Industry Development Facility, the Nanomaterials Industry Development Facility, and the Photonics Prototyping Facility). These initiatives are aimed at encouraging the private sector to increase

investment in research, development and innovation, and to increase competitiveness as a result.

In addition, the DSI continued implementing the Regional Innovation Support Programme (RISP) through a project management unit at the CSIR. The RISP is one of the Department's initiatives aimed at increasing the spatial footprint of innovation, and the current RISP portfolio has nine regional innovation networking platforms, six feasibility studies and one innovation baseline study in collaboration with various entities.

Several deliverables were achieved under the goal of knowledge utilisation for economic development. Under the DSI-funded Biorefinery Research, Development and Innovation Consortium, which comprises the CSIR, the University of the Witwatersrand and Tshwane University of Technology, a 3D-printing bio-nanocomposite filament technology from renewable biomass was developed at Technology Readiness Level 6. This offers an opportunity for product diversification in mature industries such as forestry and sugarcane.

Furthermore, through the Strategic Industrial Bioinnovation Partnership Programme implemented by TIA, a patent for a novel xylanase enzyme formulation with commercial application in the animal feed additive industry was granted.

In an effort to develop sustainable bio-enterprises in support of economic growth and development, a total of seven SMMEs (AfriBodies, Eco Invaders, Sawubona Mycelium, Kusini Water (Pty) Ltd, Bind Biotech (Pty) Ltd, UBA Biologix, and CapeBio (Pty) Ltd) were assisted with technology upscaling, business development and commercialisation interventions under the Strategic Industrial Bioinnovation Partnership and bio-entrepreneurship small grants incentive scheme programmes. This effort resulted in the filing of two functional design applications – on bio-based water filter capsules and the development of an artificial intelligence-based indigenous microbial bioprospecting platform.

Furthermore, in support of local biomanufacturing capability development, an anti-Taq polymerase fragmented antibody technology aimed at improving the performance of polymerase chain reactions as a diagnostic tool was developed and demonstrated at Technology Readiness Level 6.

Agriculture is a key industry identified in terms of revitalising existing (traditional) industries that can benefit from research, development and innovation (RDI) in support of development and economic recovery. The "innovation driving growth" theory of change positions RDI as a driver of growth in the agricultural sector to (a) support the development of technologies and innovative solutions that increase productivity and competitiveness and provide sustainable service delivery solutions, (b) create an inclusive economy and transfer technologies and knowledge to the poor and the informal economy, (c) enhance the high-end capabilities of institutions to develop innovations for inclusive development, and (d) reduce household food insecurity and increase sustainability.

The Agricultural Bioeconomy Innovation Partnership Programme (ABIPP) supported a number of initiatives in support of economic recovery. These included multi-stakeholder government-industry consortia/platforms related to climate change, crop improvement (including biosecurity), value chain analyses (an ongoing sorghum study and one new study on cassava were supported), agroprocessing (Cape Aloe), and technology support for farmers toward becoming commercial producers.

In addition, 71 black emerging farmers (subsistence, small-scale, and potential commercial farmers) benefited from technology/innovation support programmes. These included 16 farmers who were trained in the agronomic practices of planting pulses in the Ncera area trial site in East London (Seed Business Development Project), 71 farmers who were supported and trained in agronomic practices for planting and harvesting 250 hectares of soybean (Soybean Food and Nutrition Project), 55 farmers who benefited

from pest and disease surveys and decision support on pests and diseases (Plant Health Consortium), 33 farmers who benefited from smart agriculture products, and 45 farmers who were assisted with hostpropagation, baseline technology assessments and surveys in the Diya and Tipane communities (Setsong indigenous health infusion programme). A bilateral research programme with Malawi was supported, with one new proactive intervention on diagnostic, surveillance, monitoring and early-warning systems (Aquaculture Health and Feed Programme).

Threats to food security remain a challenge in the country, and human capital development is critical for the sustainability of the grain industry. Identifying and prioritising scarce skills and capacity building programmes remain key and can be achieved through harnessing the necessary capabilities (people, infrastructure and information) for present and future R&D needs. Investing in human resources and providing training as per the needs of industry sectors and government further strengthens capacity building. In the reporting year, DSI initiatives supported 11 master's and seven PhD students towards the completion of their degrees. All the bursaries were awarded to black students.

Efforts were made to provide funding for students being trained at historically black universities, including the University of the Western Cape and the University of Fort Hare. In addition, two of three postdoctoral fellows supported were black. There is also a constant need to monitor and upgrade skills so that the graduates of such training and education are able to address the evolving needs of industry and the country. In the agricultural sector, population growth drives an increasing need for food security and quality, which depends on advancements in STI. The sector thus needs to ensure that it is constantly upgrading its skills, and that employees entering the sector are adequately trained and capacitated to deal with STI developments. Therefore, in addition to the financial support provided to the students and postdoctoral researchers, two black technicians were appointed

in the 2020/21 financial year with funding from the ABIPP initiative.

#### Creating innovative industries for the future

The DSI is in the process of establishing a "hydrogen valley" in South Africa, which will serve as a region or industrial cluster where several hydrogen applications are combined to form an integrated hydrogen ecosystem. The process will be facilitated by the South African National Energy Development Institute (SANEDI). Hydrogen valleys have been used successfully in other countries to promote hydrogen and fuel-cell technologies in support of reduced greenhouse gas emissions.

In South Africa, the envisaged hydrogen valley will cover the Johannesburg-to-Durban corridor (OR Tambo International Airport to King Shaka International Airport). The work will be completed in partnership with key government departments such as the Department of Transport, the DTIC, and the Department of Mineral Resources and Energy. Engagements with key stakeholders in local government and the private sector, such as the Gauteng Industrial Development Zone, Dube TradePort Corporation, Anglo American and Bambili Energy Group, are currently at an advanced stage.

The South African hydrogen valley will create a platform that facilitates the commercialisation of publicly-funded IP while contributing to the beneficiation of platinum group metals. The platform will also attract public and private sector investments in clean energy projects, as well as increased government and private sector participation in innovation in line with the White Paper on STI.

The DSI's hydrogen valley partnership with Anglo American, Bambili Energy and ENGIE is an example of leveraging investments made in the HySA Programme to create mechanisms for the uptake of publicly financed IP. The hydrogen valley is among the projects that will be implemented in partnership with the private sector to support the Platinum Valley Initiative, which is aimed at supporting SMMEs to take

advantage of opportunities in the green economy in support of a just transition. A feasibility study report will be launched in July 2021.

The DSI has also commissioned a joint study with the Limpopo Economic Development Agency on the role of hydrogen and hydrogen fuel cells to power data centres that will be installed at the Limpopo Science and Technology Park (LSTP). One key area of focus will be 4th industrial revolution technologies. The LSTP will act as a data hub and connectivity centre, offering broadband, data storage and 5G services to the region. These services are intended to power the economy, build South Africa's base in a future technology-driven economy, and provide employment for young people. The joint study will therefore undertake a technoeconomic assessment of the optimal configuration of the energy assets to power the data centres of the LSTP. The feasibility study report will be launched in July 2021.

# Technology localisation, beneficiation and advanced manufacturing

During the reporting period, the DSI funded a number of instruments in support of increased localisation, competitiveness and R&D-led industry development in aerospace, advanced manufacturing, chemicals, mining, advanced metals, ICTs, the Industry Innovation Programme and the Sector Innovation Funds.

The Advanced Materials Initiative (AMI) is a DSI programme focusing on materials science R&D with the objective of establishing new industries, enhancing the competitiveness of existing industries, and localising technology. During the 2020/21 financial year, the various programmes that make up the AMI continued to contribute to R&D-led industrial development.

For example, in response to COVID-19, the Titanium Centre of Competence initiated three projects, namely, the manufacturing of face shields, hospital beds, and ultraviolet lamps for germicidal disinfection. A hand-held lamp device is being considered as a CSIR technology demonstrator with the possibility of

incubation funding. The hospital bed prototype was demonstrated and no major technical hurdles were found.

Sufficient funding for the establishment of a worldclass hot isostatic pressing facility was secured. The CSIR also committed additional funding for the refurbishment of the building and utilities for housing the facility. The profile of this project has been elevated to CSIR cluster management level, taking the team one step closer to realising their vision of further expansion of infrastructure for growing metal powder manufacturing technologies spanning several AMI programmes, as well as AMT, Aeroswift and private industries.

Collaboration between Mintek and Hulamin resulted in the localisation of thermomechanical processing of aluminum and steel alloys, a capability that used to be outsourced to companies based in the United Kingdom. Mintek, therefore, has upgraded its hot rolling mill to a state-of-the-art local facility. This was made possible by the capacity building efforts of the Ferrous Materials Development Network over a number of years.

COVID-19 lockdown restrictions did not significantly affect the interactions between the Light Materials Development Network and industry. The team continued to secure contracts and provide technical advice to the manufacturing sector. Aluminum castings were produced for various companies and institutions, and the CSIR was approached to be the technology partner for Veer Aluminum in future expansion plans for their extrusion facility.

The Mandela Mining Precinct facilitated the Isidingo Drill Challenge, from which two new rock drill prototypes that are easier to operate and have improved environmental and operator benefits, were developed. Following the success of the Isidingo Drill Challenge, and as a continuation of it, the following were achieved in the reporting period:

• Phase III of the Challenge including the final selection for industrial testing.

• Innovation challenges were launched for the longevity of current mines and for mechanised mining solution research programmes.

A milestone was the development of a threedimensional atlas/resource model of South African platinum and gold metal resources. The information from mines that was incorporated in the resource atlas has also been shared with the Council for Geoscience that will participate in the expansion of the model. It is the first time that such a combined model has been developed, and this will form the basis for building an integrated resource model for South Africa.

In the reporting period, the Technology Availability and Readiness Atlas, a portal aimed at providing the mining industry with access to the capabilities and offerings of local mining original equipment manufacturers, was launched.

A technology for a visual positioning system capable of performing real-time predictive scenario analyses and reporting, extending beyond the typical warning and vehicle control systems of proximity detection/collision avoidance, was demonstrated in November 2020. Underground trials of this technology demonstrator will be conducted in the next financial year.

### **Goal 5: Knowledge utilisation for inclusive** development

Goal statement: Expand the use of scientific knowledge (as evidence) in support of innovation for societal benefit and public good

The use of knowledge for the inclusive development agenda is aimed at supporting experimentation with STI-based innovations for tackling poverty, including the creation of sustainable job and wealth opportunities, building sustainable human settlements, and enhancing the delivery of basic services. DSI investments made in this area supported the government's call for the integrated provision of basic service delivery that will benefit the ordinary citizens of South Africa.

The DSI's investments in this area over the years have begun to bear fruit, with the potential to unlock future sources of economic growth, to create new types of jobs, and to provide new solutions to problems (e.g., in healthcare, agriculture and water-related services) that are trapping people in poverty.

For example, knowledge was used to contribute to local economic development. In partnership with the European Union, the Department has supported interventions aimed at developing a model for advancing local systems of innovation and production to support smallholder producers in rural settings. Training programmes for young graduate scientists working on essential oil products, and soil testing to support rural farming communities and SMMEs, were successfully implemented in partnership with sector partnerssuchasthe Agricultural Research Council (ARC).

The Grassroots Innovation Programme continues to foster an inclusive and responsive national system of innovation at grassroots level. During the year under review, a substantial number of people from marginalised communities qualified for and enrolled in the programme as grassroots innovators. The programme packages assist them to develop their concepts, commercialise their ideas, and create prototypes. It is envisaged that some of the technology products supported by the Department will reach the market or be filed for IP protection.

#### Health innovation initiatives

The Indigenous Knowledge-Based COVID-19 Research Team made excellent progress in the investigation of herbal medicines for use against COVID-19. Of particular interest are two multi-herbal formulations, Product Nkabinde and Phela, and a mono-herbal ingredient, coded BD01, that have demonstrated good activity against both the SARS-CoV-2 and MERS-CoV-2 viruses. The Phela formulation has demonstrated outstanding intracellular activity against SARS-CoV-2, without cytotoxicity. The University of the Free State (UFS) is working in collaboration with farmers at a state-

of-the-art UFS-owned, United States Food and Drug Administration (FDA) approved clinical trial facility. This work is also being conducted in collaboration with the Beijing University of Chinese Medicines as a research partner. The Phela clinical trial protocol was developed and sent for international input to Learn and Confirm in Canada and to FDA experts in the US before submission to the South African Health Products Regulatory Authority for approval.

The second multi-herbal formulation, Product Nkabinde, demonstrated activity in interaction with the SARS-CoV-2 spike protein and ACE-2 receptors on host cells. This indicates that there is disruption of the SARS-CoV-2 virus on entry to human cells, which would prevent infection and progression of COVID-19. This antiviral effect was confirmed in a cellular-based bioassay using clinical isolates of SARS-CoV-2. The studies were done by the University of KwaZulu-Natal and the University of Pretoria in collaboration with the Wistar Institute based in the United States and the University of Basel, Switzerland.

The ARC is in the process of conducting agronomy and related cultivation studies to support the sustainable propagation of these herbs, as some of them are on the Red List, meaning they are facing extinction. Various healer organisations, small and medium enterprises and co-operatives are being trained in plant propagation, agroprocessing and entrepreneurship by the ARC, the Innovation Hub (BioPark) and the South African Bureau of Standards through programmes supported by the DSI. Discussions are under way with the Department of Small Business Development, the TIA and the Industrial Development Corporation on support for product development, innovation, entrepreneurship, manufacturing and commercialisation. South Africa also led the process of establishing the WHO Africa Regional Office Regional Expert Advisory Committee on Traditional Medicine for COVID-19, and was appointed as the first chair of the committee.

The Indigenous Knowledge-Based Bio-Innovation Consortium has supported six platforms in African medicines, cosmeceuticals, nutraceuticals, health infusions, technology transfer (incubation), and commercialisation (enterprise development). Over 20 products and prototypes were supported through these platforms. Six SMMEs in African medicines graduated from the CSIR and BioPark Incubator with standard operating procedures for manufacturing. Medical cannabis prototypes for treating cancer, diabetes, neurodegenerative conditions, pain, and brain performance were developed. SMMEs with agribusinesses were supported in Limpopo, North West, the Eastern Cape and the Northern Cape. Cosmeceutical projects were supported in Mpumalanga, Gauteng and the Eastern Cape. The mainstreaming of indigenous knowledge (IK) work received a major boost with the approval of the establishment of an IK-Based Platform in African Medicines at the UFS under the TIA.

### **Goal 6: Innovation in support of a capable** and developmental state

### Goal statement: Increase the use of innovation as an enabler in the delivery of efficient services and access to government programmes

The DSI supports the view that to address the twin challenges of poverty and inequality effectively, the state needs to be capable of playing a transformative and developmental role in society. The Department has several interventions that aim to assist in building a skilled government workforce to advance a transformative and developmental agenda.

#### Provision of STI decision-support tools

Using satellites, the DSI has developed decisionsupport tools and information-management systems to provide evidence that policy and decision makers can use to improve service delivery and improve the lives of all South Africans.

These include spatial information layers on human settlements, including urban and rural density maps to assist with the planning of appropriate resource deployment, and a precision agriculture informationmanagement system, which is intended to assist emerging farmers by providing near real-time farmscale information and recommendations on farm management.

During the initial stages of the COVID-19 pandemic, the DSI, together with SANSA, provided space science and technology services to the National Disaster Management Centre, the Department of Small Business Development and the Department of Human Settlements. The data layers enabled, among other things, the mapping of spaza shops to calculate the required quantities of essential food items they would need, and of the closest wholesalers to ensure timely delivery of stock to these spaza shops during the lockdown.

The DSI and the Department of Environment, Forestry, Fisheries supported the CSIR and SANSA in their development of the National Oceans and Coastal Information Management System and acquisition of synthetic aperture radar data sets for maritime domain awareness (Oceans Economy). The DSI is further supporting a CSIR-led consortium with the ARC and industry in developing a precision agriculture information-management system for emerging and subsistence farmers. The DSI is also supporting SANSA in the upgrade of its Space Weather Centre, enabling the provision of products and services to the African aviation industry, and the South African Weather Service towards the development of the Global Mercury Observation System.

### The District Development Model

In support of a capable and developmental state, the Department strengthened its innovation for service delivery portfolio in order to continue providing appropriate innovative technology solutions to improve decision-making at local government level. Initiatives aligned to the District Development Model (DDM) contributed to the following:

- Strengthening STI capacity at local municipality level, thereby contributing to local economic development.
- Engaging lead departments on a data observatory to enable real-time access to DDM information, which is critical for evidence-informed decision-making.
- Deploying the Municipal Innovation Maturity Index (MIMI) to assess readiness and strengthen innovation maturity to improve service delivery.
- Harnessing solutions developed by DSI entities for the DDM.
- Submitting DSI DDM project information to the Department of Cooperative Governance and Traditional Affairs for planning purposes.

The DSI developed a departmental approach to the identification, selection and packaging of responsive and impactful projects to support the DDM and to ensure that STI interventions are included in municipal DDM One Plans and aligned with municipal integrated development plan processes and strategies.

The MIMI tool provides critical information on the innovation capabilities and readiness of local government to deliver effective services. During the period under review, MIMI continued to be valuable in informing the efficient deployment of resources for service delivery, i.e., the deployment of innovative service delivery technology solutions. For example, the first report on the state of innovation and innovation practices of municipalities has been packaged. The municipal innovation assessment tool has also been digitised. In partnership with the South African Local Government Association, this innovation index will now be facilitated through designated municipal innovation champions in participating municipalities.

#### **International cooperation and resources**

The DSI continued to support the South African NSI by participating in a diverse portfolio of international partnerships, which provided a range of opportunities to take part in global research programmes, such as with the European Union (EU), Japan and BRICS (Brazil,

Russia, India, China and South Africa), in which South Africa participated with significant success. Bilateral cooperation with China and other countries, and the advancement of Pan African cooperation in science, continued as strategic priorities. The DSI continued to promote South Africa as a preferred partner for excellence in science cooperation, and was nominated to serve on the UNESCO Open Science Advisory Committee and the International Institute for Applied Systems Analysis Governing Council. The Square Kilometre Array (SKA) Observatory agreement has been ratified by the UK Foreign, Commonwealth and Development Office and has now entered into force.

International bilateral and multilateral cooperation saw South Africa benefiting from 426 international human capital development opportunities, including for postgraduate qualifications and technical exchanges in support of the policy intents of the White Paper on STI. Only 17 of these opportunities involved capacity building targeting historically disadvantaged institutions, which is a priority to be addressed in the next financial year. The Minister launched the OR Tambo Africa Research Chairs Initiative, which aims to contribute to the improvement of African global research competitiveness while responding to the continent's socio-economic needs.

In further Pan-African cooperation, the DSI supported 18 projects related to the African Union's Agenda 2063, such as the Africa Open Science Consultation Forum, advancing entrepreneurial universities in Africa, and strengthening Africa's medicine manufacturing capacity. Similarly, 17 initiatives were supported in response to the Southern African Development Community (SADC) Regional Indicative Strategic Development Plan, including three of New Partnership for Africa's Development flagships (the Southern Africa Network for Biosciences, the Southern African Network of Water Centres of Excellence, and the African Institute for Mathematical Sciences) and capacity building in response to the SADC Protocol on Science, Technology and Innovation. Significant progress has been made with the South African Chapter of the SADC Women

in Science, Engineering and Technology Organisation, as requested by the SADC ministers responsible for science, technology and education, and with the Women in Science, Technology, Engineering and Mathematics portal launched in partnership with the Department of Women, Youth and Persons with Disabilities.

The Department continued to champion the focus on science and innovation as critical instruments in global forums, especially in relation to the Sustainable Development Goals, where eight projects were supported. This enabled the attraction of significant funding, for example from the European Union, for innovation in support of a capable state.

Many international opportunities presented during the year were in response to the COVID-19 pandemic. For example, the EU specifically prioritised activities under the European and Developing Countries Clinical Trial Partnership, EUREKA, EUREKA Superstars and Celtic-Plus, which resulted in substantial support from the African Renaissance Fund (coordinated by the Department of International Relations and Cooperation). A substantial response came from BRICS, which prioritised vaccines, drugs, genomics and sequencing. In addition, many bilateral partners, including Canada, Cuba and Lesotho, were engaged in response to the pandemic.

### DSI response to the COVID-19 pandemic

As the COVID-19 pandemic continues to cause devastation around the world, researchers across South Africa have been working on a wide range of projects to overcome the disease. The DSI has played a critical role in mobilising the country's resources, capabilities and expertise in research and development, modelling and epidemiology, and clinical trials to address COVID-19. DSI entities, such as the CSIR and the HSRC, have been actively involved in supporting R&D to find solutions to COVID-19-related issues.

In the year under review, the Department invested an amount of R68 766 000 in COVID-19 research activities. These funds are addressing areas of priority such as diagnostics, therapeutics, vaccines, surveillance/ epidemiology and genomic epidemiology.

#### Diagnostics

The need for simple, accurate and affordable rapid diagnostic tests that can be performed in remote settings to reliably detect SARS-CoV-2 was identified as high priority early in the pandemic. These tests are critical to expand access to testing for the national test-trace-isolate strategies and test-and-treat implementation. Accordingly, the DSI, in partnership with the SAMRC and the TIA, published a call for proposals to develop local innovations to address bottlenecks in South Africa's COVID-19 testing. This call was developed in collaboration with the National Health Laboratory Service (NHLS) and sought to address challenges in the supply of reagents and kits for the country by building local manufacturing capacity.

The DSI's efforts in this regard were supported the DTIC, the Industrial Development Corporation, the NHLS and the South African Health Products Regulatory Authority (SAHPRA).

SAHPRA's contribution was in the development of appropriate guidelines for the registration of locally developed reagents and test kits, while the NHLS assisted with the establishment of alternate validation facilities. Funding was approved for seven projects to develop reagents and diagnostic tests for COVID-19, which are being carried out by the CSIR, Mintek, the University of Cape Town, Medical Diagnostech, GKnowmix, and Aminotek. Good progress is being made.

Furthermore, the Centre of Excellence for Biomedical TB Research, with financial support from the DSI/ SAMRC, successfully developed control kits needed

to calibrate COVID-19 testing equipment on a regular basis. These controls are currently used in the national COVID-19 testing programme coordinated by the NHLS. Collectively, the diagnostic portfolio has the potential to expand and diversify local testing capacity and contribute towards arresting the spread of SARS-CoV-2.

#### Targeted surveillance/epidemiology

Surveillance programmes play a critical role in addressing the COVID-19 pandemic. They contribute to the rapid detection, isolation, testing and management of suspected cases; guide the implementation of control measures; detect and contain outbreaks among specific populations; evaluate the impact of the pandemic on healthcare systems; and monitor longer-term epidemiologic trends and the evolution of the COVID-19 virus. As the government considered lifting some of the lockdown restrictions, robust surveillance was critical to control the spread of COVID-19 and guide the ongoing implementation of control measures. The current project portfolio on surveillance/epidemiology is summarised below.

# Serological and genomic investigations of SARS-CoV-2 among HIV-infected and HIV-uninfected individuals to assess the burden of COVID-19 in South Africa

The study involves whole genome sequencing while characterising the antibody responses in SARS-CoV-2-infected individuals enrolled through public and private surveillance sites, including both inpatients and outpatients.

The study has trained community healthcare workers to undertake door-to-door SARS-CoV-2 education and screening and referral to hospitals or isolation facilities that form the basis for the national active case finding household survey. Key outcomes include the completion of weekly SARS-CoV-2 surveillance among healthcare workers, including staff, focusing on the

effectiveness of infection control measures; ongoing SARS-CoV-2 surveys in HIV-infected persons, HIV-TB co-infected persons, research participants and health care workers; and the establishment of platforms to undertake SARS-CoV-2 polymerase chain reaction (PCR) assays at CAPRISA and KRISP laboratories with NHLS accreditation. The protocol developed for the phylogenetic investigation was used to investigate the St Augustine's Hospital outbreak. The sequences generated provided insight into the origins of the infections in KwaZulu-Natal and how infections spread. New findings from the study have been made available to the Department of Health to inform responses to COVID-19.

# Spatial and genomic monitoring of COVID-19 cases in South Africa

This study has been expanded into a consortium that involves some of the largest NHLS laboratories in the country and key academic institutions that are closely associated with them. This consortium allows samples to be sequenced in a guick and accurate manner so that South Africa can respond to localised outbreaks. The genomes generated from the project are used to track strains of the SARS-CoV-2 virus circulating in the country, and have informed our understanding of the introduction and early spread of SARS-CoV-2. The results of this genomics surveillance have been compiled in detailed reports to inform interventions by the National Institute of Communicable Diseases, the Department of Health and the World Health Organization. The consortium has also completed four outbreak investigations in large hospitals in KwaZulu-Natal and the North West, and one in a supermarket in the Western Cape.

To date, more than 2 800 SARS-CoV-2 whole genomes from South Africa have been sequenced. In December 2020, the consortium announced the emergence and rapid spread of a new SARS-CoV-2 lineage with a number of spike mutations and deletions. Since the

end of 2020, the new lineage has rapidly become the dominant lineage in South Africa. The full significance of these mutations is yet to be determined, and work is ongoing to characterise their impact in terms of increased transmissibility, pathogenicity and/or escape from neutralising antibodies. The DSI has committed a further R25 million to fund the consortium to identify and characterise new SARS-CoV-2 variants in South Africa.

#### Data observatory

In the process of developing the national multidisciplinary science-based approach to combating the coronavirus, it became evident that the country needed a data observatory to facilitate the interrogation of the intersection between health, economic and social policies. The observatory provides opportunities for government departments, academics, labour, industry and civil society organisations to collect, store, share and visualise data in ways that uncover new insights and promote coordination and communication of complex data sets and analysis in a multidimensional perspective. The new insights from the shared data support national decision-making that is datadriven and science-based, positively affecting socioeconomic initiatives in the country.

The observatory provided a multi-spectrum data intelligence and analytical support system for the National Coronavirus Command Council, the National Joint Operational and Intelligence Structure, and the Department of Planning, Monitoring and Evaluation (DPME). Social science research organisations were also mobilised to serve as anchor and knowledge institutions. Among the outputs produced, highlights include (a) the 2020 HSRC South African Social Attitudes Survey, which measures and produces rigorous data about changes in public attitudes and behaviour patterns over time, and develops reliable social indicators of national progress based on the attitudes and judgements of citizens, and (b) participation in two workstreams of the Inter-Ministerial Committee on Vaccines. The Capacity for Vaccine Development workstream is led by the DSI. The focus of the Research, Oversight and Monitoring workstream, led by the DPME, goes beyond the biomedical management of the vaccination programme to add value by looking at the policy implications of broader societal responses.

### DSI/SAMRC South African Population Research Infrastructure Network

With the availability of vaccines, South Africa is now at a point where a faster and safer reopening of the nation is in sight. However, the widespread uptake of COVID-19 vaccines is necessary. As the vaccine rollout progresses through its various phases, it will be important to continuously measure vaccine-related attitudes, behaviours and impacts – including vaccine hesitancy, vaccine uptake in target groups, and the effectiveness of the vaccine roll-out in preventing infection and illness.

Since April 2020, the South African Population Research Infrastructure Network (SAPRIN) has been following a random sample of more than 2 000 households in three nodes in Mpumalanga, Limpopo and KwaZulu-Natal, interviewing them every two to three weeks. SAPRIN has documented the impact of non-pharmaceutical measures against the pandemic on the knowledge, behaviour and outcomes for these households. This work has shown some consistent patterns, including that (a) knowledge about COVID-19 increased steadily, (b) the use of face masks increased and remained high, (c) reporting of lost household earnings declined, and (d) levels of anxiety declined.

In 2021, SAPRIN started gearing its nodes to provide key information to decision-makers and scientists for the vaccine roll-out in South Africa. Because of its long experience of working across rural and peri-urban communities, and its expansion to include urban populations, SAPRIN is uniquely placed to measure in detail the reach and effectiveness of the vaccine roll-out in resource-limited settings, which is vital for minimising inequalities in health access.

Specifically, SAPRIN is implementing the following data collection procedures in four existing nodes across the country:

- It has added questions on willingness to accept a COVID-19 vaccine, and reasons for this decision.
   SAPRIN will repeat these questions over time to measure changes and predictors of hesitancy over time.
- As the vaccine roll-out progresses to the community level, SAPRIN plans to link existing detailed population databases to the vaccine register. This will allow SAPRIN to determine progress in access to vaccination, particularly for vulnerable groups such as those in remote areas, the elderly, and those with pre-existing health conditions.
- SAPRIN has experience over a long period in measuring the level of diseases such as HIV, TB, hypertension and diabetes in communities. This will help it measure exposure to COVID-19, and antibody levels induced by vaccination and infection, on an ongoing basis. SAPRIN will assess how such factors affect the proportion of the population that must be vaccinated for South Africa to achieve herd immunity.
- In collaboration with the Network for Genomic Surveillance in South Africa, SAPRIN will also be able to investigate cases of COVID-19 that might occur in people known to have had antibodies against SARS-CoV-2, or to have received COVID-19 vaccinations, and to characterise the associated virus and immune responses.

Because SAPRIN is supported by the DSI as a long-term research infrastructure, it will also be able to look at long-term health outcomes, including mortality and any long-term consequences of COVID-19 infections.

#### The Centre for High Performance Computing

The Openstack Cloud at the Centre for High Performance Computing played a critical role in hosting the CMORE dashboard, tracking and tracing, and the DHET dashboard. This demonstrated the significance of such technologies and the need for government to have a private cloud. The State Information Technology Agency (SITA) has commenced the process of developing a similar

platform that will be used for government. As part of the requirement to build a home-grown cloud stack, SITA also requires that the infrastructure should be locally built. The South African Radio Astronomy Observatory work on locally built storage can be fast-tracked through this platform with the National Integrated Cyberinfrastructure System (NICIS) to establish a locally built infrastructure, OpenStack and local skills to support a private cloud.

It is estimated that the data for the contact tracking system, which uses data from mobile operators, will soon be finalised and ready for the next stage of testing. It is estimated that the data involved in this will grow to a few petabytes, considering the need to track each contact for a full day to identify all the necessary contacts. This is a crucial support that is currently sharing the same platform as CMORE. Both are on NICIS.

All the researchers who are currently working on materials and chemistry simulation geared towards therapeutic solutions for COVID-19, from all universities and the National Institute of Communicable Diseases, are using the current Lengau Cluster, which has been prioritised for these studies to enable South Africa to respond appropriately to COVID-19.

#### Other DSI initiatives aimed at addressing COVID-19

The DSI investment in the Technology Stations Programme (TSP) created advanced skills and technologies which enabled a rapid response to the COVID-19 pandemic. A few examples are given below.

The Downstream Chemicals Technology Station (InnoVenton) at Nelson Mandela University began producing an emergency supply of hand sanitiser for the university's internal use at the start of the pandemic. This led to a flood of requests for assistance from companies and government, including the Eastern Cape Department of Health and Chris Hani District Municipality. As its facility could not produce the required quantity, InnoVenton began a parallel process, helping local SMEs to manufacture hand sanitisers by offering product testing for alcohol

percentage and technical assistance packages. This has had the added benefit of making Nelson Mandela University accessible to a whole new audience, who would normally have had no reason to interact with the university.

The Product Development Technology Station and Medical Device Additive Manufacturing Technology Demonstrator at the Central University of Technology (CUT) is producing parts for the National Ventilator Programme. Thanks to the exceptional product development capabilities in the province, the highquality FMP2 CUT Clinician respirator was developed, manufactured, tested and regulated all within the space of two months. In the early stages of the project, Old Mutual recognised that the CUT Clinician FMP2 mask could protect the lives of Free State clinicians and, with CUT, co-funded the first donation of 1 000 face masks and 1 000 face shields to the Free State Department of Health. The technology station also provided crucial support for the CSIR's L.I.F.E. (Lung Inspiratory Flow Enabler) ventilator by, among other things, manufacturing inlet filter assemblies.

Nelson Mandela University's eNtsa, a DSI/TIA funded initiative, contributed greatly to the prevention of the spread of COVID-19. Its contribution included supplying over 14 000 face shields and supporting various R&D projects (e.g., ventilator reverse engineering). The demand for such assistance has lessened owing to the relaxation of the national lockdown restrictions and improved access to normal supply chains for personal protective equipment and medical devices. The initiative is now focused on helping local industries and entrepreneurs to survive the challenging economic climate to create new opportunities and reduce job losses. This help is provided through engineering support, testing services and online training. SMMEs and entrepreneurs are able to access this much-needed support with a subsidy on costs provided through eNtsa.

### Progress with institutional response to the COVID-19 pandemic

Immediate outcomes	Support to the Department of Defence and Defence and Infrastructure to provide clean energy technologies for field hospitals.      Trained professionals that can join the growing ranks of green artisans.	The study is the first phase of the implementation of the Platinum Valley Initiative and the outputs will be seen in 2021/22.
Contribution to the outputs in the APP (where applicable)	Two APP targets:  • Stationary fuel cells deployed in partnership with local and district municipalities artisans and technicians in emerging technologies in the energy space	The study is the first phase of the implementation of the Platinum Valley Initiative and the outputs will be seen in 2021/22.
Budget spent per intervention (R'000)	15 000	3 000
Total budget allocation per intervention (R'000)	15 000	3 000
Disaggregation of beneficiaries (where possible)	Of the 25 TVET and UoT graduates, 100% were young black South Africans - 56% male and 44% female	n/a
No. of beneficiaries (where possible)	25 TVET and UoT graduates were trained	Economic Development Agencies of Limpopo, Gauteng and KwaZulu-Natal
Geographic Iocation (where possible)	City of Tshwane	Limpopo (Mogalakwena Local Municipality), Gauteng (City of Johannesburg) and KwaZulu- Natal (Durban)
Intervention	Deployment of fuel cells using HySA IP to power the field hospital at 1 Military Hospital  As part of this deployment, unemployed technical and vocational education and training (TVET) college and university of technology (UoT) graduates were trained in the operation and maintenance of fuel cells	Study on a platinum valley stretching from Limpopo through Gauteng to KwaZulu-Natal
Budget Programme	Technology	Technology

### Progress with institutional response to the COVID-19 pandemic (Continued)

Budget Programme	Intervention	Geographic Iocation (where possible)	No. of beneficiaries (where possible)	Disaggregation of beneficiaries (where possible)	Total budget allocation per intervention (R'000)	Budget spent per intervention (R'000)	Contribution to the outputs in the APP (where applicable)	Immediate outcomes
Technology Innovation	Agronomy for African medicines	KwaZulu-Natal, Free State, Gauteng, Mpumalanga, Limpopo	Universities, science councils and 6 SMMEs/ co-ops/non-profit organisations	Agricultural Research Council, University of the Witwatersrand	480	480	SMME support	COVID-19 therapies, immune modulators, nutraceuticals
Technology Innovation	Phytochemistry	KwaZulu-Natal, Free State, Gauteng, Mpumalanga, Limpopo	Universities, science councils and 6 SMMEs/ co-ops/non-profit organisations	University of Pretoria	300	300	Products developed	COVID-19 therapies, immune modulators, nutraceuticals
Technology Innovation	Preclinical (in vitro/in vivo) research	KwaZulu-Natal, Free State, Gauteng, Mpumalanga, Limpopo	Universities, science councils and 6 SMMEs/ co-ops/non-profit organisations	University of KwaZulu-Natal	500	200	Products developed	COVID-19 therapies, immune modulators, nutraceuticals
Technology Innovation	Preclinical and clinical research	KwaZulu-Natal, Free State, Gauteng, Mpumalanga, Limpopo	Universities, science councils and 6 SMMEs/ co-ops/non-profit organisations	University of the Free State	12 000	10 000	Products developed	COVID-19 therapies, immune modulators, nutraceuticals
Technology Innovation	Product and process development	KwaZulu-Natal, Free State, Gauteng, Mpumalanga, Limpopo	Universities, science councils and 6 SMMEs/ co-ops/non-profit organisations	CSIR	1 000	1 000	Product development	COVID-19 therapies, immune modulators, nutraceuticals

### Progress with institutional response to the COVID-19 pandemic (Continued)

Budget Programme	Intervention	Geographic location (where possible)	No. of beneficiaries (where possible)	Disaggregation of beneficiaries (where possible)	Total budget allocation per intervention (R'000)	Budget spent per intervention (R'000)	Contribution to the outputs in the APP (where applicable)	Immediate outcomes	
Technology Innovation	Enterprise development and social impact	All provinces	Incubators, IK holders and SMMEs	Innovation Hub, University of KwaZulu-Natal, Ebukhosini, SABS	2 400	400	SMME support	COVID-19 therapies, immune modulators, nutraceuticals	
Socio-economic Innovation Partnerships	Enviro Champs	eThekwini	310	100% African 63% female	R5 275 729		Knowledge utilisation for inclusive development	for community awareness • 3 360 sites cleared and 25 alien plants identified • 198 municipal sanitation leaks identified • 377 water leaks identified • 93 520 bags of litter collected from 1 275 sites • Umgeni Water was a co-funder and is using the river health data to update the State of Rivers Report (last conducted in 2002)	

### Progress with institutional response to the COVID-19 pandemic (Continued)

				1
Immediate outcomes	Placement of graduates in temporary positions with NGOs, science councils and consultancies			Provided advice based on modelling and monitoring to the National Coronavirus Command Council on various matters relating to COVID-19 as input to policy. These included modelling of infections, movement of people, and monitoring of vaccination roll-out.
Contribution to the outputs in the APP (where applicable)	Knowledge utilisation for inclusive development			n/a
Budget spent per intervention (R'000)	R10 404 000			R10m
Total budget allocation per intervention (R'000)	R10 404 000	R52m	R30m	R10m
Disaggregation of beneficiaries (where possible)	60% female			
No. of beneficiaries (where possible)	214	National	National	
Geographic Iocation (where possible)	Eastern Cape, Free State, Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga, North West,	Three nodes in Mpumalanga, Limpopo and KwaZulu-Natal	National	All provinces
Intervention	Graduate Employment Programme	South African Population Research Infrastructure Network	Distributed Platform in Omics (DIPLOMICS) under the South African Research Infrastructure Roadmap	National Policy Data Observatory
Budget Programme	Socio-economic Innovation Partnerships	Research Development and Support	Research Development and Support	Research Development and Support

#### 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 DSI 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 to improve the DSI's risk maturity level. The component's secondary role is to ensure that countering fraud is made an integral part of the strategy, operations and administration in the Department (i.e. to promote a fraud risk management culture in the DSI).

**Policy, Planning, Governance, Monitoring and Evaluation** supports the DSI 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 DSI'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 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 Systems and Knowledge Management is responsible for the delivery of services that support the Department's strategic plan and individual units' 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 the 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 a proactive approach to deal 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 DSI 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 DSI and is entities through marketing, media and branding initiatives, and the Science Engagement Strategy.
- To make the DSI an employer of choice and acquire and retain appropriately skilled personnel.
- To provide efficient and effective information technology service.
- · To ensure effective and efficient financial and procurement services.

Table 5: Programme 1 – Administration

	Reasons for deviations	None	n/a	Fast-tracking of the filling of the prioritised prioritised posts
Acnieved	Status	Achieved	Achieved	Achieved
Acni	Deviation from planned target to actual achievement for 2020/21	None	None	17%
	Actual achievement	DSI public entities' 2021/22 APPs (NRF, HSRC, TIA, SANSA, NACI, SACNASP, ASSAf) and CSIR shareholder compact signed by the Minister and chairpersons of the boards by 31 March 2021	Finalisation of the Decadal Plan and approval by Cabinet by 31 March 2021	92% of all approved funded positions filled by 31 March 2021
Icnieved	Planned annual target 2020/21	DSI public entities' 2021/22 APPs (NRF, HSRC, TIA, SANSA, NACI, SACNASP, ASSAf) and CSIR shareholder compact signed by the Minister and chairpersons of the boards by 31 March 2021	Finalisation of the Decadal Plan and approval by Cabinet by 31 March 2021	75% of all approved funded positions filled by 31 March 2021
Partially achiev	Audited actual performance 2019/20	DSI public entities' 2020/21 APPs and annual reports approved by the Minister by 31 March 2019	New indicator	New indicator
	Audited actual performance 2018/19	DSI public entities' 2019/20 APPs and annual reports approved by the Minister by 31 March 2019	New indicator	New indicator
D:	Output indicators	DSI public entities' APPs and CSIR shareholder compact approved by the Minister and chairpersons of the boards	Approved Decadal Plan to implement the 2019 White Paper on Science, Technology and	Percentage of approved funded positions filled annually
Not achieved	Outputs	DSI public entities' annual performance plans (APPs) and shareholder compact	Decadal Plan for the national system of innovation	Reduce vacancy rate
	Outcomes	Innovation in support of a capable and developmental state		

Reasons for deviations	n/a	n/a	n/a
Status	Achieved	Achieved	Achieved
Deviation from planned target to actual achievement for 2020/21	None	None	None
Actual achievement	Unqualified audit opinion with no financial matters in the audit report from the Auditor-General by 30 Sept. 2020	Six platforms (print, broadcast, online, media liaison, stakeholder engagement and social media) to profile the DSI and its entities by 31 March 2021	Two national thematic campaign reports on the branding rollout initiatives by 31 March 2021
Planned annual target 2020/21	Unqualified audit opinion with no financial matters in the audit report from the Auditor-General by 30 Sept. 2020	Six platforms (print, broadcast, online, media liaison, stakeholder engagement and social media) to profile the DSI and its entities by 31	Two national thematic campaign reports on the branding roll-out initiatives by 31
Audited actual performance 2019/20	Unqualified audit opinion with no financial matters in the audit report from the Auditor-General	New indicator	New indicator
Audited actual performance 2018/19	Unqualified audit (clean audit) opinion with no financial matters in the audit report	New indicator	New indicator
Output indicators	Unqualified audit opinion with no financial matters in the audit report from the Auditor-General	Number of media platforms used to promote the DSI and its entities	Branding initiatives developed and implemented
Outputs	Good financial governance	Media and marketing initiatives to profile the DSI and its entities	
Outcomes		A transformed, inclusive, responsive and coherent NSI	

### **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 IP, technology transfer and technology commercialisation.

#### **Chief directorates**

**Bioinnovation** leads the Department's implementation of the Bio-economy Strategy, ensuring science, technology and innovation are harnessed and guided in building the South African bioeconomy. Bioinnovation includes the strategic themes of agriculture, health, industry and the environment, and indigenous knowledge. The ultimate objective is to exploit opportunities for improving the livelihoods of South Africans, the competitiveness and resilience of the economy, and the sustainability of socio-economic development.

Hydrogen and Energy provides policy leadership in RDI initiatives in the energy sector that are cross-cutting and have a long-term economic and environmental impact. It plays a key role in developing a sustainable and globally competitive South African knowledge-based energy 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 Mineral Resources and 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 current and emerging low-carbon 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 cross-cutting 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, Industry and Competition. 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 for South Africa to leverage the opportunities that the space value chain presents.

Innovation Priorities and Instruments support and strengthen 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 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.

### **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 R&D outputs into commercial products, processes and services that will contribute towards economic growth and a better quality of life.

Table 6: Programme 2 – Technology Innovation

Not achieved

Achieved

Reasons for deviations	n/a	n/a	n/a
Status	Achieved	Achieved	Achieved
Deviation from planned target to actual achievement for 2020/21	None	None	None
Actual achievement	3 decision- support tools developed by 31 Mar. 2021	8 strategic and technical engagements with SANSA and TIA to ensure alignment to national priorities by 31 Mar 2021	SANSA Regional Space Weather Centre upgrades initiated by 31 Mar 2021
Planned annual target 2020/21	3 decision-support tools developed by 31 Mar. 2021	8 strategic and technical engagements with SANSA and TIA to ensure alignment to national priorities by 31 Mar 2021	SANSA Regional Space Weather Centre upgrades initiated by 31 Mar 2021
Audited actual performance 2019/20	3 decision- support interventions maintained by 31 Mar. 2018	New indicator	New indicator
Audited actual performance 2018/19	2 decision- support interventions maintained by 31 Mar. 2019	New indicator	New indicator
Output indicators	Number of decision- support tools utilised in all spheres of government	Number of strategic and technical engagements with SANSA and TIA to ensure alignment with national priorities	Provision of space weather information for the aviation industry in South Africa and the African continent
Outputs	Decision- support tools	SANSA and TIA oversight to ensure alignment with government priorities	SANSA Regional Space Weather Centre upgrades
Outcomes	Innovation in support of a capable and developmental state		

Reasons for deviations	The launch was delayed owing to the effects of COVID-19 on the global space value chain.	Planning was based on baselines, as well as on budget cuts. However, the demand for studentships is not always as planned or predicted.	More training opportunities were made available to the youth as there were cost savings owing to lack of travel by implementing agencies.
Status	Not achieved	Achieved	Achieved
Deviation from planned target to actual achievement for 2020/21	Flight model not launched by 31 Dec. 2020	36	30
Actual achievement	Flight model delivered but not launched by 31 Dec. 2020	236 postgraduate students (master's and doctoral) supported in designated energy, space, Innovation Priorities and Instruments and bioeconomy areas by 31 Mar. 2021	50 artisans and/or technicians trained in the energy and agriculture sectors of the economy by 31 Mar. 2021
Planned annual target 2020/21	Flight model delivered and ready for launching by 31 Dec. 2020	200 postgraduate students (master's and doctoral) supported in designated energy, space, Innovation Priorities and Instruments and bioeconomy areas by 31 Mar. 2021	20 artisans and/or technicians trained in the energy and agriculture sectors of the economy by 31 Mar. 2021
Audited actual performance 2019/20	New indicator	185 postgraduate students (master's and doctoral) funded in designated areas by 31 Mar. 2020	New indicator
Audited actual performance 2018/19	New indicator	354 postgraduate students (master's and doctoral) funded in designated areas by 31 Mar. 2019	New indicator
Output indicators	Number of maritime domain awareness (MDA) missions completed in support of the Oceans Economy Phakisa	Number of postgraduate students (master's and doctoral) supported in designated energy, space, Innovation Priorities and Instruments and bioeconomy areas	Number of artisans and/ or technicians trained in the energy and agriculture sectors of the economy
Outputs	CubeSat launched	Support provided to master's and doctoral students	Artisans and/ or technicians trained in the energy, space and agriculture sectors of the economy
Outcomes		Human capabilities and skills for the economy and for development	

Outcomes	Outputs	Output indicators	Audited actual performance 2018/19	Audited actual performance 2019/20	Planned annual target 2020/21	Actual achievement	Deviation from planned target to actual achievement for 2020/21	Status	Reasons for deviations
	People trained in intellectual property (IP) management and technology transfer	Number of trainees upskilled in IP management and technology transfer	336 trainees attending training initiatives in designated areas by 31 Mar. 2020	attending training initiatives in designated areas by 31 Mar. 2020	upskilled in IP management and technology transfer by 31 Mar. 2021	346 trainees upskilled in IP management and technology transfer by 31 Mar. 2021	121	Achieved	Due to the COVID-19 lockdown regulations, all face-to-face training interventions had to be conducted virtually. This generated much more interest than expected, and people were able to attend from wherever they were, and without incurring any travel, accommodation or other costs associated with face-to-face training workshops. NIPMO took the lockdown as an opportunity to train more people instead of denying them an opportunity to learn.

Outputs	Output indicators	Audited actual performance 2018/19	Audited actual performance 2019/20	Planned annual target 2020/21	Actual achievement	Deviation from planned target to actual achievement for 2020/21	Status	Reasons for deviations
Disclosures received from publicly financed research and development (R&D) institutions	Number of disclosures received from publicly financed R&D institutions as reported to NIPMO	311 new disclosures reported by publicly financed R&D institutions by 31 Mar. 2019	258 new disclosures reported by publicly financed R&D institutions by 31 Mar. 2020	225 disclosures received from publicly financed R&D institutions as reported to NIPMO by 31 Mar. 2021	226 disclosures received from publicly financed R&D institutions as reported to NIPMO by 31 Mar. 2021	-	Achieved	n/a
Improve the filing of publicly funded intellectual property (IP) rights	Number of IP rights filed based on research, development and innovation (RDI) conducted in designated areas	New indicator	New indicator	4 IP rights filed based on RDI conducted in designated areas by 31 Mar. 2021	10 IP rights filed based on RDI conducted in designated areas by 31 Mar. 2021	9	Achieved	This is a new indicator with no previous baseline. However, a higher of number of IP rights filed is always favourable.
Technology demonstrators, prototypes, products and services developed	Number of technology demonstrators, prototypes, products and services developed	New indicator	New indicator	10 technology demonstrators, prototypes, products and services developed in designated energy, space, linnovation Priorities and linstruments, and bioeconomy areas by 31 Mar. 2021	18 technology demonstrators, prototypes, products and services developed in designated energy, space, Innovation Priorities and Instruments, and bioeconomy areas by 31 Mar. 2021	∞	Achieved	It is difficult to predict when and if research is going to lead to a prototype, pilot, demonstrator, etc., and targets are therefore set on the basis of research that seems close to reaching application. However, sometimes a knowledge

Reasons for deviations	application product is developed faster than expected.	n/a	New indicator with no baseline to set a target against
Status		Achieved	Achieved
Deviation from planned target to actual achievement for 2020/21		None	12
Actual achievement		2 stationary fuel cell systems/ clean energy technologies deployed in partnership with local and district municipalities in rural and informal settlements by 31 Mar. 2021	22 SMMEs assisted with business development and commercialisation by 31 Mar. 2021
Planned annual target 2020/21		2 stationary fuel cell systems/ clean energy technologies deployed in partnership with local and district municipalities in rural and informal settlements by 31 Mar. 2021	10 SMMEs assisted with business development and commercialisation by 31 Mar. 2021
Audited actual performance 2019/20		New indicator	New indicator
Audited actual performance 2018/19		New indicator	New indicator
Output indicators		Number of stationary fuel cell systems/ clean energy technologies deployed in partnership with local and district municipalities in rural and informal settlements	Number of SMMEs contracted and/or assisted with business development and commer- cialisation
Outputs		Deployed stationary fuel cells and/or other clean energy technologies	SMMEs assisted/ supported with business development and commer- cialisation
Outcomes		Knowledge utilisation for economic development in (a) revitalising existing (traditional) industries and (b) stimulating R&D-led development	

Status Reasons for deviations	Achieved The decision to purchase products is made by private sector partners and is therefore outside the control of the DSI.	achieved enough black emerging farmers were reported in signed reports to meet the target. However, only 71 could be verified, as the necessary documentation could not be sourced in time. The documentation will be improved in the next financial vear.
Deviation from planned target to St actual achievement for 2020/21	11 A	achi
Actual achievement	15 commercial outputs in designated areas by 31 Mar. 2021	71 black emerging farmers (subsistence, small-scale, and potential farmers) benefiting from technology/ innovation support programmes by 31 Mar. 2021
Planned annual target 2020/21	4 commercial outputs in designated areas by 31 Mar. 2021	200 black emerging farmers (subsistence, small-scale, and potential commercial farmers) benefiting from technology/ innovation support programmes by 31 Mar. 2021
Audited actual performance 2019/20	11 commercial outputs in designated areas by 31 Mar. 2020	New indicator
Audited actual performance 2018/19	7 commercial outputs in designated areas by 31 Mar. 2019	New indicator
Output indicators	Number of commercial outputs in designated areas	Number of black emerging farmers small-scale, and potential commercial farmers) benefiting from technology/ innovation support programmes
Outputs	Commercial outputs in designated areas	Black emerging farmers benefiting from technology/ innovation support programmes
Outcomes		

# 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 other 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 DSI 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 DSI's targets for human capital development, especially for international PhD training.
- To strengthen cooperation in STI in Africa, and to build capacities and support initiatives for the SADC and the African Union (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.

Table 7: Programme 3 – International Cooperation and Resources

Not achieved

**Achieved** 

Partially achieved

Outcomes	Outputs	Output indicators	Audited actual performance 2018/19	Audited actual performance 2019/20	Planned annual target 2020/21	Actual achievement	Deviation from planned target to actual achievement for 2020/21	Status	Reasons for deviations
A transformed, inclusive, responsive and coherent NSI	International resource-leveraging engagements undertaken by the Department	Number of international resource-leveraging engagements undertaken by the	New indicator	New indicator	43 international resource- leveraging engagements undertaken by the Department by 31 May 2021	46 international resource- leveraging engagements undertaken by the Department by 31 May 2021	8	Achieved	More opportunities arose, resulting from the virtual engagement opportunities currently being exploited with international partners.
Human capabilities and skills for the economy and for development	South African students participating in international training programmes as part of cooperation initiatives facilitated by the DSI	Number of South African students participating in international training programmes	1470 South African students participating in international training programmes offering a postgraduate qualification as part of cooperation initiatives facilitated by the DSI by 31 Mar. 2019	African students participating in international training programmes offering a postgraduate qualification as part of cooperation initiatives facilitated by the DSI by 31 Mar. 2020	326 new South African students participating in international training programmes as part of cooperation initiatives facilitated by the DSI by 31 Mar. 2021	342 new South African students participating in international training programmes as part of cooperation initiatives facilitated by the DSI by 31 Mar. 2021	16	Achieved	More opportunities were recorded as a result of the closer cooperation between the DSI, DHET and NRF to leverage international human capital development opportunities for South Africans.

Reasons for deviations	Due to COVID-19 restrictions and the lack of connectivity in rural areas, there were limited opportunities for engagement with historically dis- advantaged institutions.	More opportunities became available for engagement with international partners as a result of the current increased levels of virtual engagement.
Status	achieved	Achieved
Deviation from planned target to actual achievement for 2020/21	-15	31
Actual achievement	17 capacity-building initiatives for international cooperation specifically targeting historically disadvantaged institutions and individuals by 31 Mar. 2021	65 international policy dialogues and technical exchanges to support the policy intents of the White Paper on STI by 31 Mar. 2021
Planned annual target 2020/21	32 capacity- building initiatives for international cooperation specifically targeting historically disadvantaged institutions and individuals by 31 Mar. 2021	34 international policy dialogues and technical exchanges to support the policy intents of the White Paper on STI by 31 Mar. 2021
Audited actual performance 2019/20	New indicator	32 international technical exchanges to build or reinforce South Africa's capacities in key STI domains specifically referenced in the DSI Strategic Plan, undertaken with the support of international partners facilitated by the DSI by 31 Mar. 2020
Audited actual performance 2018/19	New indicator	36 international technical exchanges to build or reinforce South Africa's capacities in key STI domains specifically referenced in the DSI Strategic Plan, undertaken with the support of international partners facilitated by the DSI by 31 Mar. 2019
Output indicators	Number of capacity-building initiatives for international cooperation specifically targeting historically dis-advantaged institutions and individuals	Number of international policy dialogues and technical exchanges to support the policy intents of the White Paper on STI
Outputs	Capacity-building initiatives for international cooperation specifically targeting historically dis-advantaged institutions and individuals	International policy dialogues and technical exchanges to support the policy intents of the White Paper on STI
Outcomes	A transformed, inclusive, responsive and coherent NSI	

Status Reasons for deviations	Achieved  The overachievement resulted from South Africa's chairing of the AU, which provided increased opportunities to take a leadership role in activities.	Achieved n/a	Achieved There were more opportunities for engagement with African partners owing to the greater ease of virtual
Deviation from planned target to actual achievement for 2020/21	m	None	2
Actual achievement	18 new STI initiatives targeting the objectives of Agenda 2063 supported by 31 Mar. 2021	17 new STI initiatives targeting the objectives of the SADC RISDP supported by 31 Mar. 2021	11 new bilateral STI plans of action implemented with African partners by 31 Mar. 2021
Planned annual target 2020/21	15 new STI initiatives targeting the objectives of Agenda 2063 supported by 31 Mar. 2021	17 new STI initiatives targeting the objectives of the SADC RISDP supported by 31 Mar. 2021	6 new bilateral STI plans of action implemented with African partners by 31 Mar. 2021
Audited actual performance 2019/20	New indicator	New indicator	New indicator
Audited actual performance 2018/19	New indicator	New indicator	New indicator
Output indicators	Number of STI initiatives targeting the objectives of Agenda 2063 supported	Number of STI initiatives targeting the objectives of the SADC RISDP supported	Number of bilateral STI plans of action implemented with African partners
Outputs	STI initiatives targeting the objectives of Agenda 2063 supported	STI initiatives targeting the objectives of the SADC Regional Indicative Strategic Development Plan (RISDP) supported	Bilateral STI plans of action implemented with African partners
Outcomes	Knowledge utilisation for economic development in (a) revitalising existing (traditional) industries and (b) stimulating R&D-led industrial	development	

n nned Status Reasons for deviations nent	Achieved n/a	
Deviation from planned from planned actual actual actual achievement achievement for 2020/21	None engagements with global science leaders	to advance national priorities in multilateral forums by 31 Mar. 2021
Planned annual / target 2020/21	nts ence ance ties	in multilateral to forums by 31 Mar. In 2021
Audited actual performance 2019/20	New indicator	
Audited actual performance 2018/19	New indicator	
Output indicators	Number of engage-ments with global	science leaders to advance national priorities in multilateral forums
Outputs	Engagements with global science leaders to advance	national priorities in multilateral forums
Outcomes	A transformed, inclusive, responsive and coherent NSI	

### **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, human capital development, 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 young people'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 the 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.

Table 8: Programme 4 – Research Development and Support

Not achieved

Outcomes	Outputs	Output indicators	Audited actual performance 2018/19	Audited actual performance 2019/20	Planned annual target 2020/21	Actual achievement	Deviation from planned target to actual achievement for 2020/21	Status	Reasons for deviations	
Human capabilities and skills for the economy and for development	PhD students awarded bursaries annually	Number of PhD students awarded bursaries annually as reflected in the reports from the NRF and other relevant entities	3380 PhD students awarded bursaries annually as reflected in the reports from the NRF and relevant entities by 31 Mar. 2019	2 991 PhD students awarded bursaries annually as reflected in the reports from the NRF and relevant entities by 31 Mar. 2020	No fewer than 2 400 PhD students awarded bursaries annually as reflected in the reports from the NRF and other relevant entities by 31 Mar. 2021	303 PhD students awarded bursaries annually as reflected in the reports from the NRF and other relevant entities by 31 Mar. 2021	-2 097	Not achieved	The verification documents are still being cleaned by the main implementing agency, the NRF.	
	Pipeline postgraduate students awarded bursaries annually	Number of pipeline postgraduate students awarded bursaries annually as reflected in the reports from the NRF and other relevant entities	9774 pipeline postgraduate students awarded bursaries annually as reflected in the reports from the NRF and relevant entities by 31 Mar. 2019	8 632 pipeline postgraduate students awarded bursaries annually as reflected in the reports from the NRF and relevant entities by 31 Mar. 2020	No fewer than 8 000 pipeline postgraduate students awarded bursaries annually as reflected in the reports from the NRF and other relevant entities by 31 Mar. 2021	326 pipeline postgraduate students awarded bursaries annually as reflected in the reports from the NRF and other relevant entities by 31 Mar. 2021	-7 674	achieved	The verification documents are still being cleaned by the main implementing agency, the NRF.	

Outputs	Output indicators	Audited actual performance 2018/19	Audited actual performance 2019/20	Planned annual target 2020/21	Actual achievement	Deviation from planned target to actual achievement for 2020/21	Status	Reasons for deviations
Graduates and students placed in DSI- funded work preparation programmes	Number of graduates and students placed in DSI-funded work preparation programmes in science, engineering, technology and innovation (SETI) institutions	802 graduates and students placed in DSI-funded work preparation programmes in SETI institutions by 31 Mar. 2020	1 091 graduates and students placed in DSI-funded work preparation programmes in SETI institutions by 31 Mar. 2020	No fewer than 750 graduates and students placed in DSI-funded work preparation programmes in SETI institutions by 31 Mar. 2021	1 085 graduates and students placed in DSI- funded work preparation programmes in SETI institutions by 31 Mar. 2021	190	Achieved	The target was exceeded by 44,6% (335) owing to a decision to redirect funds earmarked for science engagement activities that required physical contact. These could not be carried out due to the COVID-19 lockdown restrictions. At the same time, the increased placement was part of the DSI's contribution to the Economic Reconstruction and Recovery Plan, providing more graduates with internship positions to increase their chances of employment.

Reasons for deviations		The target was exceeded by 35,8% (2 150). The number of research articles published per researcher was higher than anticipated. This fluctuates slightly from year to year. Moreover, the annual performance cannot be predicted or managed within closer margins due to the unpre-dictability of publishing of publishing
Reas	n/a	The target exceeded k 35,8% (2 15 The numbe research ar published l researcher higher than anticipated This fluctus slightly froi year to year to year to year to year to year to performancannot be predicted c managed v closer marg due to the unpre-dicts of publishin processes.
Status	Achieved	Achieved
Deviation from planned target to actual achievement for 2020/21	None	2150
Actual achievement	3 000 researchers awarded research grants annually through NRF-managed programmes as reflected in the NRF project reports by 31 Mar. 2021	8 150 internationally accredited research articles by researchers awarded research grants by 31 Mar. 2021
Planned annual target 2020/21	No fewer than 3 000 researchers awarded research grants annually through NRF- managed programmes as reflected in the NRF project reports by 31 Mar. 2021	6 000 internationally accredited research articles by researchers awarded research grants by 31 Mar. 2021
Audited actual performance 2019/20	3 205 researchers awarded research grants annually through NRF-managed programmes as reflected in the NRF project reports by 31 Mar. 2020	7 255 research articles published by NRF-funded researchers and cited in the Web of Science citation database as reflected in the NRF project reports by 31 Mar. 2020
Audited actual performance 2018/19	4 633 researchers awarded research grants annually through NRF-managed programmes as reflected in the NRF project reports by 31 Mar. 2019	9 159 research articles published by NRF-funded researchers and cited in the Web of Science citation database as reflected in the NRF project reports
Output indicators	Number of researchers awarded research grants through NRF-managed programmes as reflected in the NRF project reports	Number of research articles published by NRF-funded researchers and cited in the Web of Science citation database as reflected in the NRF project reports
Outputs	Researchers awarded research grants	Internationally accredited research articles by researchers awarded research grants through NRF-managed programmes
Outcomes	Increased knowledge generation and innovation output	

Reasons for deviations	n/a	n/a	The planned target could not be met owing to internal delays in finalising the Regulations.
Status	Achieved	Achieved	achieved
Deviation from planned target to actual achievement for 2020/21	None	None	<u>-</u>
Actual achievement	64 S-Band science mode receivers installed on the MeerKAT by 31 Mar. 2021	System design review of the MeerKAT extension approved by 31 Mar. 2021	The Minister could not approve the IK Act Regulations due to internal delays in finalising the Regulations for consultations to take place. On 10 March 2021, Exco recommended that the Regulations be subjected to consultation.
Planned annual target 2020/21	64 S-Band science mode receivers installed on the MeerKAT by 31 Mar. 2021	System design review of the MeerKAT extension approved by 31 Mar. 2021	Regulations for the IK Act approved by the Minister by 31 March 2021
Audited actual performance 2019/20	8 large survey project science mode receivers installed on the MeerKAT correlator	New indicator	New indicator
Audited actual performance 2018/19	64 UHF science mode receivers installed on the MeerKAT by 31 Mar. 2019	New indicator	New indicator
Output indicators	Number of additional receivers installed on the MeerKAT telescope to enhance the performance of the telescope	Number of additional MeerKAT telescope antennas	Number of components of the IK legal architec-ture imple-mented
Outputs	S-Band science mode receivers installed	Additional antennas installed on the MeerKAT telescope	Regulations approved by the Minister under the Protection, Promotion, Development and Management of Indigenous Knowledge Act (IK Act)
Outcomes			

Reasons for deviations		· ·
		Achieved n/a
Status		Achi
Deviation from planned target to actual achievement for 2020/21		None
Actual achievement	In line with advice from Legal Services, the Minister must also approve the consultation process for the Regulations. When approval has been obtained, the DSI will embark on a widespread consultation process.	Sample and technical report frameworks for the first South African public relationship with science survey were approved by 31 Mar. 2021.
Planned annual target 2020/21		Sample and technical report frameworks for the first South African public relationship with science survey approved by 31
Audited actual performance 2019/20		New indicator
Audited actual performance 2018/19		New indicator
Output indicators		First South African public relationship with science survey report published
Outputs		South African science survey report
Outcomes		

Outputs	Output indicators	Audited actual performance 2018/19	Audited actual performance 2019/20	Audited actual Planned annual performance target 2020/21 2019/20	Actual achievement	Deviation from planned target to actual achievement for 2020/21	Status	Reasons for deviations
Oversight of NRF, ASSAf and SACNASP to ensure that they respond to government priorities	Number of strategic and technical engage-ments with the NRF, ASSAf and SACNASP to ensure alignment to national priorities	New indicator	New indicator and technic and technic engagemen the NRF, ASS SACNASP to alignment the by 31 Mar. 2	al ts with \$Af and ensure or orities	9 strategic and technical engagements with the NRF, ASSAf and SACNASP to ensure alignment to national priorities by 31 Mar. 2021	-3	achieved achieved	Some institutions could not hold meetings in the first two quarters of the financial year.

#### **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 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 knowledgegeneration 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. The economic benefit includes the development of advanced technologies and industries, improved government service delivery, improved productivity and competitiveness, and technology transfer and support to SMMEs and manufacturing firms in the supply chains of largescale 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 the 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 provides leadership and guidance for harnessing science, technology and innovation for the delivery of basic services, local economic development and inculcating the culture of innovation across government through the following interventions:

- · Leading the development, demonstration, transfer and diffusion of innovative solutions towards supporting evidence-based policy making service delivery making and practice.
- · Strengthening STI capacity, maturity and collaboration with local government and sector departments towards a capable and innovative state. includes the provision of decision support tools and knowledge products to advance evidence-based service delivery decision-making.
- Coordinating collaborative collaborative STI catalytic local industries, clusters and value-chains in line with provincial and local development plans.
- Coordinating and inculcating science, technology and innovation initiatives in support of the District **Development Model**

The chief directorate has two directorates managing thematic priorities aligned to its focus areas, namely, Technology for Sustainable Livelihoods, and Science and Technology for Sustainable Human Settlements.

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 science and technology expenditure tables, and the implementation of section 11D of the Income Tax Act, 1962, to promote private-sector R&D investment.

#### **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 new, targeted, R&D-led 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 R&D.

Table 9: Programme 5 – Socio-economic Innovation Partnerships

Not achieved

Achieved

Reasons for deviations	n/a	n/a	n/a
Status	Achieved	Achieved	Achieved
Deviation from planned target to actual achievement for 2020/21	None	None	None
Actual achievement	At least 4 knowledge products on innovation for inclusive development published between 1 Apr. 2020 and 31 Mar. 2021	At least 10 decision-support systems maintained and improved by 31 Mar. 2021	At least 4 learning interventions (seminars/ policy round tables) hosted by 31 Mar. 2021
Planned annual target 2020/21	At least 4 knowledge products on innovation for inclusive development published between 1 Apr. 2020 and 31 Mar. 2021	At least 10 decision- support systems maintained and improved by 31 Mar. 2021	At least 4 learning interventions (seminars/policy round tables) hosted by 31 Mar. 2021
Audited actual performance 2019/20	At least 6 knowledge products on innovation for inclusive development published between 1 Apr. 2019 and 31 Mar. 2020	At least 10 decision-support systems maintained and improved by 31 Mar. 2020	At least 9 learning interventions (seminars) generated by 31 Mar. 2020
Audited actual performance 2018/19	8 knowledge products on innovation for inclusive development published between 1 Apr. 2015 and 31	10 decision- support systems maintained and improved by 31 Mar. 2019	10 learning interventions (seminars) generated by 31 Mar. 2019
Output indicators	Number of knowledge products on innovation for inclusive development published	Number of decision-support interventions introduced and maintained	Number of learning interventions (seminars/policy round tables) hosted
Outputs	Knowledge products	Decision- support interventions	Learning interventions (seminars, policy round tables)
Outcomes	Innovation in support of a capable and developmental state	Knowledge utilisation for inclusive development	

Outcomes	Outputs	Output indicators	Audited actual performance 2018/19	Audited actual performance 2019/20	Planned annual target 2020/21	Actual achievement	Deviation from planned target to actual achievement for 2020/21	Status	Reasons for deviations
Human capabilities and skills for the economy and for development	High-level human capital developed for competitiveness and new industry development	Number of high-level research students (honours, master's and doctoral) fully funded or co-funded in designated niche areas (advanced manufacturing, aerospace, chemicals, mining, advanced metals, ICTs and the Industry Innovation Programme (IIP), incl. the SIFs and the sorroway)	At least 249 master's and doctoral students fully funded or co-funded in designated niche areas (advanced manufacturing, aerospace, chemicals, mining, advanced metals, ICTs and the IIP)	At least 231 master's and doctoral students fully funded or co-funded in designated niche areas (advanced manu-facturing, aerospace, chemicals, mining, advanced metals, ICTs and the IIP, incl. the SIFs) by 31 Mar. 2020	At least 313 honours, master's and doctoral students fully funded or co-funded in designated niche areas (advanced manu-facturing, aerospace, chemicals, mining, advanced metals, ICTs and the IIP, incl. the SIFs and the green economy) by 31 Mar. 2021	At least 330 honours, master's and doctoral students fully funded or co-funded in designated niche areas (advanced manufacturing, aerospace, chemicals, mining, advanced metals, ICTs and the IIP, incl. the SIFs and the green economy) by 31 Mar. 2021	17	Achieved	The target in the first approved APP was 392. Departments were provided with an opportunity to revise targets in June as a result of COVID-19-related challenges. Owing to continued uncertainties, a conservative approach was taken in revising the target.

Reasons for deviations	d The onset of COVID-19 made this difficult to forecast accurately. The pandemic also created opportunities for new IP products.	Additional funding was secured to fund internships/ work integrated learning programmes.
Status	Achieved	Achieved
Deviation from planned target to actual achievement for 2020/21	78	_
Actual achievement	An annual total of at least 70 industrially relevant knowledge and innovation products (patents, prototypes, technology demonstrators or technology transfer packages) added to the industrial development and green economy IP portfolio by 31 Mar. 2021	At least 6 instruments funded in support of increased localisation, competitiveness and R&D- led industry develop- ment by 31 Mar.
Planned annual target 2020/21	An annual total of at least 42 industrially relevant knowledge and innovation products (patents, prototypes, technology demonstrators or technology transfer packages) added to the industrial development and green economy IP portfolio by 31 Mar. 2021	At least 5 instruments funded in support of increased localisation, competitiveness and R&D- led industry development by 31 Mar. 2021
Audited actual performance 2019/20	At least 57 industrially relevant knowledge and innovation products (patents, prototypes, technology demonstrators or technology transfer packages) added to the industrial development IP portfolio by 31 Mar. 2020	At least 9 instruments funded in support of increased localisation, competitiveness and R&D- led industry develop-ment by 31 Mar. 2020
Audited actual performance 2018/19	At least 42 industrially relevant knowledge and innovation products (patents, prototypes, technology demonstrators or technology transfer packages) added to the industrial development IP portfolio by 31 Mar. 2019	9 instruments funded in support of increased localisation, competitiveness and R&D- led industry development by 31 Mar. 2019
Output indicators	Number of knowledge and innovation products added to the industrial development and green economy IP portfolios through fully funded or co-funded initiatives	Number of instruments funded in support of increased localisation, competitiveness and R&D-led industry development
Outputs	Knowledge and innovation products added to the industrial development and green economy intellectual property (IP) portfolios	Funding instruments to increase localisation, competitiveness and R&D- led industry development
Outcomes	Increased knowledge generation and innovation output	

Achieved A call for proposals was made for interventions for provincial innovation systems, which resulted in 15 interventions being funded. It is not possible to determine the number of proposals that will be received. The target for this indicator was based on the minimum that could be expected.
At least 23 innovation support interventions funded or co-funded that strengthen provincial or rural innovation systems between 1 Apr. 2020 and 31 Mar. 2021
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Innovation Number support innovati innovati interventions support funded or interven co-funded that co-fund provincial or strength rural innovation or rural innovati systems
for inclusive intervelopment funds co-fu stren provi rural system

Outputs	S.	Output indicators	Audited actual performance 2018/19	Audited actual performance 2019/20	Planned annual target 2020/21	Actual achievement	Deviation from planned target to actual achievement for 2020/21	Status	Reasons for deviations
Companies accessing the R&D tax incentive	tax tax	Turnaround time in providing preapproval decisions on applications for the R&D tax incentive	Preapproval decisions provided within 90 days on 39% (or 51) of the 131 applications for the R&D tax incentive received between 1 Jan. 2018 and 31 Dec. 2018. Overall, of the 131 applications received in the same period, 95 (or 73%) have been provided with decisions.	Preapproval decisions provided within 90 days from date of receipt on 11% (or 12) of the 106 applications for the R&D tax incentive received between 1 Jan. 2019 and 31 Dec. 2019	Preapproval decisions provided within 90 days from date of receipt for 80% of applications for the R&D tax incentive received between 1 Jan. 2020 and 31 Dec. 2020	Preapproval decisions provided within 90 days from date of receipt for 20,2% (or 23) of the 114 of applications for the R&D tax incentive received between 1 Jan. 2020 and 31 Dec. 2020	59,80%	achieved	The lack of capacity in the R&D Tax Incentive unit, the lack of an online system, delays caused by requests for additional information from applicants, and adherence to the Promotion of Administrative Lustice Act delayed the processing of applications.
Oversight of the CSIR and HSRC to ensu they respond to governmer priorities	Oversight of the CSIR and HSRC to ensure they respond to government priorities	Number of strategic and technical engagements with the CSIR and HSRC to ensure alignment to national priorities	New indicator	New indicator	8 strategic and technical engagements with the CSIR and HSRC to ensure alignment to national priorities by 31 Mar. 2021	8 strategic and technical engagements with the CSIR and HSRC to ensure alignment to national priorities by 31 Mar. 2021	None	Achieved	n/a

Outcomes	Outputs	Output indicators	Audited actual performance 2018/19	Audited actual performance 2019/20	Planned annual target 2020/21	Actual achievement	Deviation from planned target to actual achievement for 2020/21	Status	Reasons for deviations
Human capabilities and skills for the economy and for development	Presidential Youth Employment Initiative (PYEI)	Number of PYEI beneficiaries	New indicator	New indicator	1 700 PYEI beneficiaries by 31 Mar. 2021	641 PYEI beneficiaries by 31 Mar. 2021	-1 059	achieved	This is a new indicator, introduced after the start of the financial year, i.e. in July 2021, to accommodate performance requirements associated with the Presidential Employment Stimulus. The initiative initially encountered delays, with the funding was not sufficient to continue with the initiative, and savings needed to be generated to cover the shortfall. This only happened by Dec. 2020.

#### **Changes to planned targets**

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There were no changes to planned targets.

#### **Approval**

This is to confirm that the Executive Committee (Exco) of the Department of Science and Innovation discussed the Department's annual performance information report for the 2020/21 financial year at its meeting of 21 May 2021 and that Exco made inputs into the content of the report, which reflects the DSI's performance for the period covered in the report.

Dr PM Mjwara

Director-General

#### 5. TRANSFER PAYMENTS

The Department transfers funds to various entities in pursuit of its mandate. These entities have assisted the Department in achieving its objectives. The table below identifies the entities and the reasons why 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.5.

#### **Programme 1: Administration**

Organisation/theme	Budget R'000	Actual expenditure R'000	Reasons for transfer payment
Institutional and programme support	15,594	15,594	Assistance for research activities
Total	15 594	15 594	

#### **Programme 2: Technology Innovation**

Organisation/theme	Budget R'000	Actual expenditure R'000	Reasons for transfer payment
Bioeconomy (Biotechnology) Strategy	56,589	56,575	Implementation of the Biotechnology Strategy
Energy Grand Challenge	47,232	47,232	Support R&D in the renewable energy sector
Health innovation	52,749	52,686	R&D for new health products and services
HIV/Aids prevention and treatment technologies	29,205	29,205	Research into technologies to prevent and combat HIV/ Aids
Hydrogen Strategy (Capital)	77,272	77,272	Support research infrastructure in the hydrogen and energy sector
Hydrogen Strategy (Current)	43,776	43,776	Support R&D in the hydrogen and energy sector
Indigenous knowledge systems	26,806	26,105	Implementation of IKS initiatives
Innovation projects	160,329	160,330	To promote IP management, regulation and commercialisation
International Centre for Genetic Engineering and Biotechnology	14,981	14,981	R&D of new health products
South African National Space Agency	161,196	161,196	To support the creation of an environment conducive to industrial development and space technology
Social Impact Bond	33,422	33,422	
Space science	77,141	72,459	R&D to support space science initiatives
Technology Innovation Agency	408,825	408,825	To stimulate and intensify technology innovation and commercialisation output
Biofuels	7,889	7,889	Biofuels research
Emerging Research Areas	98,600	98,600	R&D into emerging research areas

Organisation/theme	Budget R'000	Actual expenditure R'000	Reasons for transfer payment
Offices of technology transfer – Support	42,463	42,169	Intellectual Property Fund and capacitating offices of technology transfer
Total	1,338,475	1,332,722	

#### **Programme 3: International Cooperation and Resources**

Organisation/theme	Budget R'000	Actual expenditure R'000	Reasons for transfer payment
Global science: Bilateral cooperation	11,350	11,350	Growing international partnerships with the aim of leveraging resources for R&D and human development
Global science: International resources	40,000	40,000	Growing international partnerships with the aim of leveraging resources for R&D and human development
Global science: Multilateral cooperation	10,351	10,350	Growing international partnerships with the aim of leveraging resources for R&D and human development
Total	61,701	61,700	

#### **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	24,840	24,840	To promote innovative and independent scientific thinking
Astronomy	37,514	37,514	Support to radio and optical astronomy
Human and social development dynamics (Basic science development and support)	29,849	29,849	Policy and institution building (10-year plan and centres of excellence)
Human resource development	831,109	831,109	Implementation of human capital development initiatives
National Research Foundation	859,469	859,469	To support and promote research through funding human resource development
Science awareness	33,498	33,498	Research and initiatives towards youth involvement in the science arena

Organisation/theme	Budget R'000	Actual expenditure R'000	Reasons for transfer payment
Square Kilometre Array	477,655	477,655	Infrastructure for the SKA project
South African Research Chairs Initiative	544,508	544,508	To fund research chairs in higher education institutions
Strategic science platforms	204,709	201,514	Strategic science platforms for research and development
Cyberinfrastructure	60,218	60,218	Operation and management of Centre for High Performance Computing initiatives and connectivity of research institutions
Research and development infrastructure	588,038	587,679	Infrastructure development
Total	3,691,407	3,687,853	

#### **Programme 5: Socio-economic Innovation Partnerships**

Organisation/theme	Budget R'000	Actual expenditure R'000	Reasons for transfer payment
Advanced Manufacturing Technology Strategy	57,576	57,576	Implementation of the Advanced Manufacturing Technology Strategy
Council for Scientific and Industrial Research	893,581	893,581	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	42,947	42,947	Identifying and initiating S&T programmes that support the growth of the environmental technologies and services sector in South Africa
Human Sciences Research Council	289,325	289,325	Parliamentary grant as per the Estimates of National Expenditure. To conduct large-scale policy-relevant social science research

Organisation/theme	Budget R'000	Actual expenditure R'000	Reasons for transfer payment
Information and communication technology	37,915	37,915	Implementation of the South African ICT Research, Development and Innovation 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	43,863	43,863	Promotion of mining research and development
Local manufacturing capacity	116,246	116,246	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.
Local systems of innovation	51,761	51,761	Support for local innovation interventions and science parks.  Support for industry
Research Information Management System (RIMS)	6,232	6,232	Innovation partnerships.  Information access for decision making – continued development and maintenance of RIMS
Resource-based industries	46,058	45,884	S&T policy strategy and direction-setting support to harness value from South Africa's natural resources

Organisation/theme	Budget R'000	Actual expenditure R'000	Reasons for transfer payment
Innovation for Inclusive Development	84,998	34,401	Development of indicators and instruments for measuring and monitoring investments in S&T and the performance of the national system of innovation. Supports the experimentation with S&T-based innovations for tackling unemployment poverty and inequality through the creation of sustainable job and wealth opportunities and enhancing the delivery of basic services.
Science and technology indicators	11,252	11,252	Develop and monitor science and technology indicators
Total	1,681,754	1,630,982	

#### 6. CONDITIONAL GRANTS

The Department did not receive any conditional grants.

#### 7. DONOR FUNDS

The Department received official development assistance (ODA) from the European Union. Below is a brief summary of the activities supported by these ODA partners in science and technology.

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 2020
Expected outputs	Strengthening Technology Research and Innovation Cooperation between Europe and South Africa
Actual outputs achieved	Promotion of SA participation in the Framework Programme and other European Union-funded opportunities
	1. A number of strategic events and virtual information-sharing sessions were organised to highlight EU funding programmes such as the Framework Programmes, Eureka and Eurostars.
	2. Support mechanisms available were highlighted through ESASTAP to create an enabling environment for South African innovators to access EU funding opportunities.
	3. The ESASTAP website played a critical role in ensuring effective dissemination of information to the South Africa research and innovation community, more specifically in the challenging times due to the outbreak of the COVID-19 pandemic and lockdown restrictions.
Amount received in current period (R'000)	1 025
Amount spent by the department (R'000)	1 018
Reasons for the funds unspent	COVID-19 lockdown restrictions reduced the number of ESASTAP activities, which resulted in unspent funds.
Monitoring mechanism by the donor	These funds are audited by Auditor-General or external auditors at the request of the donor.

Name of donor	European Union
Full amount of the funding (R'000)	48 828
Period of the commitment	3 year
Purpose of the funding	General Budget Support – Small Holder Essential Oils
Expected outputs	During year 2, progress is mainly to be achieved as follows:
	At least two essential oil start-up scale demonstration fields are established to showcase and train people.
	2. Two essential oil demonstration fields are equipped with (green) energy efficient agricultural equipment systems.
	3. Two intermediate scale, fuel efficient distillation units procured, manufactured, installed and commissioned to operate in terms of Good Manufacturing Practice (GMP).
	4. Essential oil harvested and produced at/from start-up trial field production.
	5. A pilot-scale facility to add-value to raw essential oil is established and commissioned.
	6. Start-up trial essential oil is tested and certified to have achieved GAP, GMP and ideally organic standards.
	7. A portion of start-up trial essential oil is sold raw and the remainder is made into value-added products and test marketed to establish realistic pricing and buyer interest.
	8. Systems to produce quality, disease indexed, biological stock are increased in scale.
	9. Maps of cluster area potential for locally and imported essential oil varieties are refined to support decision making about the best location for step-up scale trial fields on private land.
	10. At least two five-hectare essential oil step-up scale demonstration fields established.
	11. A well-equipped, Good Laboratory Practice certified, essential oil testing laboratory is available to industry participants.
Actual outputs achieved	At least two one hectare essential oil start-up scale demonstration fields have been established (within mixed farming state lands).
	2. The market for the provision of energy efficient irrigation systems at a scale of 2 x 1 ha was tested (through two rounds of procurement) and found to be above initial budget estimates, thereby prompting the science councils concerned to find an alternative to 100% external supplier procurement, installation and commissioning.
	3. Two intermediate scale, fuel efficient distillation units have been procured and are in the process of being manufactured.
	4. Essential oil has been harvested and produced at a SA Essential Oils Business Incubator (SEOBI) start-up scale field trial.
	5. A pilot-scale CSIR facility to fractionate / add-value to raw essential oil has been made available to the project implementation agencies.
	6. The SEOBI has established that oil from a specific variety of rose geranium matches all except one (minor component) of the newly published SABS standards for South African rose geranium oil.

Name of donor	European Union
Actual outputs achieved	7. A portion of essential oil produced by SEOBI has been sold raw and the remainder has been made into value-added products and subjected to rigorous test marketing to establish realistic pricing and buyer interest (via an online shop).
	8. Systems to produce quality, disease indexed, biological stock have increased in scale at three Agricultural Research Council (ARC) nurseries and one private sector nursery.
	9. The DSI produced initial maps of cluster area potential for locally and imported essential oil species and the ARC started operating a mobile soil testing service to support decision making about the best location for step-up scale trial fields on private land (Gauteng and the Eastern Cape thus far).
	10. Progress with the establishment of at least two 5 ha essential oil step-up scale demonstration fields was delayed by a slower than anticipated pace of establishing sufficient nursery stocks.
	11. A well-equipped, Good Laboratory Practice certified, essential oil testing laboratory is available to industry participants.
Amount received in current period (R'000)	15,073
Amount spent by the department (R'000)	15,073
Reasons for the funds unspent	Not applicable.
Monitoring mechanism by the donor	These funds are audited by Auditor-General or external auditors at the request of the donor.

Name of donor	European Union
Full amount of the funding (R'000)	121,860
Period of the commitment	3 years
Purpose of the funding	General Budget Support – Green Economy Development
Expected outputs	Year 2 progress is mainly to be achieved as follows:  1. The coordination of emerging and proven technology demonstrations, and matchmaking and partnership opportunities, market analysis advice and localisation support when required.
	2. An online technology hub has been operationalised providing a range of technology information services, a repository of technologies and assessment of technology performance claims.
	3. Young and emerging municipal engineers are supported through the Young Engineers "Changemakers" programme.
	4. Development and demonstration of a pool of emerging, transformative technologies from processing of primarily lignocellulosic biomass.
	5. Non-partisan technological advisory and analytical support to evaluate new biomass waste development opportunities and to help unblock stalled existing business ventures through technology troubleshooting.
	6. Skills transfer and human capital development.
	7. Learning and knowledge sharing.
	8. Monitoring and evaluation.
	Programme coordination and communication managed and implemented by the Department.
Actual outputs achieved	Year 2 achievements  1. A minimum of nine innovations per year (27 innovations over three years).  Target status – On track (30 innovations identified, 12 completed and 18 active projects).
	2. 10 engineers per year (30 engineers over three years). Target status – On track (20 engineers selected, and 10 more will be selected into third group by end of March 2021).
	3. Website and advisory services. Target status – Interactive website is live and updated regularly, and 20 advisory notes issued that were requested have been issued.
	4. Innovations and technologies are demonstrated and localised in partnership with industry SMEs and municipalities with a target of two technologies taken up per year. Due to the delay in starting up the project, it is suggested that the annual target be amended to one for the first year. Overall envisaged targets for the end of the programme are still realistic.
	5. Non-partisan technological advisory and analytical support to evaluate new biomass waste development opportunities (including current and 3 emerging technologies in year two and mobile extraction technology ready and tested in year three).
	6. 10 MSc and PhD graduates per annum supported through a technology/skill building initiative
	<ul><li>7. Emerging technologies and two technologies adopted by industry over the project period. Policy briefs prepared based on empirical evidence.</li><li>8. Accurate and in time reporting to the Department on progress per the contractual agreement.</li></ul>
	9. Effective and efficient implementation of all aspects of the Component 2 Biorefinery Industry Development Facility technology development and demonstration.

Name of donor	European Union
Amount received in current period (R'000)	36,000
Amount spent by the department (R'000)	36,000
Reasons for the funds unspent	Not applicable
Monitoring mechanism by the donor	These funds are audited by Auditor-General or external auditors at the request of the donor.

Name of donor	European Union
Full amount of the funding (R'000)	264,000
Period of the commitment	3 years
Purpose of the funding	General Budget Support – National system of innovation
Expected outputs	Outputs were delayed due to the development of the 2019 White Paper on Science and Technology and the Decadal Plan. For this reason, a rider was approved by National Treasury and the European Union, which provides an extension until May 2024.
Actual outputs achieved	1. Viability and Validation of Innovation for Service Delivery: This component is at an advanced stage of programme initiation and contracting with implementing entities. A municipal briefing workshop was organised and was attended by over 145 representatives.
	2. The international component: The first round of the call for expressions of interest was held. The results were inconclusive, and will be repeated in 2021/22 financial year.
	3. Gender-based violence: Since the conceptualisation of the study, the research team has presented the proposed study in the various forums: The initiation phase is well under way.
	4. R&D partnerships: Processes with relevant stakeholders to implement the required activities are under way.
Amount received in current period (R'000)	17,454
Amount spent by the department (R'000)	17,454
Reasons for the funds unspent	Not applicable
Monitoring mechanism by the donor	These funds are audited by Auditor-General or external auditors at the request of the donor.

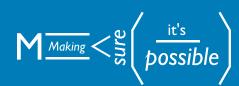
#### 8. CAPITAL INVESTMENT

# 8.1 Capital investments, maintenance and asset management plan

The Department has an asset management policy in place that assists in ensuring the effective and efficient management of assets. The policy has been reviewed to ensure that it is aligned with new asset management requirements. During the year under review, the Department embarked on a process to enhance its asset management system, to assist with asset management and reporting.

In the year under review, the Department conducted two major asset verifications and a final spot-check at the end of the financial year, thus ensuring that all redundant, obsolete and damaged assets were identified for disposal and to be replaced in time. As part of its asset management strategy, the Department periodically reviews its assets and procures new ones where necessary. During the year under review, the Department embarked on a process of replacing old computer equipment, such as laptops.





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 the main pillars of the Department's corporate governance arrangements.

#### 2. RISK MANAGEMENT

The Department acknowledges that uncertainty or risk is an integral part of its activities and that not having mechanisms in place to identify and manage risks could result in the unavailability of services, a lack of information, financial loss, increased costs, reputational damage and failure to meet strategic objectives.

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

Various processes have been instituted to ensure the commitment of the entire Department to ERM, and the definition of clear risk management roles and responsibilities. These include the provision of awareness sessions, the publication of articles in the Department's quarterly newsletter, regular risk assessments and subsequent follow-ups.

The Department has a directorate and an effective management system (policy, framework, strategy, guidebooks and annual implementation plan) for ERM.

To ensure the quality, integrity and reliability of the Department's ERM processes and responses, the Department has an Enterprise Risk Management Committee (ERMC) comprising four independent members and one ex officio member.

The Audit Committee Chairperson is a standing invitee to the ERMC. In the period under review, the ERMC continued to play an integral part in ensuring that the Department maintains and enhances its ERM maturity level. The following table presents 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)	3 of 3	Term ended on 31 January 2021
F Kobo	Independent member	3 of 3	Term ended on 31 January 2021
S Badat	Independent member (Chairperson)	2 of 2	Appointed for a three-year term with effect from 1 February 2021
M Lubega	Independent member	2 of 2	Appointed for a three-year term, with effect from 1 February 2021
C Marais	Independent member	5 of 5	Reappointed for a second three-year term, with effect from 1 February 2021
M Ramataboe	Independent member	5 of 5	Reappointed for a second three-year term, with effect from 1 February 2021.
D Mmakola	Ex officio member	5 of 5	Appointed as acting DDG: Institutional Planning and Support with effect from 1 April 2020
L Konar	Audit Committee Chairperson	5 of 5	Standing invitee

#### 2. RISK MANAGEMENT (CONTINUED)

The Department's Internal Audit Activity and Audit Committee provide independent assurance on 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 ERMC. In addition, risk assessments were conducted for key projects, including some projects managed on behalf of the Department by its entities.

The ERMC Chairperson briefed the Director-General quarterly, and the Minister annually, on the effectiveness and adequacy of ERM across the Department.

3. FRAUD AND CORRUPTION

The Department has an effective system for fraud risk management, including a policy, framework, strategy, a whistle-blowing policy and an annual fraud prevention and detection plan. The above were reviewed, updated and approved in the period under review.

The fraud risk profile was finalised at the beginning of the period under review, and served as the basis for the formulation of the annual fraud prevention and detection plan. The fraud prevention and detection plan is driven by the Directorate: ERM and progress is monitored quarterly by the ERMC and the Audit Committee.

Using various mediums of communication, including the publication of articles in the Department's newsletter, the Department actively promotes awareness of fraud and corruption, and the use of the National Anti-Corruption Hotline.

The veracity of allegations of fraud and corruption is thoroughly investigated using internal and/or external resources. The outcome of an investigation guides the Accounting Officer on the steps to be taken to finalise

the matter (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, this was not necessary in the period under review. The progress of investigations is reported on in the Ethics Committee, and in closed sessions at all ERMC meetings.

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

#### 4. MINIMISING CONFLICT OF INTEREST

Public Service Regulations, 2016, and the Department of Public Service and Administration directive on financial disclosures, require both SMS and non-SMS employees to disclose their financial interests. All (100%) SMS and 98% non-SMS employees in the Department disclosed their financial interests as required, and corrective action was taken against the employees who did not disclose their financial interests in time. The Department also implemented the disclosure of potential conflicts of interest by all employees in governance structures.

#### 5. CODE OF CONDUCT

The Department conducted awareness sessions on the Code of Conduct for the Public Service in a bid to promote a high standard of ethical behaviour, as required by the Constitution of the Republic of South Africa and the Public Service Regulations. The Department also facilitated the development of an ethics policy and ethics strategy, with the aim of heightening awareness and maintaining the highest level of compliance in ethical matters. The structure of the Ethics Committee was reviewed, and nominees are representative of all Programmes within the Department.

## 6. HEALTH, SAFETY AND ENVIRONMENTAL ISSUES

Section 8 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), requires every employer to "provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of employees". Furthermore, Occupational Health and Safety Assessment Series 18001: 2007, which is the accepted international standard for occupational health and safety (OHS) management systems, requires the employer to identify all possible workplace hazards, assess the risks associated with these hazards, and as far as is reasonably practicable, mitigate or eliminate these risks.

The Department's Occupational Health and Safety Strategy focuses on four objectives, which are (i) to improve the DSI working environment by regularly conducting occupational hygiene surveys and monitoring the implementation of green working environment standards; (ii) to review the OHS management system to address OHS challenges within the Department; (iii) to enhance compliance with OHS legislation and other requirements, and (iv) to promote OHS awareness among DSI employees.

To manage the risks posed by COVID-19 and comply with OHS workplace measures, a hazard identification and risk assessment was conducted and measures were put in place to mitigate the identified risks. Employees were oriented on COVID-19 protocols to ensure they complied with the measures and business processes were adjusted to address risks. A hazardous biological agent assessment was conducted to ensure that hygiene standards were maintained.

The Department continues to display the OHS Act and policy as required. Posters have been placed at all employee workstations to raise awareness of the evacuation procedure and the management of injuries on duty. The Department has a functional Health and Safety Committee, which reviewed its terms of reference and the OHS policy to incorporate COVID-19 regulations.

In the first two quarters of the reporting period, the COVID-19 regulations affected the implementation of some of the Department's health and wellness interventions. Only two of the lifestyle health risk screening sessions for employees that were planned for the year could be held. However, Employee Assistance Programme services were available to employees, even under the Level 5 lockdown. A survey was conducted to understand the mental health challenges faced by employees due to COVID-19, following which a number of virtual wellness interventions were implemented to support employees.

### 7. PORTFOLIO COMMITTEE

During the year under review, briefings were presented to the Portfolio Committee on Higher Education, Science and Technology as follows:

Date	Subject	Matters raised by the Portfolio Committee	How the matters were addressed	
15 May 2020	Briefing by the Department of Science and Innovation (DSI) on its 2020/21 Annual Performance Plan and budget	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).	
19 May 2020	Briefing by the National Research Foundation on its Strategic and Annual Performance Plans	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).	
19 May 2020	Briefing by the South African National Space Agency on its Strategic and Annual Performance Plans	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).	
19 May 2020	Briefing by the Technology Innovation Agency on its Strategic and Annual Performance Plans	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).	
19 May 2020	Briefing by the Academy of Science of South Africa on its Strategic and Annual Performance Plans	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).	
15 July 2020	Briefing by the DSI on its 2020/21 special adjustment budget allocations and the impact on delivery	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).	
15 July 2020	Briefing by the Council for Scientific and Industrial Research on the impact of lockdown	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).	
15 July 2020	Briefing by the National Research Foundation on its revised budget allocation (due to COVID-19) and the impact of the revision on delivery	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).	

## 7. PORTFOLIO COMMITTEE (CONTINUED)

Date	Subject	Matters raised by the Portfolio Committee	How the matters were addressed
26 Aug. 2020	Briefing by the DSI to the Portfolio and Select Committees on its performance report for the first quarter of 2020/21 and its revised Annual Performance Plan	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).
26 Aug. 2020	Briefing/progress report by the DSI on the Protection, Promotion, Development and Management of Indigenous Knowledge Act, 2019	the DSI on the Protection, Promotion, Development and Management of Indigenous Knowledge Act,	
13 Nov. 2020	Briefing by the Council for Scientific and Industrial Research on its 2019/20 Annual Report	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).
13 Nov. 2020	Briefing by the Academy of Science of South Africa on its 2019/20 Annual Report	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).
13 Nov. 2020	Briefing by the South African Council for Natural Scientific Professions on its 2019/20 Annual Report	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).
17 Nov. 2020	Briefing by the DSI on its performance report for the third quarter of 2020/21	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).
24 Nov. 2020	Briefing to the Select Committee by the DSI on its 2019/20 Annual Report	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).
24 Nov. 2020	Briefing by the National Research Foundation on its 2019/20 Annual Report	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).

## 7. PORTFOLIO COMMITTEE (CONTINUED)

Date	Subject	Matters raised by the Portfolio Committee	How the matters were addressed
24 Nov. 2020	Briefing by the Human Sciences Research Council on its 2019/20 Annual Report	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).
24 Nov. 2020	Briefing by the South African National Space Agency on its 2019/20 Annual Report	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).
23 Feb. 2021	Briefing by the DSI and Human Sciences Research Council on research on gender-based violence	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).
9 March 2021	Briefing by the DSI on its performance report for the third quarter of 2020/21, and on research and innovation initiatives to combat the COVID-19 pandemic	All questions were answered and no follow-up questions were raised.	All questions were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website (www.pmg.org.za/minutes).

#### 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 COMMITTEES

## **Key activities and objectives of Internal Audit Activity**

A key role of the Internal Audit Activity (IAA) is to ensure that the Department has robust systems and controls in place to meet its priorities. For the IAA to deliver value, it should contribute to the achievement of the organisation's strategic, operational, reporting, and compliance objectives while providing assurance that the organisation maintains an ethical environment and culture of accountability.

The flexible three-year risk-based rolling internal audit plan sets out how the IAA can continue to provide an adequate level of assurance while taking account of resource limitations. The three-year plan is supported by the Audit Charter, which details the roles and responsibilities of the IAA, the Annual Audit Plan, which outlines audit projects that typically lend themselves to an independent review and assessment each year, and the Quality Assurance and Improvement Programme, which outlines service development actions.

The delivery of the audit plan helps to uphold accountability, ensures that risk management processes are embedded, and contributes to the Department's governance framework. The plan is flexible, and Internal Audit adapts the way in which internal audit services are delivered in accordance with the changing landscape of the Department to enable it to remain responsive to emerging and changing risk profiles.

The audit cycle includes a systematic follow-up on management responses to all internal and external audit findings, until recommendations are fully addressed.

#### **Summary of audit work done**

The COVID-19 pandemic presented new challenges, and in addition to adjusting the audit plan accordingly, the IAA adapted to remote auditing. Priority was given to the procurement of personal protective equipment items, the movement of assets, and protocols/measures implemented to ensure the safe return of staff to the office by minimising risks to employees' health in the working environment.

Projects are of strategic importance, and 27% of the audit plan was devoted to project audits. Cyclical audits that were completed included audits of performance information, information technology, and combined assurance. Additional operational areas identified for independent review were certain financial statement items, Department-wide implementation of the Performance Management and Development System, the vacancy rate, knowledge management, and training and development.

#### 11. **INTERNAL AUDIT AND AUDIT COMMITTEE (CONTINUES)**

#### 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

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.

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

Name	Qualifications	Internal or external	Date appointed	Date contract ended	Number of meetings attended
Len Konar	DCom, 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	4 of 4
Irene Tlhase	MA in Economics, BSc (Agribusiness)	External	1 Oct. 2018	n/a	4 of 4
Moshupi Mokgobinyane	CA(SA), MPhil in Accounting Sciences, BCom Hons (Accounting), CTA	External	1 Nov. 2018	n/a	4 of 4

#### **AUDIT COMMITTEE REPORT** 12.

We are pleased to present our report for the financial year that ended 31 March 2021.

#### 1. **Audit Committee responsibility**

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

#### The effectiveness of Internal 2. **Audit Activity**

The Chief Audit Executive reports functionally to the Audit Committee and administratively to the Director-General, to maintain its independence. The Audit Committee monitors and evaluates the activities of the Internal Audit Activity. The role, authority and status of the function is documented in the Internal Audit Charter.

The Internal Audit Plan and Internal Audit Charter are reviewed and approved by the Committee annually. During the financial year under review, the risk-based internal audit plans covered all the organisation's high-risk areas, including those pertinent to COVID-19.

The following assurance activities, among others, were undertaken and concluded as per the approved Internal Audit Plan:

- · Performance against predetermined objectives.
- Project audits.
- · ICT audits.
- Cellphone and data usage.
- · Movement of assets during lockdown.

#### 12. AUDIT COMMITTEE REPORT (CONTINUED)

- COVID-19 procurement.
- · Due diligence reviews.
- · Human resource areas.

In order to ensure efficient coverage, a combined assurance approach to the system of internal controls is adopted, with a focus for further integration and maturation.

## 3. The effectiveness of internal controls

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

Internal Audit provided the Audit Committee with the assurance that the internal controls were generally appropriate and effective, with room for improvement in certain areas. The Committee is satisfied that an adequate system of internal controls is in place to mitigate risks to an acceptable level.

Deficiencies were identified with information technology pertaining to the Business Continuity Plan. There was also a slight regression with performance information, where targets and supporting evidence were not adequately reviewed by management prior to reporting.

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

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 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 (ERM) 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 are receiving the required attention. Comprehensive strategies for ERM 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

#### 12. **AUDIT COMMITTEE REPORT (CONTINUED)**

the Enterprise Risk Management Committee and the Chief Risk Officer are standing invitees to the Audit Committee.

#### 7. **Annual performance review**

The Audit 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 are satisfied that the matters are being adequately addressed. However, the following areas of concern require management intervention:

- Information technology areas pertaining to business continuity.
- · Adequate review of achieved performance targets with appropriate supporting evidence.

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

**Dr Len Konar** 

Chairperson of the Audit Committee Department of Science and Innovation August 2021





PART D
HUMAN RESOURCE
MANAGEMENT

#### PART D: HUMAN RESOURCE MANAGEMENT

#### 1. Introduction

The reporting of information contained in this section of the Annual Report has been prescribed by the Department of Public Service and Administration for all departments within the Public Service.

#### 2. **Overview of Human Resources**

As at 31 March 2021, the departmental post establishment stood at 495, with 386 positions filled and 109 vacant, translating to a 22,02% vacancy rate. This was owing to the impact of the National Treasury decision to reduce the baseline of the allocation for compensation of employees, which resulted in all vacant positions being declared unfunded and only a few prioritised for filling.

A total of 18 employees left the Department and 23 employees were recruited, while three internal candidates were promoted, making the departmental turnover rate 4,47%. Resignations accounted for most (55,56%) terminations, while transfers to other departments accounted for 27,78%, discharges due to ill-health for 5,56%, retirements for 5,56% and deaths for 5,56%.

The Department continued to comply with the Performance Management and Development System. All 103 Senior Management Service (SMS) members submitted their performance agreements by the due date, and all performance rewards for both SMS and non-SMS members were processed by 31 December 2020.

As at 31 March 2021, only 81% of the approved departmental organisational structure was funded. The process of reviewing the organisational structure was suspended during the transition from the fifth to the sixth administration. With 19% of the approved structure unfunded, staff in funded positions carry out the functions of unfunded positions, and many employees are overburdened and overstretched.

As part of its ongoing commitment to health promotion programmes, the Department has formally designated an SMS member, established a dedicated directorate, allocated sufficient budget, and established and maintained fully functional statutory committees in line with the Public Service Regulations to take care of this. There is adequate uptake of the Employee Health and Wellness Programme services offered to employees to address personal and workrelated psychosocial challenges.

#### 3. HUMAN RESOURCES OVERSIGHT STATISTICS

#### 3. Human resources oversight statistics

#### 3.1 Personnel-related expenditure

Table 3.1.1: Personnel expenditure by Programme in the period 1 April 2020 to 31 March 2021

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)
Administration	262 240	151 579	1 557	5 212	57,8	865
Technology Innovation	1 379 841	40 263	137	3 495	2,92	857
International Cooperation and Resources	114 229	47 315	523	-	41,42	909
Research Development and Support	3 730 976	40 590	0	612	1,09	882
Socio- economic Innovation Partnerships	1 677 979	42 191	0	1 003	2,51	959
Total	7 165 265	321 938	2 217	10 322	4,49	834

Table 3.1.2: Personnel costs by salary band in the period 1 April 2020 to 31 March 2021

Salary band	Personnel expenditure (R'000)	% of total personnel cost	Number of employees	Average personnel cost per employee (R'000)
Lower skilled (Levels 1-2)	0	0,00	0	0
Skilled (Levels 3-5)	3 138	1	14	224 143
Highly skilled production (Levels 6-8)	392 63	12,2	102	384 931
Highly skilled supervision (Levels 9-12)	146 308	45,4	175	836 046
Senior and top management (Levels 13-16)	133 229	41,4	95	1 402 411
Total	321 938	100	386	834 036

Table 3.1.3: Salaries, overtime, home owner's allowance and medical aid by Programme in the period 1 April 2020 to 31 March 2021

	Salaries		Overtime		Home owner's allowance (HOA)		Medical aid	
Programme	Amount (R'000)	Salaries as % of personnel costs	Amount (R'000)	Overtime as % of personnel costs	Amount (R'000)	HOA as % of personnel costs	Amount (R'000)	Medical aid as % of personnel costs
Administration	135 141	89,2	297	0,20	2 080	1,37	3 620	2,39
Technology Innovation	36 068	89,612,17	0	0,00	602	1,50	645	1,60
International Cooperation and Resources	42 501	89,8	0	0,00	658	1,39	1 116	2,36
Research Development and Support	36 415	89,7	73	0,18	717	1,77	712	1,75
Socio-economic Innovation Partnerships	37 614	89,2	0	0,00	420	1	749	1,78
Total	287 739	89,4	370	0,13	4 477	1,39	6 842	2,13

Table 3.1.4: Salaries, overtime, home owner's allowance and medical aid by salary band in the period 1 April 2020 to 31 March 2021

	Salaries		Overtime		Home owner's allowance (HOA)		Medical aid	
Programme	Amount (R'000)	Salaries as % of personnel costs	Amount (R'000)	Overtime as % of personnel costs	Amount (R'000)	HOA as % of personnel costs	Amount (R'000)	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)	3 138	1	67	2,1	110	3,5	301	9,6
Highly skilled production (Levels 6-8)	39 263	12,2	201	0,5	1 340	3,4	2 773	7,1
Highly skilled supervision (Levels 9-12)	146 308	45,4	102	0,1	1 697	1,2	2 680	1,8
Senior and top management (Levels 13-16)	133 229	41,4	0	0,00	1 445	1,1	1 088	0,8
Total	321 938	100	370	0,1	4 592	1,4	6 842	2,1

#### 3.2 Employment and vacancies

Table 3.2.1: Employment and vacancies by Programme as at 31 March 2021

Programme	Number of posts on approved establishment	Number of posts filled	Vacancy rate	Number of employees additional to the establishment
Administration	247	197	20,24%	3
Technology Innovation	62	47	24,19%	0
International Cooperation and Resources	69	52	24,64%	2
Research Development and Support	55	46	16,36%	0
Socio-economic Innovation Partnerships	62	44	29,03%	1
Total	495	386	22,02%	6

Table 3.2.2: Employment and vacancies by salary band as at 31 March 2021

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)	1	0	0.0%	1
Skilled (Levels 3-5)	16	14	7,6%	2
Highly skilled production (Levels 6-8	126	102	20,1%	2
Highly skilled supervision (Levels 9-12)	226	175	23,6%	2
Senior and top management (Levels 13-16)	126	95	24,0%	0
Total	495	386	22,4%	6

Table 3.2.3: Employment and vacancies by critical occupation as at 31 March 2021

Programme	Number of posts on approved establishment	Number of posts filled	Vacancy rate	Number of employees additional to the establishment
None	0	0	0%	0
Total	0	0	0%	0

#### 3.3 **Filling of Senior Management Service posts**

Table 3.3.1: SMS post information as at 31 March 2021

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	1	1	100,00	0	0,00
Salary Level 16	0	0	0,00	0	0,00
Salary Level 15	9	4	44,44	5	55,56
Salary Level 14	27	17	62,96	10	37,04
Salary Level 13	89	73	84,09	16	17,98
Total	126	95	76,80	31	24,60

Table 3.3.2: SMS post information as at 30 September 2020

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	1	1	100,00	0	0,00
Salary Level 16	0	0	0,00	0	0,00
Salary Level 15	9	5	55,56	4	44,44
Salary Level 14	27	19	70,37	8	29,63
Salary Level 13	89	70	79,55	19	21,35
Total	126	95	76,00	31	24,60

Table 3.3.3: Advertising and filling of SMS posts in the period 1 April 2020 to 31 March 2021

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	1	1	100,00	0	0,00
Salary Level 16	0	0	0,00	0	0,00
Salary Level 15	9	4	44,44	5	55,56
Salary Level 14	27	17	62,96	10	37,04
Salary Level 13	89	73	84,09	16	17,98
Total	126	95	76,80	31	24,60

Table 3.3.4: Reasons for not having complied with time frames for the filling of funded vacant SMS posts – advertised within six months and filled within 12 months after becoming vacant - in the period 1 April 2020 to 31 March 2021

#### Reasons for vacancies not being advertised within six months

Positions which were vacant on 1 November 2017 were declared unfunded as a result of the reduction of the baseline allocation for the compensation of employees by National Treasury in November 2016. Positions are reprioritised upon termination of services by employees.

#### Reasons for vacancies not being filled within six months

The Department experienced some delays due to the need to review job requirements before and after advertisement, which led to some positions being re-advertised. Some prioritised positions had not undergone job evaluation within the prescribed five-year period. The COVID-19 lockdown also delayed the filling of positions.

Table 3.3.5: Disciplinary steps taken for not complying with the prescribed time frames for filling SMS posts in the period 1 April 2020 to 31 March 2021

Vacancies not advertised within six months

None

Vacancies not filled within six months

None

#### 3.4 **Job Evaluation**

Table 3.4.1: Job evaluation by salary band in the period 1 April 2020 to 31 March 2021

	Number of posts on Number	Number	% of posts	Posts upgraded		Posts de	owngraded
Salary band	approved establishment	of jobs evaluated	evaluated by salary band	Number	% of posts evaluated	Number	% of posts evaluated
Lower skilled (Levels 1-2)	1	0	0	0	0	0	0
Skilled (Levels 3-5)	16	0	0	0	0	0	0
Highly skilled production (Levels 6-8)	126	0	0	0	0	0	0
Highly skilled supervision (Levels 9-12)	226	7	3,11	0	0	0	0
Senior Management Service Band A	89	2	2,24	0	0	0	0
Senior Management Service Band B	27	5	18,52	0	0	0	0
Senior Management Service Band C	9	0	0	0	0	0	0
Senior Management Service Band D	1	0	0	0	0	0	0
Total	495	14	2,83	0	0	0	0

Table 3.4.2: Profile of employees whose positions were upgraded due to their posts being upgraded in the period 1 April 2020 to 31 March 2021

Gender	African	Asian	Coloured	White	Total
Female	0	0	0	0	0
Male	0	0	0	0	0
Total	0	0	0	0	0

Table 3.4.3: Employees with salary levels are higher than those determined by job evaluation by occupation in the period 1 April 2020 to 31 March 2021

Occupation	Number of employees	Job evaluation level	Remuneration level	Reason for deviation			
Deputy Director-General	0	0	0	0			
Chief Director	0	0	0	0			
Director	0	0	0	0			
Deputy Director	44	11	12	Personal notch			
Assistant Director	19	9	10	Personal notch			
Total	63	20	22	Personal notch			
Total number of employees who evaluation	63						
Percentage of total employed	Percentage of total employed						

Table 3.4.4: Profile of employees with salary levels higher than those determined by job evaluation in the period 1 April 2020 to 31 March 2021

Gender	African	Asian	Coloured	White	Total
Female	28	1	2	3	34
Male	25	0	1	3	29
Employees with a disability	0	0	0	0	0
Total	53	1	3	6	63

#### 3.5 **Employment changes**

Table 3.5.1: Annual turnover rates by salary band in the period 1 April 2020 to 31 March 2021

Salary band	Number of employees as at 1 April 2020	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)	12	3	1	8,33%
Highly skilled production (Levels 6-8)	99	4	3	3,03%
Highly skilled supervision (Levels 9-12)	175	11	6	3,43%
Senior Management Service Band A 13	70	3	4	5,71%
Senior Management Service Band B 14	18	1	3	16,67%
Senior Management Service Band C 15	5	0	0	0,00%
Senior Management Service Band D	1	0	0	0,00%
Total	380	23	17	4,47%

Table 3.5.2: Annual turnover rates by critical occupation in the period 1 April 2020 to 31 March 2021

Critical occupation	Number of employees at beginning of period April 2020	Appointments and transfers into the department	Terminations and transfers out of the department	Turnover rate
None	0	0	0	0%
Total	0	0	0	0%

Table 3.5.3: Reasons why staff left the Department in the period 1 April 2020 to 31 March 2021

Termination type	Number	% of total resignations/ terminations
Death	1	5,56
Resignation	10	55,56
Expiry of contract	0	0,00
Dismissal – operational changes	0	0,00
Dismissal – misconduct	0	0,00
Dismissal – inefficiency	0	0,00
Discharged due to ill-health	1	5,56
Retirement	1	5,56
Transfer to other Public Service departments	5	27,78
Other	0	0,00
Total	18	100
Total number of employees who left as a percentage o	f total employment	4,47

Table 3.5.4: Promotions by critical occupation in the period 1 April 2020 to 31 March 2021

Occupation	Employees 1 April 2020	Promotions to another salary level	Salary level promotions as a % of employees by occupation	Progressions to another notch within a salary level	Notch progression as a % of employees by occupation
None	0	0	0	0	0
Total	0	0	0	0	0

Table 3.5.5: Promotions by salary band in the period 1 April 2020 to 31 March 2021

Salary band	Employees 1 April 2020	Promotions to a higher salary level	Salary bands promotions as % of employees by salary level	Progressions to another 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)	12	0	0,00	3	25,00
Highly skilled production (Levels 6-8)	99	0	0,00	58	58,59
Highly skilled supervision (Levels 9-12)	174	0	0,00	108	62,07
Senior Management (Levels 13-16)	95	3	3,16	63	66,32
Total	380	3	0,26	232	61,05

#### 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 2021

Occupational		Ma	ile			Fen	nale		Total
category	African	Coloured	Asian	White	African	Coloured	Asian	White	
Legislators,	38	3	4	4	33	2	5	6	95
senior officials									
and managers									
13-15									
Professionals	64	1	1	5	91	3	2	8	175
9-12									
Technicians	25	2	0	0	66	5	0	4	102
and associate									
professionals									
6-8									
Clerks 3-5	7	0	0	0	6	1	0	0	14
Service and	0	0	0	0	0	0	0	0	0
sales workers									
Skilled	0	0	0	0	0	0	0	0	0
agriculture and									
fishery workers									
Craft and	0	0	0	0	0	0	0	0	0
related trades									
workers									
Plant and	0	0	0	0	0	0	0	0	0
machine									
operators and									
assemblers									
Elementary	0	0	0	0	0	0	0	0	0
occupations									
Total	134	6	5	9	196	11	7	18	386
Employees	2	0	0	1	7	1	0	2	13
with									
disabilities									

Table 3.6.2: Total number of employees (including employees with disabilities) in each of the following occupational bands as at 31 March 2021

Occupational		Ma	ale			Fen	nale		Total
band	African	Coloured	Asian	White	African	Coloured	Asian	White	
Top management	2	0	1	1	1	0	0	0	5
15-16									
Senior	36	3	3	3	32	2	5	6	91
management									
13-14									
Professionally	64	1	1	5	91	3	2	8	175
qualified and									
experienced									
specialists									
and middle									
management									
9-12									
Skilled technical	25	2	0	0	66	5	0	4	102
and academically									
qualified									
workers, junior									
management,									
supervisors,									
foremen and									
super-intendents									
6-8									
Semi-skilled and	7	0	0	0	6	1	0	0	14
discretionary									
decision making									
3-5									
Unskilled and	0	0	0	0	0	0	0	0	0
defined decision									
making									
Total	134	6	5	9	196	11	7	18	386
Employees with disabilities	2	0	0	1	7	1	0	2	13

Table 3.6.3: Recruitment in the period 1 April 2020 to 31 March 2021

Occupational		Ma	ile			Fen	nale		Total
band	African	Coloured	Asian	White	African	Coloured	Asian	White	
Тор	0	0	0	0	0	0	0	0	0
management									
15-16									
Senior	2	0	0	0	3	0	0	0	5
management									
13-14									
Professionally	4	0	0	0	5	1	0	1	11
qualified and									
experienced									
specialists									
and middle									
management									
9-12									
Skilled	2	0	0	0	2	0	0	0	4
technical and									
academically									
qualified									
workers, junior									
management,									
supervisors,									
foremen and									
super-									
intendents									
6-8									
Semi-	1	0	0	0	2	0	0	0	3
skilled and									
discretionary									
decision									
making 3-5									
Unskilled	0	0	0	0	0	0	0	0	0
and defined									
decision									
making									
Total	9	0	0	0	12	1	0	1	23
Employees	0	0	0	0	0	0	0	0	0
with disabilities									
uisabilities									

Table 3.6.4: Promotions in the period 1 April 2020 to 31 March 2021

Occupational		Ma	ile			Fen	nale		Total
band	African	Coloured	Asian	White	African	Coloured	Asian	White	
Тор	0	0	0	0	0	0	0	0	0
management									
15-16	_	_		_		_	_	_	_
Senior .	1	0	0	0	1	0	0	1	3
management									
13-14 Professionally	0	0	0	0	0	0	0	0	0
qualified and	U	0	U	U	0	0	0	0	0
experienced									
specialists									
and middle									
management									
9-12									
Skilled	0	0	0	0	0	0	0	0	0
technical and	-						_		
academically									
qualified									
workers, junior									
management,									
supervisors,									
foremen									
and super-									
intendents									
6-8									
Semi-skilled and	0	0	0	0	0	0	0	0	0
discretionary									
decision making									
3-5									
Unskilled and	0	0	0	0	0	0	0	0	0
defined decision			0						3
making									
5									
Total	1	0	0	0	1	0	0	1	3
Employees	0	0	0	0	0	0	0	0	0
with disabilities									

Table 3.6.5: Terminations in the period 1 April 2020 to 31 March 2021

Occupational		Ma	ale			Fen	nale		Total
category	African	Coloured	Asian	White	African	Coloured	Asian	White	
Тор	0	0	0	0	0	0	0	0	0
management									
15-16									
Senior	3	0	0	0	5	1	1	0	8
management									
13-14									
Professionally	2	0	0	0	4	0	0	0	6
qualified and									
experienced									
specialists									
and middle									
management									
9-12									
Skilled technical	1	0	0	0	1	0	0	0	3
and academically									
qualified									
workers, junior									
management,									
supervisors,									
foremen and									
super-intendents									
6-8									
Semi-skilled and	0	0	0	0	1	0	0	0	1
discretionary									
decision making									
3-5									
Unskilled and	0	0	0	0	0	0	0	0	0
defined decision									
making									
Total	6	0	0	0	11	1	0	0	18
Employees with disabilities	0	0	0	0	0	0	0	0	0

Table 3.6.6: Disciplinary action in the period 1 April 2020 to 31 March 2021

Disciplinary		Male				Female			
action	African	Coloured	Asian	White	African	Coloured	Asian	White	
Correctional counselling	0	0	0	0	0	0	0	0	0
Verbal warning	0	0	0		0	0	0	0	0
Written warning	7	0	0	0	2	0	0	0	9
Final written warning	0	0	0	0	1	0	0	0	1
Suspension without pay	0	0	0	0	0	0	0	0	0
Total	7	0	0	0	3	0	0	0	10

Table 3.6.7: Skills development in the period 1 April 2020 to 31 March 2021

Occupational		Ma	ale			Fen	nale		Total
category	African	Coloured	Asian	White	African	Coloured	Asian	White	
Legislators,	19	2	2	2	21	1	2	3	52
senior officials									
and managers									
13-15									
Professionals	9	1	1	1	10	0	1	2	25
9-12									
Technicians	0	0	0	0	7	1	0	3	11
and associate									
professionals									
6-8									
Clerks 3-5	1	0	0	0	0	0	0	0	1
Service and sales workers	0	0	0	0	0	0	0	0	0
Skilled agriculture and fishery workers	0	0	0	0	0	0	0	0	0
Craft and related trades workers	0	0	0	0	0	0	0	0	0
Plant and machine operators and assemblers	0	0	0	0	0	0	0	0	0
Elementary occupations	0	0	0	0	0	0	0	0	0
Total	29	3	3	3	38	2	3	13	89
Employees with disabilities	0	0	0	0	1	0	0	2	1

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

Table 3.7.1: Signing of performance agreements by SMS members as at 31 August 2020

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*
Director-General	1	1	1	100
Salary Level 16	0	0	0	0
Salary Level 15	9	4	4	100
Salary Level 14	27	18	18	100
Salary Level 13	88	71	71	100
Total	125	94	94	100

Table 3.7.2: Reasons for not having concluded performance agreements for all SMS members as at 31 August 2020

n/a

Table 3.7.3: Disciplinary steps taken against SMS members for not having concluded performance agreements as at 31 August 2020

n/a

#### 3.8 Performance rewards

Table 3.8.1: Performance rewards by race, gender and disability in the period 1 April 2020 to 31 March 2021

Race and gender	Ве	eneficiary profile		Cost		
	Number of	Number of	% of total	Total Cost	Average cost per	total personnel
	beneficiaries	employees	within group	(R′000)	employee	expenditure
African						
Male	46	119	38,66	863,358	18 768	0,20
Female	100	179	55,87	1 942,807	19 428	0,46
White						
Male	1	9	11,11	23,574	23 574	0,01
Female	8	15	53,33	166,581	20 822	0,04
Coloured						
Male	0	5	0,00	0	0	0,00
Female	3	11	27,27	55,017	18 338	0,01
Asian						
Male	1	4	25,00	14,731	14 730	0,00
Female	4	7	57,14	92,134	23 033	0,02
Total	163	349	46,70	3 158,202	19 375	0,74

Table 3.8.2: Performance rewards by salary band for personnel below Senior Management Service level in the period 1 April 2020 to 31 March 2021

Salary band		Beneficiary profi	le	Co	Cost		
	Number of	Number of	% of total within	Total cost (R'000	Average cost per	% of total	
	beneficiaries	employees	salary bands		employee	personnel	
						expenditure	
Lower skilled	0	0	0,00	0	0	0,00	
(Levels 1-2)							
Skilled (Levels	6	8	75,00	66,948	11 158	0,02	
3-5)							
Highly skilled	48	95	51,00	844,101	17 585	0,20	
production							
(Levels 6-8)							
Highly skilled	84	166	51,00	1 640,812	19 533	0,39	
supervision							
(Levels 9-12	420	242			40 400	0.40	
Total	138	269	51,00	2 551,861	18 492	0,60	

Table 3.8.3: Performance rewards by critical occupation in the period 1 April 2020 to 31 March 2021

Critical	Beneficiary profile			Cost		
occupation	Number of	Number of	% of total within	Total cost (R'000	Average cost per	
	beneficiaries	employees	occupation		employee	
None	0	0	0	0	0	
Total	0	0	0	0	0	

Table 3.8.4: Performance-related rewards (cash bonuses) by salary band for Senior Management Service in the period 1 April 2020 to 31 March 2021

Salary band		Beneficiary profile			ost	Total cost as
	Number of	Number of	% of total within	Total cost (R'000	Average cost per	% of total
	beneficiaries	employees	salary bands		employee	personnel
						expenditure
Band A	0	1	0,00	0	0	0,00
Band B	0	4	0,00	0	0	0,00
Band C	4	16	25,00	104,782	26,196	0,02
Band D	21	64	33,00	501,558	23,884	0,12
Total	25	85	31,00	606,340	24,254	0,14

## 3.9 Foreign workers

Table 3.9.1: Foreign workers by salary band in the period 1 April 2020 to 31 March 2021

Salary band	1 April 2020		31 Mar	ch 2021	Cha	Change	
	Number	% of total	Number	% of total	Number	% of total	
Lower skilled	0	0	0	0	0	0	
Highly skilled	0	0	0	0	0	0	
production							
(Levels 6-8							
Highly skilled	0	0	0	0	0	0	
supervision							
(Levels 9-12)							
Periodic	0	0	0	0	0	0	
Remuneration							
Total	0	0	0	0	0	0	

Table 3.9.2: Foreign workers by major occupation in the period 1 April 2020 to 31 March 2021

Major	1 April 2020		Major 1 April 2020 31 March 2021		Cha	ange
occupation	Number	% of total	Number	% of total	Number	% of total
Lower skilled	0	0	0	0	0	0
Total	0	0	0	0	0	0

## 3.10 Leave utilisation

Table 3.10.1: Sick leave in the period 1 January 2020 to 31 December 2020

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)	19	60,00	4	21,05	4,75	17
Highly skilled production (Levels 6-8)	301	85,25	62	20,60	4,85	471
Highly skilled supervision (Levels 9-12)	534	87,78	92	17,23	5,80	1 646
Top and senior management (Levels 13-16)	233	65,00	40	17,17	5,83	1 078
Total	1 087	81,63	198	18,22	5,49	3 212

Table 3.10.2: Disability leave (temporary and permanent) in the period 1 January 2020 to 31 December 2020

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	0	0,00	0	0
Skilled (Levels 3-5)	135	100	1	8,33	135	121
Highly skilled production (Levels 6-8)	13	100	2	2,02	7	19
Highly skilled supervision (Levels 9-12)	76	100	1	0,57	76	88
Top and senior management (Levels 13-16)	163	100	2	2,11	82	694
Total	387	100	6	1,55	65	922

Table 3.10.3: Annual leave in the period 1 January 2020 to 31 December 2020

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)	126	10	12,60
Highly skilled production (Levels 6-8)	2 015	105	19,19
Highly skilled supervision (Levels 9-12)	3 513	183	19,20
Senior management (Levels 13-16)	1 987	106	18,75
Total	7 462	404	18,47

Table 3.10.4: Capped leave in the period 1 January 2020 to 31 December 2020

Salary band	Total days taken	Number of employees using annual leave	Average per employee	Average capped leave per employee as at 31 March 2019
Lower skilled (Levels 1-2)	0	0	0	0,00
Skilled (Levels 3-5)	0	0	0	0,00
Highly skilled production (Levels 6-8)	0	0	0	29,67
Highly skilled supervision (Levels 9-12)	0	0	0	29,35
Senior management (Levels 13-16)	0	0	0	27,69
Total	0	0	0	28,88

Table 3.10.5: Leave payouts in the period 1 January 2020 to 31 December 2020

Reason	Total amount (R'000)	Number of employees	Average per employee (R'000)
Leave payouts in 2020 due to non-utilisation of leave for the previous cycle	0	0	0
Capped leave payouts on termination of service in 2020	0	0	0
Current leave payouts on termination of service in 2020	478,071	8	59,758
Total	478,071	8	59,758

## 3.11 HIV/Aids and health promotion programmes

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

Units/categories of employees identified to be at high risk of contracting HIV and related	Key steps taken to
diseases (if any)	reduce the risk
None	None

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

Qu	estion	Yes	No	Details, if yes
1.	Has the Department designated a	Χ		Ms Siphiwe Mthombeni
	member of the SMS to implement			Director: Special Programmes
	the provisions contained in Part VI			
	E of Chapter 1 of the Public Service			
	Regulations, 2001? If so, provide her/his			
	name and position.			
2.	Does the Department have a dedicated	Χ		The Directorate: Special Programmes has five positions
	unit or has it designated specific staff			(one director, one deputy director, two assistant directors
	members to promote the health and			and one administrator), but three employees left. Only
	well-being of its employees? If so,			one position has been prioritised to be filled permanently,
	indicate the number of employees			while the functions of the other two positions are carried
	who are involved in this task and the			out by temporary services. An amount R2,169 million
	annual budget that is available for this			was allocated for the promotion of employees' health and
	purpose.			wellness, including the HIV, Aids and TB programme and
				the gender and disability programme.

3.	Has the Department introduced	X	The Department's Employee Assistance Programme
	an employee assistance or health		services are outsourced to Careways. The services
	promotion programme for its		offered include assistance with personal, family, work,
	employees? If so, indicate the key		financial, health and legal challenges. Key elements of the
	elements/services of this programme.		programme include counselling, health risk assessments,
			HIV counselling and testing, TB screenings, the
			distribution of male and female condoms, and education
			and awareness activities. Sports activities were put on
			hold due to COVID 19.
4.	Has the Department established one or	Х	1. Ms Siphiwe Mthombeni
	more committees as contemplated in		2. Ms Mpho Ramakhale
	Part VI E.5 (e) of Chapter 1 of the Public		3. Ms Ellen Moloi
	Service Regulations, 2001? If so, please		4. Ms Truelove Mnguni
	provide the names of the members of		5. Ms Nombulelo Dlalisa
	the committee and the stakeholder(s)		6. Ms Pertunia Mphato
	that they represent		7. Mr Vincent Napo
			8. Ms Ncumisa Runeyi
			9. Ms Caroline Mohlamonyane
			10. Mr Phumelele Yabo
			11. Ms Tumisang Sebitloane
			12. Ms Matlhodi Mathebula
			13. Mr Wiseman Ndlela
			14. Ms Vivienne Gondwe
			15. Mr Benny Nhlapo
			16. Ms Hlamalani Khoza
			The committee represents all employees in the
			Department (both SMS and non-SMS members).
5.	Has the Department reviewed its	Х	The following policies were in the process of being
	employment policies and practices		reviewed, although they have not been finalised:
	to ensure that they do not unfairly		1. DSI Policy on HIV/Aids and TB in the Workplace.
	discriminate against employees on		DSI Policy on Occupational Health and Safety.
	the basis of their HIV status? If so, list		3. DSI Policy on Reasonable Accommodation for People
	the employment policies/practices so		with Disabilities.
	reviewed.		4. The Health and Wellness Programme Policy.
			5. The Health and Productivity Policy.
		l	J. The ficultifulia Froductivity Folicy.

6.	Has the Department introduced	Х	The	Department has adopted an HIV, Aids and TB policy
	measures to protect HIV-positive		as p	art of its commitment to implementing an HIV/Aids
	employees or those perceived to be		work	kplace programme. Awareness and education
	HIV-positive from discrimination? If so,		activ	vities were carried out to address the risk of COVID-19
	list the key elements of these measures.		for (	employees who are HIV-positive during the World
			Aids	Day commemoration. The Department conducted
			HIV	testing through on and off-site services to ensure
			conf	fidentiality
7.	Does the Department encourage its	Х	The	Department conducts quarterly HIV counselling and
	employees to undergo voluntary HIV		testi	ng (HCT) drives. Due to the COVID-19 pandemic, there
	counselling and testing? If so, list the		were	e low participation levels during the health screenings
	results that this has achieved		and	only 2 drives were conducted. An average of 31,9% of
			emp	ployees were tested over the last two quarters of the
			year	through on and off-site HCT services.
8.	Has the Department developed	Х	The	Department has adopted measures and indicators
	measures/indicators to monitor and		as p	provided by the Department of Public Service and
	evaluate the impact of its health		Adm	ninistration (DPSA) Employee Health and Wellness
	promotion programme? If so, list these		Strat	tegic Framework for the Public Service. The quarterly
	measures/indicators.		prog	gress reports with remedial actions were submitted
			to t	the DPSA. The Department's wellness unit also
			mon	nitors the implementation of services by Careways,
			and	employees provide an evaluation of the services. The
			Dep	artment also monitors the outcomes of the following
			indi	cators:
			1. Pe	ercentage of employees participating in health
			SC	reenings.
			2. Pe	ercentage of employees participating in HIV
			СО	unselling and testing.
			3. No	umber of SMS members health-screened.
			4. 1	Number of wellness interventions implemented.
			5. A	ccess to Employee Assistance Programme services.
			6. Fa	acilitation of incapacity leave or ill-health retirement
			ар	pplications.
		•	*	

#### 3.12 **Labour relations**

#### Table 3.12.1: Collective agreements in the period 1 April 2020 to 31 March 2021

Total number of collective agreements	None	

#### Table 3.12.2: Misconduct and disciplinary hearings finalised in the period 1 April 2020 to 31 March 2021

Outcomes of disciplinary hearings	Number	% of total
Correctional counselling	0	0
Verbal warning	0	0
Written warning	9	90
Final written warning	1	10
Suspension without pay	0	0
Demotion	0	0
Dismissal	0	0

Total number of disciplinary hearings finalised 1
---

#### Table 3.12.3: Types of misconduct addressed at disciplinary hearings in the period 1 April 2020 to 31 March 2021

Types of misconduct	Number	% of total
Dishonesty on overtime worked	1	10
Failure to disclose registrable interests	8	80
Improper conduct (Incompatibility)	1	10
Total	10	100

#### Table 3.12.4: Grievances lodged in the period 1 April 2020 to 31 March 2021

Grievances	Number	% of total
Number of grievances resolved	2	0,5
Number of grievances not resolved	0	0,0
Total number of grievances lodged	2	0,5

#### Table 3.12.5: Disputes lodged with councils in the period 1 April 2020 to 31 March 2021

Dispute	Number	% of total
Number of disputes upheld	0	0,0
Number of disputes dismissed	1*	16,67
Total number of disputes lodged	6	100

<sup>\*</sup>Of the six disputes lodged, one was dismissed, one was withdrawn and four are at the Labour Court.

Table 3.12.6: Strike actions in the period 1 April 2020 to 31 March 2021

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

#### Table 3.12.7: Precautionary suspensions in the period 1 April 2020 to 31 March 2021

Total number of person working days lost	141
Total cost of working days lost	R305 153
Amount recovered as a result of no work no pay (R'000)	n/a

## 3.13 Skills development

Table 3.13.1: Training needs identified in the period 1 April 2020 to 31 March 2021

Occupational	Gender	Number of	Training	identified at star	rt of the reportin	g period
category		employees as at 1 April 2020	Learnerships	Skills programmes and other short courses	Other forms of training	Total
Legislators, senior	Female	46	0	3	9	12
officials and managers	Male	49	0	3	5	8
Professionals	Female	104	0	4	14	18
	Male	70	0	4	11	15
Technicians	Female	73	0	7	9	16
and associate professionals	Male	26	0	7	4	11
Clerks	Female	7	0	2	0	2
	Male	5	0	2	0	2
Service and sales	Female	0	0	0	0	0
workers	Male	0	0	0	0	0
Skilled agriculture	Female	0	0	0	0	0
and fishery workers	Male	0	0	0	0	0
Craft and related	Female	0	0	0	0	0
trades workers	Male	0	0	0	0	0
Plant and machine	Female	0	0	0	0	0
operators and assemblers	Male	0	0	0	0	0
Elementary	Female	0	0	0	0	0
occupations	Male	0	0	0	0	0
Subtotal	Female	230	0	16	32	48
	Male	150	0	16	20	36
Total		380	0	32	52	84

Table 3.13.2: Training provided in the period 1 April 2020 to 31 March 2021

Occupational	Gender	Number of	Training	identified at sta	rt of the reportir	g period
category		employees as at 1 April 2020	Learnerships	Skills programmes and other short courses	Other forms of training	Total
Legislators, senior	Female	46	0	4	6	10
officials and managers	Male	49	0	4	5	9
Professionals	Female	104	0	6	13	19
	Male	70	0	4	12	16
Technicians	Female	73	0	8	8	16
and associate professionals	Male	26	0	0	2	2
Clerks	Female	7	0	0	0	0
	Male	5	0	1	0	1
Service and sales	Female	0	0	0	0	0
workers	Male	0	0	0	0	0
Skilled agriculture	Female	0	0	0	0	0
and fishery workers	Male	0	0	0	0	0
Craft and related	Female	0	0	0	0	0
trades workers	Male	0	0	0	0	0
Plant and machine	Female	0	0	0	0	0
operators and assemblers	Male	0	0	0	0	0
Elementary	Female	0	0	0	0	0
occupations	Male	0	0	0	0	0
Subtotal	Female	230	0	18	27	45
	Male	150	0	9	19	28
Total		380	0	27	46	73

#### 3.14 Injury on duty

Table 3.14.1: Injury on duty in the period 1 April 2020 to 31 March 2021

Nature of injury	Number	% of total employees
Required basic medical attention only	2	0,52
Temporary total disablement	0	0
Permanent disablement	0	0
Fatal	0	0
Total	2	0,52

#### 3.15 Use of consultants

Table 3.15.1: Report on consultant appointments using appropriated funds in the period 1 April 2020 to 31 March 2021

Project title	Total number of consultants that worked on project	Duration (work days)	Contract value in Rand
Health Risk Management	2	480	82 169,86
Employee Health Wellness Programme	1	365	1 571 970,05

Total number of projects	Total number of consultants that worked on project	Duration (work days)	Contract value in Rand
2	2	480	82 169,86
1	1	365	1 571 970,05

## Table 3.15.2: Analysis of consultant appointments using appropriated funds, in terms of historically disadvantaged individuals, in the period 1 April 2020 to 31 March 2021

Project title	Percentage ownership by HDI groups	Percentage management by HDI group	Number of consultants from HDI groups that worked on the project
Health Risk Management	0	0	0
Employee Health Wellness Programme	0	0	0

## Table 3.15.3: Report on consultant appointments using donor funds in the period 1 April 2020 to 31 March 2021

Project title	Total number of consultants that worked on project	Duration (work days)	Contract value in Rand
None	0	0	0
Total	0	0	0

Table 3.15.4: Analysis of consultant appointments made using donor funds, in terms of historically disadvantaged individuals, in the period 1 April 2020 to 31 March 2021

Project title	Percentage ownership by HDI groups	Percentage management by HDI group	Number of consultants from HDI groups that worked on the project
None	0	0	0
Total	0	0	0

#### 3.16 Severance packages

Table 3.16.1: Granting of employee-initiated severance packages in the period 1 April 2020 to 31 March 2021

Salary band	Number of applications received	Number of applications referred to the MPSA	Number of applications supported by MPSA	Number of packages approved by department
Lower skilled (Levels 1-2)	0	0	0	0
Skilled (Levels 3-5)	0	0	0	0
Highly skilled production (Levels 6-8)	0	0	0	0
Highly skilled supervision (Levels 9-12)	0	0	0	0
Highly skilled supervision (Levels 9-12)	0	0	0	0
Senior management (Levels 13-16)	0	0	0	0
Total	0	0	0	0





PART E
FINANCIAL
INFORMATION

## **ANNUAL FINANCIAL STATEMENTS**

## NOTES TO THE APPROPRIATION STATEMENT

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# REPORT OF THE AUDITOR-GENERAL TO PARLIAMENT ON VOTE NO. 35: DEPARTMENT OF SCIENCE AND INNOVATION

# Report on the audit of the financial statements

#### **Opinion**

- 1. I have audited the financial statements of the Department of Science and Innovation set out on pages 177 to 314, which comprise the appropriation statement, statement of financial position as at 31 March 2021, the statement of financial performance, statement of changes in net assets and statement of cash flows for the year then ended, as well as 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 Innovation as at 31 March 2021, and its financial performance and cash flows for the year then ended in accordance with Modified Cash Standards (MCS) and the requirements of the Public Finance Management Act 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 auditorgeneral's responsibilities for the audit of the financial statements section of my report.
- 4. I am independent of the department in accordance with the International Ethics Standards Board for Accountants' International code of ethics for professional accountants (including International Independence Standards) (IESBA code) as well as other 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.

 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 315 to 335 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, as prescribed by the National Treasury 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'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 appropriate governance structure either intends to liquidate the department or to cease operations, or has no realistic alternative but to do so.

## REPORT OF THE AUDITOR-GENERAL TO PARLIAMENT ON VOTE NO. 35: DEPARTMENT OF SCIENCE AND INNOVATION

## 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.
- 11. A further description of my responsibilities for the audit of the financial statements is included in the annexure to this auditor's report.

## Report on the audit of the annual performance report

#### Introduction and scope

12. In accordance with the Public Audit Act 25 of 2004 (PAA) and the general notice issued in terms thereof, I have a responsibility to report on the usefulness and reliability of the reported performance information against predetermined objectives for selected programmes presented in the annual performance report. I performed procedures to identify material findings but not to gather evidence to express assurance.

- 13. My procedures address the usefulness and reliability of the reported performance information, which must be based on the department's approved performance planning documents. I have not evaluated the completeness and appropriateness of the performance indicators included in the planning documents. My procedures do not examine whether the actions taken by the department enabled service delivery. My procedures do not extend to any disclosures or assertions relating to the extent of achievements in the current year or 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 programme presented in the Department's annual performance report for the year ended 31 March 2021:

# REPORT OF THE AUDITOR-GENERAL TO PARLIAMENT ON VOTE NO. 35: DEPARTMENT OF SCIENCE AND INNOVATION

Programmes	Pages in annual performance report
Programme 2 - Technology Innovation	88 - 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 identify material findings on the usefulness and reliability of the reported performance information for this programme:
  - Programme 2 Technology Innovation

#### **Other matters**

17. I draw attention to the matter below.

#### **Achievement of planned targets**

18. Refer to the annual performance report on pages 55 to 116 for information on the achievement of planned targets for the year and management explanations provided for the under-/ over-achievement of targets

## **Adjustment of material misstatements**

#### Introduction and scope

19. I identified material misstatements in the annual performance report submitted for auditing. These material misstatements were in the reported performance information of Programme 2 - Technology Innovation. As management subsequently corrected the misstatements, I did not raise any material findings on the usefulness and reliability of the reported performance information.

# 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 department's compliance with specific matters in key legislation. I performed procedures to identify findings, but not to gather evidence to express assurance.
- 21. I did not identify any 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 the selected programme presented in the annual performance report that has 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 on it.

## REPORT OF THE AUDITOR-GENERAL TO PARLIAMENT ON VOTE NO. 35: DEPARTMENT OF SCIENCE AND INNOVATION

- 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 programme 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. When I do receive and read this information, if I conclude that there is a material misstatement therein, 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.
- 28. I did not identify any significant deficiencies in internal control.

Pretoria 27 August 2021

Auditing to build public confidence

anditer-General

# ANNEXURE – AUDITOR-GENERAL'S RESPONSIBILITY FOR THE AUDIT

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**

- 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 relating to events or conditions that may cast significant doubt on the ability of the Department of Science and Innovation 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 my 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 operating as a going concern.
- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and determine 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 provide the accounting officer with a statement that I have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on my independence and, where applicable, actions taken to eliminate threats or safeguards applied.

## **VOTE 35 APPROPRIATION STATEMENT**

## FOR THE YEAR ENDED 31 MARCH 2021

			Appropr	Appropriation per Programme	mme				
			2020/21					2019/20	1/20
APPROPRIATION STATEMENT	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
1. Administration	304,107	1	(9,691)	294,416	262,240	32,176	89.1%	372,313	323,170
2. Technology Innovation	1,378,321	ı	18,744	1,397,065	1,379,841	17,224	%8.8%	1,280,292	1,236,673
3. International Cooperation and Resources	116,802	1	2,500	119,302	114,229	5,073	95.7%	149,131	136,027
4. Research Development and Support	3,745,248	ı	(9,530)	3,735,718	3,730,976	4,742	%6.66	4,583,676	4,578,431
5. Socio-Economic Innovation Partnerships	1,733,809	1	(2,023)	1,731,786	1,677,979	53,807	%6.96	1,786,892	1,778,196
TOTAL	7,278,287	-	-	7,278,287	7,165,265	113,022	98.4%	8,172,304	8,052,497
Reconciliation with Statement of Financial Performance ADD:	f Financial Perforn	nance							
Departmental receipts				2,241				19,416	
NRF Receipts Aid assistance				- 69 552				12 189	
Actual amounts per Statement of Financial Performance (Total revenue)	of Financial Perforr	mance (Total re	venue)	7,350,080			•	8,203,909	
ADD: Aid assistance	:	:			69,131		•		12,189
Prior year unauthorised expenditure approved without funding	iiture approved with	out funding			1				1
Actual amounts per Statement of Financial Performance (	of Financial Perforr		Total expenditure)		7,234,396				8,064,686

# **VOTE 35 APPROPRIATION STATEMENT** FOR THE YEAR ENDED 31 MARCH 2021

			Approp	Appropriation per programme	mme				
			2020/21	-				2019/20	9/20
APPROPRIATION STATEMENT	Adjusted appropriation	Shifting of funds	Virement	Final	Actual expenditure	Variance	Expenditure as % of final appropriatio	Final appropriatio n	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
Economic Classification									
Current Payments	506,974	1	(25,612)	481,362	428,954	52,408	89.1%	611,988	530,935
Compensation of employee	361,993	•	1	361,993	321,938	40,055	88.9%	389,105	323,876
Salaries and Wages	314,577	(57)	1	314,520	287,739	26,781	91.5%	344,241	289,804
Social contributions	47,416	22	1	47,473	34,199	13,274	72.0%	44,864	34,072
Goods and services	144,981	•	(25,612)	119,369	107,016	12,353	89.7%	222,883	207,059
Administrative fees	1,480	(210)	(330)	640	95	545	14.8%	2,632	2,103
Advertising	13,354	(4,747)	(3,923)	4,684	4,260	424	%6:06	14,064	13,208
Minor assets	732	(315)	(83)	334	283	51	84.7%	259	349
Audit costs: External	2,900	1,325	1	4,225	4,219	9	%6.66	5,588	5,580
Bursaries: Employees	3,088	(2,550)	1	538	469	69	87.2%	1,197	1,166
Catering: Departmental									
Activities	3,095	(1,503)	(888)	704	282	422	40.1%	3,540	2,963
Communication (G&S)	8,899	2,863	772	12,534	12,560	(26)	100.2%	9,027	7,203
Computer services	5,777	22,238	(2,179)	25,836	25,615	221	99.1%	13,901	13,089
Consultants: Business and									
advisory services	13,622	257	(3,913)	996'6	10,322	(356)	103.6%	14,313	12,371
Scientific and									
technological services	1	I	ı	1	ı	ı	1	ı	1
Legal Services	1,174	(349)	ı	825	813	12	98.5%	1,067	1,039
Contractors	4,311	(2,070)	(260)	1,681	1,672	6	99.5%	7,273	7,085

			Appropr	Appropriation per programme	mme				
			2020/21					2019/20	//20
APPROPRIATION STATEMENT	Adjusted appropriation	Shifting of funds	Virement	Final	Actual expenditure	Variance	Expenditure as % of final appropriatio	Final appropriatio n	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
Agency and	11,913	2,523	(4,957)	9,479	10,242	(292)	108.0%	9,902	9,151
support/outsourced Services									
Entertainment	1,985	(1,389)	(110)	486	28	458	5.8%	1,240	235
Fleet services (inc									
government									
motor transport)	•	785	1	785	778	7	99.1%	1,052	637
Inventory: Clothing,									
material & accessories	1	ī	ı	ı	ı	1	1	ı	1
Inventory: Fuel, Oil and									
Gas	1	1	ı	1	Î	1	1	Ī	•
Inventory: Material and									
Supplies	•	ı	ı	•	Ī	1	1	I	•
Inventory: Medical									
Supplies	•	ī	ı	•	I	•	1	ī	•
Inventory: Other supplies	1	1	ı	1	Ī	ı	1	Ī	1
Consumable supplies	2,595	(1,152)	(20)	1,423	1,231	192	86.5%	2,490	2,238
Consumable: Stationery,									
printing and office supplies	6,185	(4,450)	ı	1,735	1,642	93	94.6%	5,468	4,986
Operating Leases	4,639	1,143	(1,500)	4,282	4,129	153	96.4%	4,347	2,658
Property payments	15,079	1,212	(2,720)	13,571	13,307	264	98.1%	44,049	42,322
Transport provided:	1	1	ı	1	Ī	1	1	549	1
Departmental activity									

			Appropri	Appropriation per programme	mme				
			2020/21	-				2019/20	//20
APPROPRIATION STATEMENT	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriatio	Final appropriatio n	Actual expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
Travel and subsistence	19,160	(7,424)	(3,052)	8,684	7,278	1,406	83.8%	46,802	46,931
Training and development	6,563	140	ı	6,703	2,217	4,486	33.1%	3,908	3,073
Operating payments	7,823	931	(674)	8,080	3,786	4,294	46.9%	9,070	9,012
Venues and facilities	10,607	(7,058)	(1,475)	2,074	1,457	617	70.3%	18,838	17,469
Rental and hiring	1	100	Ī	100	331	(231)	331.0%	2,007	2,191
Transfers and subsidies	6,767,909	ı	21,522	6,789,431	6,729,702	59,729	99.1%	7,551,282	7,513,932
Departmental agencies									
and accounts	5,123,832	1	32,202	5,156,034	4,721,326	434,708	91.6%	5,638,373	5,165,068
Departmental agencies	5,123,832	1	32,202	5,156,034	4,721,326	434,708	91.6%	5,638,373	5,165,068
Higher education									
Institutions	•	1	ı	•	252,948	(252,948)	•	ı	•
Foreign governments and									
international organisations	•	•	i	1	•	ı	1	ī	ī
Public corporations and									
private enterprises	1,264,636	1	(26,825)	1,237,811	1,495,783	(257,972)	120.8%	1,503,047	1,811,667
Public corporation	1,264,636	1	(26,825)	1,237,811	1,481,169	(243,358)	119.7%	1,503,047	1,798,871
Subsidies on									
Products	893,581	1	1	893,581	893,581	ı	100.0%	965,823	965,823
Other transfers to									
public corporation	371,055	1	(26,825)	344,230	587,588	(243,358)	170.7%	537,224	833,048
Private enterprises	•	1	1	1	14,614	(14,614)	1	ı	12,796
Other transfers to									
private enterprises	•	1	1	•	14,614	(14,614)	-	ı	12,796

# **VOTE 35 APPROPRIATION STATEMENT** FOR THE YEAR ENDED 31 MARCH 2021

			Appropr	Appropriation per programme	mme				
			2020/21					2019/20	0/20
APPROPRIATION STATEMENT	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriatio	Final appropriatio n	Actual expenditure
	R.000	R'000	R.000	R'000	R.000	R.000	%	R'000	R.000
Non-profit institution	379,441	•	15,645	395,086	259,117	135,969		407,654	533,590
Households	•	1	200	200	528	(28)	1	2,208	3,607
Social benefits	1	1	200	200	478	22	I	2,183	1,643
Other transfers to Households	1	•	ı	1	50	(20)	1	25	1,964
Payments for capital assets	3,404	•	3,590	6,994	6,062	932	86.7%	8,900	7,541
Buildings and other fixed Structures		•				•	•		
Machinery and equipment	3,404	ı	3,590	6,994	6,062	932	86.7%	8,900	7,541
Transport equipment								ı	1
Other machinery and									
Equipment	3,404	1	3,590	6,994	6,062	932	%2'98	8,900	7,541
Software and other									
intangible assets	ı	1	I	1	1	I	ı	1	1
Payments for financial									
assets	•	•	200	200	547	(47)	109.4%	134	88
Total	7,278,287		•	7,278,287	7,165,265	113,022	98.4%	8,172,304	8,052,497

			Detail per Pro for the yea	Detail per Programme 1 – Administration for the year ended 31 MARCH 2021	ninistration CH 2021				
			2020/21					2019/20	0
Subprogramme	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditu re
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
1.1 Ministry	5,886	ı	1	5,886	4,855	1,031	82.5%	8,126	2,896
1.2 Institutional Planning and Support	141,180	1	(13,641)	127,539	113,247	14,292	88.8%	180,020	141,193
1.3 Corporate Services	151,434	(3,700)	3,950	151,684	134,907	16,777	88.9%	147,688	144,235
1.4 Office accommodation	5,607	3,700	ı	6,307	9,231	92	99.2%	36,479	34,846
Total	304,107	•	(9,691)	294,416	262,240	32,176	89.1%	372,313	323,170

Economic classification									
Current payments	285,109	1	(13,948)	271,161	239,879	31,282	88.5%	341,240	293,699
Compensation of employees	171,901		(1,500)	170,401	151,579	18,822	89.0%	182,637	148,587
Salaries and wages	148,551	(200)	(1,500)	146,351	135,141	11,210	92.3%	160,054	132,583
Social contributions	23,350	200	ı	24,050	16,438	7,612	68.3%	22,583	16,004
	113,208	•	(12,448)	100,760	88,300	12,460	82.6%	158,603	145,112
Goods and services									
Administrative fees	562	(165)	(145)	252	62	173	31.3%	1,000	853
Advertising	12,411	(4,325)	(3,800)	4,286	4,254	32	99.3%	11,579	11,401
Minor assets	717	(315)	(83)	319	283	36	88.7%	540	348
Audit costs: External	2,900	1,325	-	4,225	4,219	9	%6.66	5,588	5,580

			Detail per Proforthe yes	Detail per Programme 1 – Administration for the year ended 31 MARCH 2021	ninistration CH 2021				
			2020/21					2019/20	20
Subprogramme	Adjusted appropriation	Shiffing of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditu re
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
bursaries: Employees	3,060	(2,550)	1	510	469	41	92.0%	1,170	1,166
Catering:									
Departmental activities	1,516	(1,039)	(400)	77	36	41	46.8%	2,161	2,090
Communication (G&S)	5,449	830	360	6,639	6,605	34	%5'66	5,283	3,794
Computer services	5,310	22,265	(2,000)	25,575	25,542	33	%6'66	13,669	13,076
Consultants: Business and									
advisory services	8,907	(2,085)	(1,600)	5,222	5,212	10	%8'66	9,776	8,972
Scientific and technological									
services	1	Î	1	1	•	ı	1	1	1
Legal services	962	(446)	ı	516	509	7	%9.86	300	296
Contractors	4,311	(2,070)	(260)	1,681	1,672	6	%5'66	5,863	5,794
Agency and support/									
outsourced services	7,153	089	I	7,833	7,821	12	%8'66	7,734	7,181
Entertainment	644	(625)	I	19	11	80	27.9%	536	54
Fleet services (incl.									
government motor transport)	ı	785	ı	785	778	7	99.1%	1,052	637
Inventory: Clothing,									
material and accessories	ı	I	ı	1	ı	1	1	ı	ı
Inventory: Fuel, oil and gas	1	Í	1	1	1	i	1	ı	1
Inventory: Material and									
Supplies	1	Í	1	1	1	i	1	ı	1
Inventory: Other supplies	1	1	1	1	1	Ī	ı	1	1
Consumable supplies	2,386	(1,080)	1	1,306	1,226	80	93.9%	2,351	2,198
Consumables: Stationery,									
printing and office supplies	6,177	(4,475)	1	1,702	1,616	98	94.9%	5,248	4,793

			Detail per pro for the ye	Detail per programme 1 – Administration for the year ended 31 March 2021	ninistration th 2021				
			2020/21					2019/20	20
Sub-programme	Adjusted	Shifting of funds	Virement	Final	Actual	Variance	Expenditure as % of final	Final	Actual
							appropriation		re
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
Operating Leases	4,639	1,143	(1,500)	4,282	4,129	153	96.4%	4,347	2,658
Property payments	14,686	1,565	(2,720)	13,531	13,307	224	98.3%	44,039	42,312
Transport provided:	1	ļ	1	1	1	1	1	543	ı
Departmental activity									
Travel and subsistence	11,862	(2,898)	ı	5,964	4,471	1,493	75.0%	20,288	18,688
Training and development	6,563	I	ı	6,563	1,557	5,006	23.7%	3,061	3,059
Operating payments	6,791	835	1	7,626	3,231	4,395	42.4%	4,746	4,652
Venues and facilities	6,202	(4,455)	1	1,747	1,185	295	%8'.29	5,722	3,518
Rental and hiring	ı	100	1	100	88	12	88.0%	2,007	1,992
Transfers and subsidies	15,594	ı	228	15,822	15,813	6	%6'66	22,042	21,843
Departmental agencies									
and Accounts	•	1	1	•	315	(315)	1	•	1,600
Departmental agencies	1	1	1	1	315	(315)	1	ı	1,600
Higher education Institutions	1	I	Ī	ı	9,384	(9,384)	ı	1	1
Foreign governments and									
international organisations	•	ı	1	ı	1	1	ı	•	Ī
Public corporations and									
private enterprises	•	1	•	•	•	1	1	•	1
Public corporation	•	ı	-	•	-	-	-	•	1

			Detail per Proforthe year	Detail per Programme 1 – Administration for the year ended 31 MARCH 2021	ninistration CH 2021				
			2020/21					2019/20	50
Subprogramme	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditu re
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
Other transfers to private enterprises	ı	ı	ī	·	ı	1	1	•	ı
Non-profit institutions	15,594	ı		15,594	5,896	9,698	37.8%	20,086	18,484
Households	•	•	228	228	218	10	92.6%	1,956	1,759
Social benefits	Ī	I	228	228	218	10	92.6%	1,931	1,305
Other transfers to households	l	1	ı	ı	l	ı	ı	25	454
Payment for capital assets	3,404	•	3,590	6,994	6,062	932	%2'98	8,900	7,541
Buildings and other fixed									
Machinery and equipment	3,404	1 1	3,590	6,994	6,062	932	86.7%	- 006'8	7,541
Transport equipment		ı	1			1	1		ı
Other machinery and	0		C	0	o o	C	701		L 7
Software and other intangible	,404°C	ı	086,6	0,994	0,002	328	00.1.70	0,900	1,041
assets	1	1	ı	1	1	1	1	1	1
Payment for financial assets	•	•	439	439	486	(47)	110.7%	131	87
Total	304,107		(9,691)	294,416	262,240	32,176	89.1%	372,313	323,170

			Detail per Profor for the vea	Detail per Programme 1 – Administration for the vear ended 31 March 2021	ninistration ch 2021				
			2020/21					2019/20	//20
Subprogramme 1.1: Ministry	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
Current payments	5,886	•	1	5,886	4,855	1,031	82.5%	8,126	2,896
Compensation of employees	5,886	ı	ı	5,886	4,855	1,031	82.5%	8,126	2,896
Salaries and wages	5,886	(200)	ļ	5,186	4,211	975	81.2%	7,313	2,505
Social contributions	ı	200	1	200	644	56	92.0%	813	391
Goods and services	•	1	Ī	•	•	1	•	1	•
Administrative fees	1	1	ı	İ	1	Î	1	ı	1
Advertising	1	1	I	i	1	İ	1	1	1
Minor assets	1	1	ı	İ	1	Î	1	ı	1
Audit costs: External	ı	1	I	İ	1	Í	1	ı	1
Bursaries: Employees	1	1	I	İ	I	Î	1	ı	1
Catering: Departmental									
activities	1	ı	I	ı	1	ı	1	1	ı
Communication (G&S)	1	1	ı	Î	I	Î	ı	ı	I
Computer services	ı	1	I	İ	1	İ	1	ı	1
Consultants: Business and									
advisory services	1	1	1	ı	ı	Î	1	I	1
Legal services	1	1	Ī	i	I	İ	1	ı	1
Contractors	ı	1	I	İ	1	İ	1	ı	1
Agency and support/									
outsourced services	1	1	I	İ	I	Î	1	ı	1
Entertainment	1	1	ı	İ	1	Î	1	ı	1
Fleet services (incl.									
government motor									
transport)	ı	1	I	İ	1	İ	1	ı	1
Inventory: Clothing, material									
and accessories		ı	1	1	1	1	1	1	1

# **VOTE 35 APPROPRIATION STATEMENT** FOR THE YEAR ENDED 31 MARCH 2021

Inventory: Fuel, oil and gas	1	1	1	1	1	ı	1	
Inventory: Material and								
supplies	1	ı	1	1	1		1	
Inventory: Other supplies	ı	1	ī	1	1		1	
Consumable supplies	1	1	I	1	1		1	
Consumables: Stationery,								
printing and office supplies	1	ı	1	1	1		1	
Operating leases	1	1	I	1	1		1	
Property payments	1	1	I	1	1		1	
Travel and subsistence	ı	1	ī	1	1		1	
Training and development	ı	ı	ı	1	1			
Operating payments	1	1	I	1	1		1	
Venues and facilities	Ī	ı	1	1	1		ı	
Rental and hiring	1	1	1	1	1		1	
Transfers and subsidies	•	1	1	1	1	ı	ı	1
Departmental agencies and								
accounts	1	1	•	•	•		•	
Higher education institutions	1	1	I	1	1		1	
Foreign governments and								
international organisations	1	1	1	1	1		ı	
Public corporations and								
Dulylic compations	1	ı	1	•	•		•	
Subsidies on products	•	•	•	•			•	
Other transfers to	1	1	ı		'		1	
public corporations	1	1	1	1	1		1	
Private enterprises	1	•	1	•	•		•	
Other transfers to								
private enterprises	1	ı	1	1	1		1	
Non-profit institutions	ı	1	ī	1	1		1	
Households	•	'	•	-			•	

# **VOTE 35 APPROPRIATION STATEMENT**FOR THE YEAR ENDED 31 MARCH 2021

Other transfers to households	ı	1	ı	ı	ı	1	ı	ı	ı
Payment for capital assets Buildings and other fixed	ı	ı	1	ı	ı	I	ı	ı	ı
structures	I	ı	ı	1	I	1	I	ı	ı
Machinery and equipment	1	1	I	I	ı	İ	ı	ı	ı
Transport equipment Other machinery and	Ī	1	ı	ı	1	1	ī	1	ı
equipment	ı	1	1	I	ı	ı	ı	ı	ı
Software and other intangible assets	ı	ı	ı	ı	ı	I	ı	ı	1
Payment for financial assets	ı	-	1	•	1	-	-	-	1
Total	5,886	1	1	5,886	4,855	1,031	82.5%	8,126	2,896

Subprogramme: 1.2: Institutional Planning and Support	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
Current payments	125,586	1	(14,163)	111,423	97,087	14,336	87.1%	157,897	119,782
Compensation of employees	87,421		(1,500)	85,921	71,871	14,050	83.6%	95,519	67,934
Salaries and wages	75,875	1	(1,500)	74,375	65,427	8,948	88.0%	84,218	61,746
Social contributions	11,546	1	ı	11,546	6,444	5,102	25.8%	11,301	6,188
Goods and services	38,165	1	(12,663)	25,502	25,216	286	%6'86	62,378	51,848
Administrative fees	, 195	(165)	`	30	27	က	%0.06	, 653	627
Advertising	7,511	,	(3,800)	3,711	3,699	12	%2'66	11,104	11,043
Minor assets	215	(115)	(83)	17	15	2	88.2%	214	23
Audit costs: External	i	1	1	i	ı	1	ī	ı	I
Bursaries: Employees	1	1	ı	İ	1	I	1	1	i
Catering: Departmental									
activities	496	(80)	(400)	16	15	_	93.8%	1,881	1,824
Communication (G&S)	2,711	330	ı	3,041	3,036	5	%8'66	3,352	1,867
Computer services	2,234	(159)	(2,000)	75	73	2	97.3%	548	23
Consultants: Business and									
advisory services	6,585	(82)	(1,600)	4,900	4,898	2	100.0%	6,975	6,203
Legal services	1	424	ı	424	422	2	%5'66	1	1
Contractors	675	(100)	(260)	15	10	5	%2'99	1,443	1,395
Agency and support/									
outsourced services	4,001	490	ı	4,491	4,486	5	%6.66	5,092	5,085
Entertainment	364	(320)	ı	14	10	4	71.4%	345	40
Fleet services (incl.									
government motor									
transport)	•	585	ı	585	584	_	%8'66	852	450
Inventory: Clothing, material									
and accessories	1	1	ı	1	1	ı	ı	1	1
Inventory: Fuel, oil and gas	1	1	1	Î	1	I	ı	ı	ı
Inventory: Material and									
Supplies	1	1	1	i	1	1	ı	I	1
Inventory: Other supplies	1	ı	1	İ	I	I	Ì	1	1
Consumable supplies	117	(75)	1	42	31	11	73.8%	245	127
Consumables: Stationery,									
printing and office supplies	735	(475)	ı	260	256	4	%9'86	190	356
Operating leases	1,590	1	(1,500)	90	1	90	1	1,637	1

Property payments	3,976	(1,135)	(2,720)	121	_	120	%8.0	59	1
Transport provided:									
departmental activities	1	į	ı	1	1	ļ	ı	543	Î
Travel and subsistence	3,164	830	ı	3,994	3,984	10	%2'66	17,374	15,782
Training and development	İ	Î	ı	I		I	Î	ı	Î
Operating payments	2,053	835	ı	2,888	2,886	2	%6.66	2,555	2,494
Venues and facilities	1,543	(755)	ı	788	783	2	99.4%	4,779	2,579
Rental and hiring	1	. 1	ı	1	1	1	1	1,937	1,930
Transfers and subsidies	15,594	•	83	15,677	15,674	က	100.0%	22,004	21,336
Departmental agencies and									
accounts	ı	1	•	1	315	(315)	1	ı	1,600
Departmental agencies	1	ı	ı	ı	315	(315)	Î	ı	1,600
Higher education institutions	1	į	1	1	9,384	(9,384)	1	•	1
Foreign governments and									
international organisations	ı	į	ı	ı	1	Î	1	ı	Î
Public corporations and									
private enterprises	•	ī	Ī	•	•	ī	•	1	
Public corporations	ı	1	1	•	•	ī	•	1	ī
Subsidies on products									
and production	ı	į	1	ı	1	Î	i	ı	Î
Other transfers to									
public corporations	ı	1	1	1	I	I	ı	ı	Î
Private enterprises	•	1	•	•	•	1	1	•	1
Other transfers to private									
Enterprises	ı	1	1	1	I	I	ı	ı	Î
Non-profit institutions	15,594	•	•	15,594	5,896	9,698	37.8%	20,086	18,484
Households	ı	1	83	83	62	4	95.2%	1,918	1,252
Social benefits	1		83	83	62	4	95.2%	1,893	1,227
Other transfers to									
households	I	1	ı	I	ı	ı	ı	25	25
Payment for capital assets	•	1	•		Ī	1	•	•	35
Buildings and other fixed									
structures	1	1	1	1	-	1	i	1	ı

	1	35		1	119 40	141,193
					1	180,020
1	ļ	1		ı	110.7%	88.8%
1	I	1		I	(47)	14,292
1	Ī	ı		1	486	113,247
1	i	1		1	439	127,539
ĺ	1	1		ı	439	(13,641)
ı	1	1		ı	1	
1	1	•		1	•	141,180
Machinery and equipment	Transport equipment	Other machinery and equipment	Software and other intangible	assets	Payment for financial assets	Total

Subprogramme: 1.3: Corporate Services	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
Current payments	148,030	(3,700)	215	144,545	128,706	15,839	%0.68	138,738	136,175
Compensation of employees	78,594	ı	•	78,594	74,853	3,741	95.2%	78,992	77,757
Salaries and wages	66,790	ı	ı	66,790	65,503	1,287	98.1%	68,523	68,332
Social contributions	11,804	i	1	11,804	9,350	2,454	79.2%	10,469	9,425
Goods and services	69,436	(3,700)	215	65,951	53,853	12,098	81.7%	59,746	58,418
Administrative fees	367	ļ	(145)	222	52	170	23.4%	347	226
Advertising	4,900	(4,325)	I	575	555	20	96.5%	475	358
Minor assets	502	(200)	I	302	268	34	88.7%	326	325
Audit costs: External	2,900	1,325	I	4,225	4,219	9	%6.66	5,588	5,580
Bursaries: Employees	3,060	(2,550)	ı	510	469	41	92.0%	1,170	1,166
Catering: Departmental									
activities	1,020	(626)	ı	61	21	40	34.4%	280	266
Communication (G&S)	2,738	200	360	3,598	3,569	29	99.5%	1,931	1,927
Computer services	3,076	22,424	ı	25,500	25,469	31	%6'66	13,121	13,053
Consultants: Business and									
advisory services	2,322	(2,000)	ı	322	314	80	97.5%	2,801	2,769
Scientific and technological									
services	ı	1	Î	1	1	I	1	1	I
Legal services	962	(870)	I	92	87	5	94.6%	300	296
Contractors	3,636	(1,970)	ı	1,666	1,662	4	%8'66	4,420	4,399
Agency and support/									
outsourced services	3,152	190	1	3,342	3,335	7	%8'66	2,642	2,096

Entertainment	280	(275)	1	5	_	4	20.0%	191	14
Fleet services (incl.									
government motor									
transport)	1	200	ı	200	194	9	%0'.26	200	187
Inventory: Clothing, material									
and accessories	ı	1	1	1	1	ı	1	1	1
Inventory: Fuel, oil and gas	ı	I	1	ı	ı	Î	1	ī	1
Inventory: Material and									
supplies	ı	1	1	1	1	Î	1	I	1
Inventory: Other supplies	1	1	ı	ı	1	ı	ı	ı	1
Consumable supplies	2,269	(1,005)	1	1,264	1,195	69	94.5%	2,106	2,071
Consumables: Stationery,									
printing and office supplies	5,442	(4,000)	ı	1,442	1,360	82	94.3%	4,458	4,437
Operating leases	3,049	(1,457)	ı	1,592	1,564	28	98.2%	1,290	1,261
Property payments	5,103	1,600	ı	6,703	6,640	63	99.1%	8,921	8,863
Transport provided:	ı	I	1	ı	ı	Î	1	ī	
Departmental activities			ı					ı	1
Travel and subsistence	8,698	(6,728)	ı	1,970	487	1,483	24.7%	2,914	2,906
Training and Development	6,563	I	ı	6,563	1,557	5,006	23.7%	3,061	3,059
Operating payments	4,738	I	ı	4,738	345	4,393	7.3%	2,191	2,158
Venues and facilities	4,659	(3,700)	ı	656	402	257	41.9%	943	939
Rental and hiring	I	100	1	100	88	12	%0.88	70	62
Transfers and subsidies	•	1	145	145	139	9	95.9%	38	507
Departmental agencies and									
accounts	•	1	•	•	•	•	•	1	•
Higher education institutions	1	1	1	1	•	•	•	•	
Foreign governments and									
International organisations  Public cornerations and	ı	ı	1	ı	1	1	ı	ı	1
private enterprises	•	•	•	•	•	1	•	•	•
Public corporations	1	1	•		1	ı	1	1	1
	-		_	-		-	-		

144,235	147,688	88.9%	16,777	134,907	151,684	3,950	(3,700)	151,434	Total
47	12	1	•	1	•	•	•	1	Payment for financial assets
ı	ı	ı	ı	ı	ı	ı	ı	1	assets
									Software and other intangible
7,506	8,900	%2'98	932	6,062	6,994	3,590	ļ	3,404	equipment
									Other machinery and
ı	ı								Transport equipment
7,506	8,900	%2'98	932	6,062	6,994	3,590	ı	3,404	Machinery and equipment
									structures
									Buildings and other fixed
7,506	8,900	%2'98	932	6,062	6,994	3,590	•	3,404	Payment for capital assets
429	I	I	ı	I	ı	1	ı	I	nousenoids
									Other transfers to
78	38	%6:56	9	139	145	145	1	ı	Social benefits
202	38	92.9%	9	139	145	145	•	1	Households
•	1	1	ī	1	•	•	1	1	Non-profit institutions
ı	ı	ı	ı	ı	ı	ı	ļ	ı	enterprises
									Other transfers to private
1	1	1	1	ı	•	•	ı	1	Private enterprises
I	ı	ı	I	ı	ı	I	1	ı	public corporations
									Other transfers to
1	ı	ı	1	1	1	'	1		Subsidies on products

Subprogramme:	Adjusted	Shifting of	Virement	Final	Actual	Variance	Expenditure	Final	Actual
1.4 Office Accommodation	appropriation	funds		appropriation	expenditure		as % of final appropriation	appropriation	expenditure
Current payments	5,607	3,700	1	9,307	9,231	92	99.5%	36,479	34,846
Compensation of employees	•	1	•	•	•	•	1	1	•
Salaries and wages	1	Î	Î	ı	ı	Î	ı	1	1
Social contributions	1	1	ı	1	1	1	1	1	1
Goods and services	5,607	3,700	1	9,307	9,231	92	99.2%	36,479	34,846
Administration fees		Î	ı		1	İ	1	ı	ı
Advertising	ı	Î	Î	Ī	I	Î	ı	ı	Ī
Minor assets	1	İ	1	ı	ı	İ	1	1	ı
Audit costs: External	ı	Ĩ	Ī	I	I	ī	1	1	ī
Bursaries: Employees	ı	Î	Î	Ī	I	Î	ı	ı	Ī
Catering: Departmental activities	ı	ı	I	ı	ı	ı	ı	ı	1
Communication (G&S)		ı	I	ı	I	ı	ı	ı	1
Computer services	ı	Î	ı	ı	1	İ	1	ı	ı
Consultants: Business and									
advisory services	ı	Î	1	I	I	Î	1	1	ı
Legal services	ı	ı	ı	ı	1	İ	1	1	1
Contractors	1	Î	i	1	1	İ	ı	ı	1
Agency and support/									
outsourced services	1	Î	i	1	1	İ	ı	ı	1
Entertainment	1	Î	i	1	1	İ	ı	ı	1
Fleet services (incl.									
government motor									
transport)	1	Î	i	1	1	İ	ı	ı	1
Inventory: Clothing, material									
and accessories	1	1	1	ı	ī	Î	1	1	ı
Inventory: Fuel, oil and gas	1	ī	I	1	1	I	1	ı	ı

	ı	1	Î		İ	1,397	33,449	Î	ı	ı	ı	ı	1		•	•		1		1	1			ı	1		İ	Ì	•	1
	ı	ļ	ı		ı	1,420	35,059	ı	ı	ı	ı	ı	•		•	1		ı		1	•			1	•		1	1	•	_
	ı	ı	ı		ı	%2'86	99.4%	ı	1	1	ı	1	•		•	•		ı		•	•			ı	•		ı	1	•	1
	Í	Í	Î		ļ	35	41	Î	i	i	Í	1	1		1	1		Í		1	Ī			1	Ī		ı	ı	•	1
	1	1			1	2,565	999'9	I	ı	ı	1	1			1	1		1		ī	1			ī	1		I	I	•	-
	ı	ı			ı	2,600	6,707	ı	ı	ı	ı	1			1	1		ı		ı	1			1	1		ı	ı	•	-
	ı	Î	Î		Î	i	ı	Î	i	i	ı	1			1	Ī		i		1	1			1	1		ı	Ì	Ī	i
	ı	ı			I	2,600	1,100	ı	ı	ı	ı	ı			•	1		ı		1	1			ı	1		ı	ı	1	1
	I	ı	ī		1	ı	2,607	ī	ı	ı	I	ı			•	1		1		•	•			ı	•		ı	I		1
Inventory: Material and	supplies	Inventory: Other supplies	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	Transfers and subsidies	Departmental agencies and	accounts	Higher education institutions	Foreign governments and	international organisations	Public corporations and	private enterprises	Public corporations	Subsidies on products	Other transfers to	public corporations	Private enterprises	Other transfers to private	enterprises	Non-profit institutions	Households	Social benefits

# **VOTE 35 APPROPRIATION STATEMENT** FOR THE YEAR ENDED 31 MARCH 2021

Other transfers to									
households	ı	1	ı	ı	ı	Î	1	1	1
Payment for capital assets	1	1	1	1	1	1	1	1	1
Buildings and other fixed structures	ı	ı	ı	ı	1	I	ı	1	1
Machinery and equipment	1	ı	Ī	1	ı	ı	,	1	1
Transport equipment	1	1	1	1	ı	ı	1	1	1
Other machinery and									
equipment	ı	ı	1	1	ı	1	ı	ı	ı
Software and other intangible									
assets	1	ı	ı	ı	I	Ī	ı	ı	ı
Payment for financial assets	ı	ı	ı	ı	ı	ı	1	ı	ı
Total	5,607	3,700		9,307	9,231	92	99.2%	36,479	34,846

# **VOTE 35 APPROPRIATION STATEMENT**FOR THE YEAR ENDED 31 MARCH 2021

		Det	Detail per Programme 2 –	er Programme 2 – Technology Inc.	Technology Innovation				
			2020/21		1 202 1			2019/20	20
Subprogramme	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
2.1 Space Science	225,934	(1,000)	25,700	250,634	241,741	8,893	%9:96	229,078	225,244
2.2 Hydrogen and Energy	183,350	(1,840)	4,319	185,829	184,519	1,310	99.3%	177,927	176,851
2.3 Bio-economy	204,663	2,840	20,645	228,148	226,997	1,151	%9.5%	229,217	194,876
2.4 Innovation Priorities and Instruments	706,159	1	(31,120)	675,039	671,945	3,094	%9.2%	582,502	578,064
2.5 National Intellectual Property Management Office	54,236	(450)	(200)	53,586	51,021	2,565	95.2%	54,907	55,246
2.6 Office of the DDG: Technology Innovation	3,979	450	(009)	3,829	3,618	211	94.5%	6,661	6,392
Total	1,378,321	1	18,744	1,397,065	1,379,841	17,224	98.8%	1,280,292	1,236,673
Economic classification									
Current payments	64,571	1	(5,981)	58,590	47,211	11,379	%9.08	78,807	67,433
Compensation of employees	52,212	1		52,212	40,263	11,949	77.1%	56,744	43,824
Salaries and wages	44,021	350	ı	44,371	36,068	8,303	81.3%	49,761	39,379
Social contributions	8,191	(320)	1	7,841	4,195	3,646	53.5%	6,983	4,445
Goods and services	12,359	•	(5,981)	6,378	6,948	(570)	108.9%	22,063	23,609
Administrative fees	273	(101)	(20)	122	ဇ	119	2.5%	406	350
Advertising	227	(103)	I	124	İ	124	ı	1,596	1,500
Minor assets	ı	ı	ı	ı	İ	İ	ı	ı	1
Audit costs: External	ı	ı	ı	ı	ı	İ	ı	ı	ı
Bursaries: Employees	28	ı	ı	28	Ĭ	28	1	27	1
Catering: Departmental		:		,	,			1	;
activities	145	(81)	İ	64	က	61	4.7%	392	381
Communication (G&S)	908	621	(20)	1,377	1,145	232	83.2%	986	877
Computer services	ı	15	1	15	12	3	%0.08	1	1

# **VOTE 35 APPROPRIATION STATEMENT**FOR THE YEAR ENDED 31 MARCH 2021

		Dete	for the year	for the year ended 31 March 2021	Detail per Programme z = Technology Innovation for the year ended 31 March 2021				
			2020/21					2019/20	0
Consultants: Business and									
advisory services	1,531	1,455	1	2,986	3,495	(609)	117.0%	2,555	2,528
Legal services	1	ı	1	ı	1	ı	ı	ı	1
Contractors	1	i	1	ı	ı	ı	ı	1,300	1,281
Agency and support/									
outsourced services	3,593	1,258	(4,250)	601	1,466	(865)	243.9%	727	655
Entertainment	562	(424)	(06)	48	Í	48	ı	172	3
Fleet services (incl.									
government motor									
transport)	ı	i	1	ı	ı	ı	1	i	1
Inventory: Clothing, material									
and accessories	1	ı	ı	ı	i	i	ı	ı	1
Inventory: Fuel, oil and gas	1	Î	ı	ı	Í	1	ı	ı	1
nventory: Material and									
supplies	1	ı	1	ı	ı	ı	1	1	1
Inventory: Other supplies									
Consumable supplies	126	(73)	I	53	ဂ	20	2.7%	40	15
Consumables: Stationery,									
printing and office supplies	ı	1	ı	1	ı	1	1	54	38
Operating leases	ı	1	ı	1	1	1	Į.	ı	1
Property payments	353	(353)	1	I	ı	ı	ı	10	10
Transport provided:	ı	ı		ı	ı	ı	ı		
Departmental activity	ı	ı	ı	I	ı	ı	ı	2	1
Travel and subsistence	1,961	(269)	(791)	601	592	o	98.5%	8,332	9,439
Training and development	ı	140	ı	140	137	ဇ	%6'26	ı	ı
Operating payments	183	(62)	ı	121	23	86	19.0%	161	137
Venues and facilities	2,571	(1,723)	(750)	86	69	29	70.4%	5,353	6,395
Rental and hiring	1	i	1	-	1	1	-	ī	-

		Deta	iil per Programi for the year	Detail per Programme 2 – Technology Innovation for the year ended 31 March 2021	igy Innovation h 2021				
			2020/21					2019/20	20
									000
ransfers and subsidies	1,313,750	•	24,725	1,338,475	1,332,630	5,845	%9.66	1,201,484	1,169,239
Departmental agencies and									
accounts	881,762	ı	28,972	910,734	1,045,352	(134,618)	114.8%	757,202	767,616
Departmental agencies	881,762	•	28,972	910,734	1,045,352	(134,618)	114.8%	757,202	767,616
Higher education institutions	1	•	•	ı	111,963	(111,963)	1	•	1
Public corporations and									
private enterprises	116,492	•	(17,892)	98,600	117,963	(19,363)	119.6%	112,672	154,378
Public corporations	116,492	•	(17,892)	98,600	113,542	(14,942)	115.2%	112,672	147,323
Subsidies on products	1	1	ı	ı	ı	Í	ı	1	1
Other transfers to									
public corporations	116,492	1	(17,892)	98,600	113,542	(14,942)	115.2%	112,672	147,323
Private enterprises	1	•	•	1	4,421	(4,421)	•	1	7,055
Other transfers to									
private enterprises	1	1	1	Î	4,421	(4,421)	ı	1	7,055
Non-profit institutions	315,496	•	13,645	329,141	57,352	271,789	17.4%	331,545	247,038
Households	1	1	ı	i	ı	Î	Ī	65	207
Social benefits	1	1	ı	i	ı	Î	Ī	65	22
Other transfers to	i			ı	1		,		750
	•	•	İ	ı	İ	ı	1	I	200
Payment for capital assets	1	•	1	•	ı	1	ı	1	1
Buildings and other fixed									
structures	1	1	1	ı	1	ı	ı	ı	I
Machinery and equipment	1	1	1	Î	Î	ı	ı	1	I
Transport equipment	1	1	ı	ı	ı	ı	ı	1	1
Other machinery and									
equipment	1	1	1	1	1	•	ı	1	1

# **VOTE 35 APPROPRIATION STATEMENT** FOR THE YEAR ENDED 31 MARCH 2021

		De	tail per Prograr for the ye	Detail per Programme 2 – Technology Innovation for the year ended 31 March 2021	ogy Innovation h 2021				
			2020/21					2019/20	20
Software and other intangible assets	1	1	ı	1	I	ı	1	1	1
Payment for financial assets	1		1	1	1	ı	ı	-	7
Total	1,378,321		18,744	1,397,065	1,379,841	17,224	%8.86	1,280,292	1,236,673

		Det	ail per Progran for the yea	Detail per Programme 2 – Technology Innovation for the year ended 31 March 2021	ogy Innovation h 2021				
			2020/21					2019/20	/20
Subprogramme: 2.1: Space Science	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final	Final appropriation	Actual expenditure
							appropriation		•
Current payments	13,297	(1,000)	•	12,297	8,086	4,211	%8′59	16,197	12,366
Compensation of employees	12,064	(2,000)	1	10,064	5,887	4,177	28.5%	11,814	096'9
Salaries and wages	10,682	(2,000)	1	8,682	5,332	3,350	61.4%	10,528	6,294
Social contributions	1,382		ı	1,382	222	827	40.2%	1,286	999
Goods and services	1,233	1,000	ı	2,233	2,199	34	98.5%	4,383	5,406
Administrative fees	95	(94)	ı	1	_	ı	100.0%	44	42
Advertising	41	(41)		i		ı	i	ဇ	ı
Minor assets	1	1	1	i	I	ı	i	1	1
Audit costs: External	1	ı	1	i	ı	ļ	İ	1	ı
Bursaries: Employees	ı	ı	ı	1	ı	ı	1	ī	ı
Catering: Departmental								10	8
activities	83	(82)	I	7	_	ı	100.0%		
Communication (G&S)	53	383		436	434	2	99.5%	181	177
Computer services			1					ı	ı
Consultants: Business and								4	ı
advisory services	148	965		1,113	1,108	5	%9.66		
Legal services	1	1	1	1	1	ļ	ı	ı	ı
Contractors	1	1	1	1	1	ļ	ı	ı	ı
Agency and support/								335	329
outsourced services	85	520	ı	605	604	~	8.66		
Entertainment	41	(41)	1	1	ı	1	ī	6	I

# **VOTE 35 APPROPRIATION STATEMENT**FOR THE YEAR ENDED 31 MARCH 2021

1
1
1
1
ı
(55)
1
1
(120)
(22)
(413)
1
- 25,700
- 25,700
- 25,700
1
1
•
1
1
1

# **VOTE 35 APPROPRIATION STATEMENT**FOR THE YEAR ENDED 31 MARCH 2021

Private enterprises	•	ı	1	1	ı	•	•	1	1
	1	1	ı	1	1	1	ı	1	Î
				ı				1	10,000
	1	Î	1	ı	ļ	ı	ı	17	14
	1	Ĩ	I	1	I	I	ı	17	14
			1	ı	ļ	ı	ı		
	1	1	ı	1	Î	Ī	ı	1	1
	1				1	1	1		•
	1	ı	I	1	ı	ļ	ı	1	1
	ı	Î	ı	ı	Î	ı	ı	1	I
	1	Î	ı	1	1	ļ	1	1	Ĩ
	1	ı	1	ı	1	ı	ı	1	Î
	I	I	ı	1	ı	ı	1	1	I
	ı	i	1	1	1	ı	1	1	1
	225,934	(1,000)	25,700	250,634	241,741	8,893	96.5%	229,078	225,244

Subprogramme 2.2: Hydrogen & Energy	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
Current payments	11,500	(1,840)	1	099'6	8,350	1,310	86.4%	11,926	10,860
Compensation of employees	8,501	1	ī	8,501	7,561	940	88.9%	8,734	7,804
Salaries and wages	7,603	I	ı	7,603	6,764	839	89.0%	7,840	7,026
Social contributions	868	I	ı	868	762	101	%8.8%	894	778
Goods and services	2,999	(1,840)	•	1,159	789	370	68.1%	3,192	3,056
Administrative fees	26	i I	1	26	_	25	3.8%	69	99
Advertising	85	I	ı	85		85	ı	36	Í
Minor assets	1	ı	I	Ī	ļ	Î	ı	1	İ
Audit costs: External	i	ı	1	İ	ı	Î	ı	1	Í
Bursaries: Employees	i	ı	1	İ	ı	Î	ı	1	Í
Catering: Departmental									
activities	21	I	I	21	1	21	ı	22	52
Communication (G&S)	215	ļ	1	215	126	89	28.6%	123	117
Computer services	1	ı	I	ı		ı	ı	1	ı
Consultants: Business and									
advisory services	664	(170)	1	494	484	10	%0.86	675	671
Legal services	ı	ı	ı	I	1	I	1	1	I
Contractors	1	ı	1	ı	ļ	Í	1	1	Í
Agency and support/									
outsourced services	832	(830)	ı	2	I	2	ı	58	17
Entertainment	8	I	ı	80	I	8	ı	8	_
Fleet services (incl.									
government motor									
transport)	1	ı	ı	ı	ı	Í	1	1	Í
Inventory: Clothing, material									
and accessories	ı	ı	I	ı	ı	ı	ı	1	ı
Inventory: Fuel, oil and gas	ı	ı	ı	ı	ı	ı	ı	1	İ

•	1	•	1	•	•	1	•	•	Households
121,469	125,054	Ī	128,937	1	128,937	•	1	128,937	Non-profit institutions
ı	ļ	1	ı	1	ı	ı	1	ı	enterprises
									Other transfers to private
ı	ı	1	ı	1	ı	ı	1	1	Private enterprises
									public corporations
42,521	ı	1	ı	ı	ı	ı	1	1	Other transfers to
ı	ı	ı	1	j	ı	ı	I	ı	Subsidies on products
42,521	Ī	ı	ļ	I	ı	ı	I	ı	Public corporations
42,521	1	ı	ļ	I	•	1	1	•	private enterprises
									Public corporations and
1	Ī	1	1	ı	ı	1	ı	•	international organisations
									Foreign governments and
ı	•	1	(28,579)	28,579	ı	•	•	•	Higher education institutions
2,000	40,946	312.5%	(100,358)	147,590	47,232	4,319	I	42,913	Departmental agencies
2,000	40,946	312.5%	(100,358)	147,590	47,232	4,319	1	42,913	accounts
									Departmental agencies and
165,990	166,000	100.0%	•	176,169	176,169	4,319	1	171,850	Transfers and subsidies
ı	ı	1	Î	ı	1	ı	Ī	1	Rental and hiring
213	216	95.2%	2	40	42	1	(320)	362	Venues and facilities
2	5	1.0%	66	_	100	ı		100	Operating payments
ı	ı	%6'26	3	137	140	ı	140	1	Training and development
1,916	1,926	ı	4		4	ı	(099)	664	Travel and subsistence
ı	ı	ı	ı	ı	ı	ı	I	1	Property payments
ı	ı	ı	ı	ı	ı	ı	I	1	Operating leases
ı	1	ı	ı	ı	ı	ı	I	ı	printing and office supplies
									Consumables: Stationery,
_	21	ı	22	ı	22	ı	I	22	Consumable supplies
ı	1	ı	ı	ı	ı	ı	I	ı	Inventory: Other supplies
ı	1	ı	ı	ı	ı	ı	I	ı	snpplies
									Inventory: Material and

# **VOTE 35 APPROPRIATION STATEMENT**FOR THE YEAR ENDED 31 MARCH 2021

	•	•							
Social benefit	ı	1	1	1	ļ	1	1	1	1
Other transfers to									
households	1	I	ı	1	Î	ı	ı	ı	1
Payment for capital assets	•	1	1	•	•	1	1	1	1
Buildings and other fixed									
structures	ı	1	1	ı	İ	1	1	1	1
Machinery and equipment	1	I	ı	1	Î	ı	ı	ı	1
Transport equipment	ı	ı	1	i	Î	ı	1	1	1
Other machinery and									
equipment	ı	1	1	i	Î	1	1	1	ı
Software and other intangible									
assets	ı	I	1	I	I	ı	1	1	ı
Payment for financial assets	1	Ţ	i	1	1	I	ı	_	_
Total	183,350	(1,840)	4,319	185,829	184,519	1,310	%2'66	177,927	176,851

Subprogramme:	Adjusted	Shifting of	Virement	Final	Actual	Variance	Expenditure	Final	Actual
2.3: Bio-economy	appropriation	funds		appropriation	expenditure		as % of final appropriation	appropriation	expenditure
Current payments	14,556	2,840	(3,000)	14,396	14,113	283	%0'86	20,866	18,185
Compensation of employees	11,732	2,000	1 1	13,732	12,361	1,371	%0.06	15,018	12,450
Salaries and wages	10,055	2,000	1	12,055	11,172	883	92.7%	13,458	11,249
Social contributions	1,677	I	1	1,677	1,189	488	%6:02	1,560	1,201
Goods and services	2,824	840	(3,000)	664	1,752	(1,088)	263.9%	5,848	5,735
Administrative fees	92	1	1	92	I	92	1	126	123
Advertising	39	ı	ı	39	ı	39	1	1,507	1,500
Minor assets	1	ı	ı	1	I	i	ı	1	ı
Audit costs: External	1	ı	ı	ı	I	Ī	1	ı	i
Bursaries: Employees	28	ı	ı	28	I	28	ı	27	ı
Catering: Departmental	ı	ı	I		I				
activities	36			36		36	1	39	36
Communication (G&S)	331	Ī	ļ	331	195	136	28.9%	209	193
Computer services	ı	I	ı	ı	1	Ī	1	ı	i
Consultants: Business and	ı	1	I						
advisory services	325	1	1	325	891	(296)	274.2%	693	989
Legal services	1	1	1	ı	ı	Î	1	ı	ı
Contractors	1	Į	Į	1	ı	i	ı	1	ı
Agency and support/									
outsourced services	991	1,698	(3,000)	(311)	999	(877)	(182.0%)	220	216
Entertainment	38	ı	ı	38	ı	38	ı	36	ı
Fleet services (incl.									
government motor									
transport)	1	ı	ı	1	ı	i	ı	1	ı
Inventory: Clothing, material	ļ	ļ	ļ	,	I	ı	1	,	ı
		•		I.		-		1	1

Inventory: Fuel, oil and gas	ī	,	1	1	ī	1		ī	1
Inventory: Material and									
Supplies	1	ı	ı	1	ı	ı	1	ı	ı
Inventory: Other supplies	1	Í	1	ı	i	ı	Í	ı	ı
Consumable supplies	22	(20)	ı	2	2	ı	100.0%	က	2
Consumables: Stationery,									
printing and office supplies	1	ı	1	1	ı	ı	ı	_	~
Operating leases	I	Î	ı	ı	İ	ı	1	ı	ı
Property payments	I		ı					10	10
Travel and subsistence	265	(170)	ı	95	93	2	%6'.26	1,981	1,975
Training and development	1		1	ı		ı	Í	ı	ı
Operating payments	55	(20)	1	5	5	ı	100.0%	17	15
Venues and facilities	618	(618)	ī	ı	ı	ı	i	979	978
Rental and hiring	ı	I	ı	ı	I	ı	i	1	İ
: - -	,			,		,	,		
I ransfers and subsidies	190,107	•	23,645	213,752	212,884	898	%9.66	208,351	176,691
Departmental agencies and									
accounts	46,011	1	10,000	56,011	162,893	(106,882)	290.8%	43,010	109,766
Departmental agencies	46,011	ı	10,000	56,011	162,893	(106,882)	290.8%	43,010	109,766
Higher education institutions	ı	ī	ı	1	24,215	(24,215)	•	1	1
Foreign governments and									
international organisations	1	ı	ı	ı	1	1	I	J	1
Public corporations and									
private enterprises	•	•	1	1	2,000	(2,000)	•	•	14,730
Public corporations	•	ī	ī	1	2,000	(2,000)	•	1	10,300
Subsidies on products	1	Î	ı	1			ı	1	ı
Other transfers to									
public corporations	1	Í	ı	1	2,000	(2,000)	ı	ı	10,300
Private enterprises	1	Í	ı	1	ļ	į	ı	J	4,430
Other transfers to private									
enterprises	1	ı	ı	1	ı	ı	1	ı	4,430
Non-profit institutions	144,096	ı	13,645	157,741	23,776	133,965	15.1%	165,307	52,165

# **VOTE 35 APPROPRIATION STATEMENT**FOR THE YEAR ENDED 31 MARCH 2021

Households	-	•	ı	ı		1	1	34	30
Social benefit	i	1	1	ı	ı	I	I	34	30
Other transfers to									
households	ı	ı	ı	ı	ı	ı	ı	ı	1
Payment for capital assets	•	1	1	1	•	Ī	•	•	•
Buildings and other fixed									
structures	ı	ı	I	1	I	Ī	ı	Ī	1
Machinery and equipment	1	1	1	ı	1	į	Ī	1	1
Transport equipment	ı	ı	ı	1	ļ	ı	ı	ı	ı
Other machinery and									
equipment	1	ı	ı	1	1	I	Î	ı	1
Software and other intangible									
assets	1	ı	ı	1	1	I	I	ı	1
Payment for financial assets	•	-	_	-	-	1	1	-	1
Total	204,663	2,840	20,645	228,148	226,997	1,151	99.5%	229,217	194,876

Subprogramme: 2.4 Innovation Priorities and Instrument	Adjusted	Shifting of funds	Virement	Final	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
Current payments	9,466	ı	(2,181)	7,285	4,191	3,094	57.5%	9,434	5,069
Compensation of employees	6,772	1 !	1 1	6,772	3,723	3,049	22.0%	6,958	2,770
Salaries and wages	5,046	I	1	5,046	3,308	1,738	65.6%	5,352	2,446
Social contributions	1,726	1	1	1,726	415	1,311	24.0%	1,606	324
Goods and services	2,694	1 1	(2,181)	513	468	45	91.2%	2,476	2,299
Administrative fees		Î	Ţ	ı	I	ı	ı	7	2
Advertising	57	(57)	ı	ı	ļ	1	1	45	
Minor assets	1	I	1	1	ı	1	1	ı	ı
Audit costs: External	ı	1	ı	ı	ļ	1	1	ı	1
Bursaries: Employees	ı	1	ı	ı	ļ	1	1	ı	1
Catering: Departmental									
activities	4	ı	1	4	ı	4	ı	6	7
Communication (G&S)	14	89	I	82	82	1	100.0%	78	73
Computer services	ı	1	1	ı	1	1	ı	1	1
Consultants: Business and			ı						
advisory services	ı	425	ı	425	386	39	%8'06	ı	ı
Legal services					1				
Contractors	1	I	ı	ı	ı	1	ı	ı	ı
Agency and support/									
outsourced services	922	(22)	(006)	ı	ı	ı	ı	4	ı
Entertainment	459	(367)	(06)	2	ı	2	ı	104	~
Fleet services (incl.									
government motor									
transport)	ı	I	1	1	1	1	ı	1	ı
Inventory: Clothing, material									
and accessories	Ī	ı	ı	Ī	ı	1	ı	1	ı
Inventory: Fuel, oil and gas	1	I	I	1	ı	ı	I	ı	1

Г	ı	1	1		1	1	1	212		_	00	1	35		37	37	,		20	20			20	•		,	35	3	13
								2.			2,000		572,995		455,7	455,797			81,150	81,150			81,150				36,035		
	1	ı	1		1	ı	1	217	1	9	2,006	ı	573,068		460,382	460,382	į		112,672	112,672			112,672	•		į	1	14	14
	ı	ı	ı		ı	ı	ı	i	ı	i	i	ı	100.0%		93.8%	93.8%	ı		85.1%	85.1%			85.1%	•		ı	1	ı	1
	1	1	ı		1	1	1	I	ī	ı	ı	I			35,329	35,329	(18,100)		14,717	14,717			14,717	1		İ	(31,946)	Î	j
	ı	ı	ı		1	ı	1	Ì	ı	ı	ı	İ	667,754		533,825	533,825	18,100		83,883	83,883			83,883	•		ı	31,946	I	ı
	1	1	1		1	1	1	ı	ı	ı	ı	ı	667,754		569,154	569,154	1		98,600	98,600			98,600	1		1	•	1	1
	ı	Î	İ		Ĩ	İ	Ĩ	(791)			(400)	I	(28,939)		(11,047)	(11,047)	Î		(17,892)	(17,892)			(17,892)	ī		Î	Î	ı	1
	ı	I	ı		Ī	ı	Ī	20		(9)	(61)	I	•		1	ı	İ		ı	ı			ı	ı		İ	1	Ì	Ī
	I	1	ı		ī	1	ī	771	1	9	461	ı	696,693		580,201	580,201	ı		116,492	116,492			116,492	1		1	ı	1	ı
Inventory: Material and	supplies	Inventory: Other supplies	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	Transfers and subsidies	Departmental agencies and	accounts	Departmental agencies	Higher education institutions	Public corporations and	private enterprises	Public corporations	Subsidies on products	Other transfers to	public corporations	Private enterprises	Other transfers to private	Enterprises	Non-profit institutions	Households	Social benefits

# **VOTE 35 APPROPRIATION STATEMENT** FOR THE YEAR ENDED 31 MARCH 2021

578,064	582,502	99.5%	3,094	671,945	675,039	(31,120)		706,159	Total
1		1	1	1	1	1	1	1	rayment for imancial assets
1	•	1	ı	ı	1	1	ı	1	assets
									Software and other intangible
1	' 	ı	ı	ı	1	1	ı	1	equipment
									Other machinery and
1		1	ı	ļ	1	!	1	1	Transport equipment
1		1	ı	ļ	1	!	1	1	Machinery and equipment
1	'	ı	1	ı	1	1	ı	1	structures
									Buildings and other fixed
1	•	•	1	1	•	•	1	•	Payment for capital assets
1	•								households
		ı	1	1	1	1	ı	ı	Other transfers to

# **VOTE 35 APPROPRIATION STATEMENT** FOR THE YEAR ENDED 31 MARCH 2021

Subprogramme: 2.5: National Intellectual Property Management Office	Adjusted appropriation	Shifting of funds	Virement	Final	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
Current payments	11,773	(450)	(200)	11,123	8,853	2,270	%9:62	13,723	14,561
Compensation of employees	9,928	(450)	ı	9,478	7,229	2,249	76.3%	10,199	9,934
Salaries and wages	7,740	ı	1	7,740	6,393	1,347	82.6%	8,984	8,850
Social contributions	2,188	(420)	ı	1,738	836	905	48.1%	1,215	1,084
Goods and services	1,845	i	(200)	1,645	1,624	21	%2'86	3,524	4,627
Administrative fees	16	(5)	I	17	1	7	1	100	96
Advertising	5	(5)	I	ı	ı	ı	ı	5	ı
Minor assets	1	1	ı	ı	ı	1	1	1	ı
Audit costs: External	1	I	I	ı	1	1	ı	i	ı
Bursaries: Employees	1	I	ı	ı	1	1	ı	i	ı
Catering: Departmental									
activities	_	_	1	2	2	I	100.0%	271	270
Communication (G&S)	103	170	1	273	269	4	98.5%	263	261
Computer services	1	15	I	15	12	ဂ	80.0%	i	ı
Consultants: Business and			I						
advisory services	394	235		629	626	က	99.5%	1,183	1,171
Legal services	ı	ı	ı	ı	ı	ī	ı	ı	ı
Contractors	ı	1	ı	ı	1	1	1	1	1
Agency and support/	1	1	I	1	1	ı			
outsourced services	404	(108)	I	296	296	1	100.0%	4	ı
Entertainment	16	(16)	1	ı	1	1	ı	15	_
Fleet services (incl.									
government motor									
transport)	ı	1	1	Ī	1	ı	1	1	1
Inventory: Clothing, material									
and accessories	1	1	1	-	1	1	1	1	ı

1		1	I			36	1	I			2,102	I	96	585		40,685		2,189	2,189	1		Î		10,977	8,352	I		8,352	2,625		2,625
1		1	1	15		20	i	1		2	925	İ	100	591		41,184		ı		ı		ı		1	1	1		İ	1		1
1		ı	ı	ı		ı	i	ı	ı	100.0%	i	100.0%	100.0%	ı		%8'66		ı	ı	ı		ı			ı	ı		ı	ı		1
1		I	1	ı		ı	1	1	1	1	1	ı	1	1		295		(3,646)	(3,646)	(27,412)		1		(9,480)	(5,059)	1		(5,059)	(4,421)		(4,421)
1		1	I	I		I	1	I	I	374	1	16	29	Î		42,168		3,646	3,646	27,412		I		9,480	5,059	I		5,059	4,421		4,421
1		ı	ı	ı		ı	ı	ı	ı	374	ı	16	29	ı		42,463		•	ı	•		1		•	•	ı		ı	•		1
1		ı	ı	1		ı	ı	ı	ı	ı	ı	ı	(200)	ı		•		•	ı	•		I		•	•	ı		ı	•		1
1		ı	ı	ı		ı	1	(353)		318	1	16	(268)	(353)		•		•	ı	•		1		1	•	ı		ı	ı		1
1		1	1	1		•	•	353	1	56	•	1	497	353		42,463		•	1	•		1		•	•	1		1	•		1
Inventory: Fuel, oil and gas	Inventory: Material and	supplies	Inventory: Other supplies	Consumable supplies	Consumables: Stationery,	printing and office supplies	Operating leases	Property payments	Transport provided:	Departmental activity	Travel and subsistence	Training and development	Operating payments	Venues and facilities	Rental and hiring	Transfers and subsidies	Departmental agencies and	accounts	Departmental agencies	Higher education institutions	Foreign governments and	international organisations	Public corporations and	private enterprises	Public corporations	Subsidies on products	Other transfers to	public corporations	Private enterprises	Other transfers to	private enterprises

Non-profit institutions	42,463	•		42,463	1,630	40,833	3.8%	41,184	27,369
Households	Ī	1	1	1	Î	ı	Î	ı	150
Social benefits	İ	Î	ı	1	Î	ı	ī	1	1
Other transfers to									
households	i	İ	ı	1	Î	İ	ı	1	150
Payment for capital assets	ı	•	1	I	İ	ı	•	•	1
Buildings and other fixed									
structures	i	Î	ı	ı	ı	Î	Í	Î	ı
Machinery and equipment	I	1	Î	I	I	Î	Ī	1	1
Transport equipment	Ì	Î	1	ı	1	Î	Î	Ĩ	1
Other machinery and									
equipment	Ì	Î	ı	I	1	Î	Î	Î	1
Software and other intangible									
assets	i	Î	1	ı	ī	ı	ı	ı	ı
Payment for financial assets	ı	İ	-	1	ı	ı	ı	i	ı
Total	54,236	(450)	(200)	53,586	51,021	2,565	95.2%	54,907	55,246

Subprogramme: 2.6: Office of the DDG: Technology Innovation	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
Current payments	3,979	450	(009)	3,829	3,618	211	94.5%	6,661	6,392
Compensation of employees	3,215	450	•	3,665	3,502	163	92.6%	4,021	3,906
Salaries and wages	2,895	350	İ	3,245	3,099	146	95.5%	3,599	3,514
Social contributions	320	100	1	420	403	17	%0.96	422	392
Goods and services	764	1	(009)	164	116	48	70.7%	2,640	2,486
Administrative fees	09	(2)	(20)	80	_	7	12.5%	09	19
Advertising	1	1	Ì	1	ı	1	Î	1	1
Minor assets	1	ı	ı	ı	ı	ı	1	ı	1
Audit costs: External	1	ı	ı	ı	ı	ı	1	ı	1
Bursaries: Employees	ı	Ī	Ì	ı	Ī	I	Î	1	1
Catering: Departmental									
activities	ı	ı	Ì	1	ı	1	Ì	8	80
Communication (G&S)	06		(20)	40	39	_	97.5%	82	99
Computer services	I	1	İ	ı	1	1	Î	ı	ı
Consultants: Business and									
advisory services	1	Ī	ı	I	I	I	ı	ı	1
Legal services	I	1	İ	ı	1	1	Î	ı	ı
Contractors	ı	ı	İ	ı	ı	I	Î	1,300	1,281
Agency and support/									
outsourced services	359	Ī	(320)	6	Ī	6	ı	106	93
Entertainment	I	1	İ	ı	1	1	Î	ı	1
Fleet services (incl.									
government motor									
transport)	1	ı	Ì	1	1	1	Î	1	1
Inventory: Clothing, material									
and accessories	-	1	1	1	1	1	1	1	1

_																																
'		1	1	ı		_	Ī	ı		ı	1,013	I	_	14	I	ı		ı		ı	ı	I		ı		ı	I	ı		ı		ı
ı		ļ	1	Ţ		က	ı	Ţ		ı	1,061	ı	3	17	ı	ı		l		1	ı	I		l		ı	ı	ı		ı		1
1			I	%0.03	I		ı	I	1	1	%2'96			ı	ı	I		ı		1	ı	ı		ı		ı	1	ı		ı		ı
1																1		1				ı		1		ı	1	ı		ı		1
•		ı	Ī	~	Ī		I	Ī	1	1	75			I	Ī	1		ı		ı	ı	ı		ı		ı	I	ı		ı		1
1		ı	1	2	ı		ļ	I	1	1	78			27	ļ	ı		ı		1	ı	ı		ı		ı	ı	ı		ı		ı
1		1	I	1	Î		Í	Î	Î	Î	ı			(150)	Î	1		Î		ı	ı	ı		Î		ı	I	ı		ı		ı
1		Î	Ī	7	Î		Í	ı	Î	Î	43			(43)	Î	1		İ		I	ı	İ		İ		ı	I	ı		ı		ı
1		1	ı	1	ı		ı	1	1	1	35			220	İ	1		Ī		Ī	Ī	ı		Ī		Ī	ı	Ī		Ī		1
Inventory: Fuel, oil and gas	Inventory: Material and	snpplies	Inventory: Other supplies	Consumable supplies	Consumables: Stationery,	printing and office supplies	Operating leases	Property payments	Transport provided:	Departmental activity	Travel and subsistence	Training and development	Operating payments	Venues and facilities	Rental and hiring		Transfers and subsidies	Departmental agencies and	accounts	Departmental agencies	Higher education institutions	Foreign governments and	international organisations	Public corporations and	private enterprises	Public corporations	Subsidies on products	Other transfers to	public corporations	Private enterprises	Other transfers to	private enterprises

1	Î	ı	Ī		Ī		Î		Ī	Î	Ī		Ī	ı	ı	6,392
1	Í	Î	Î		Î		Í		Î	Î	Î		Î	I	-	6,661
1	•	ı		ı		ı			ı	ı		ı		İ	ı	94.5%
1	•	ı		ı		1		ı	ı	ı		ı		ı	ı	211
1	•	ı		ı		1		ı	ı	ı		ı		ı	_	3,618
ı	ı	I		ı		•		I	I	1		I		ı	ı	3,829
ı	ī	1		ı		ı		1	1	ı		1		ı	1	(009)
ı	1	I		ı		ı		I	I	ı		I		ı	I	450
ı	•	ı		1		•		ı	ı	1		ı		ı	1	3,979
Non-profit institutions	Households	Social benefits	Other transfers to	households		Payment for capital assets	Buildings and other fixed	structures	Machinery and equipment	Transport equipment	Other machinery and	equipment	Software and other intangible	assets	Payment for financial assets	Total

		Detail per P	rogramme 3 – I for the ye	Detail per Programme 3 – International Cooperation and Resources for the year ended 31 March 2021	peration and R ch 2021	esources			
			2020/21					2019/20	/20
Subprogramme	Adjusted	Shifting of	Virement	Final	Actual	Variance	Expenditure	Final	Actual
	appropriation	funds		appropriation	expenditure		as % of final appropriation	appropriation	expenditure
	R'000	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000
3.1 Multilateral Cooperation and Africa	27,551	1	ı	27,551	26,395	1,156	95.8%	32,674	30,500
3.2 International Resources	56,601	1	2,000	58,601	57,667	934	98.4%	65,841	61,488
3.3 Overseas Bilateral Cooperation 3.4 Office of the DDG:	28,374	(1,900)	200	26,974	24,393	2,581	90.4%	43,713	37,374
International Cooperation and Resources	4,276	1,900	1	6,176	5,774	402	93.5%	6,903	6,665
Total	116,802	•	2,500	119,302	114,229	5,073	95.7%	149,131	136,027

Economic classification									
Current payments	57,101	ı	379	57,480	51,947	5,533	90.4%	77,033	68,148
Compensation of employees	53,805	•	•	53,805	47,315	6,490	84.9%	58,456	48,357
Salaries and wages	47,881	(200)	i	47,681	42,501	5,180	89.1%	52,705	43,338
Social contributions	5,924	200	1	6,124	4,814	1,310	78.6%	5,751	5,019
Goods and services	3,296	•	379	3,675	4,632	(957)	126.0%	18,577	19,791
Administrative fees	196	(17)	i	179	80	171	4.5%	462	395
Advertising	424	(06)	(83)	251	1	251	ī	231	ı
Minor assets	15	1	1	15	ı	15	1	15	1

Economic classification									
Audit costs: External	-	,	1	1	1	·	1	1	1
Bursaries: Employees	ı	ı	ı	ı	ı	ı	ı	1	ı
Catering: Departmental								388	274
activities	412	(115)	i	297	ဇ	294	1.0%		
Communication (G&S)	611	352	462	1,425	1,905	(480)	133.7%	1,117	1,098
Computer services	204	Í	i	204	23	181	11.3%	173	13
Consultants: Business and								62	ı
advisory services	117	Î	ī	117	ı	117	ı	ı	ī
Legal services	ı	ı	ı	ı	ı	ı	ı	ı	ı
Contractors	1	ı	ı	ı	1	1	ı	110	10
Agency and support/	1	İ	Î	ı	I	I	ı	112	106
outsourced services	72	Î	1	72	1	72	ı	1	i
Entertainment	424	(130)	i	294	17	277	2.8%	251	169
Fleet services (incl.									
government motor									
transport)	ı	İ	1	ı	1	ı	ı	ı	Ī
Inventory: Clothing, material									
and accessories	1	Í	ı	1	1	İ	ı	1	Í
Inventory: Fuel, oil and gas	ı	Î	1	ı	1	1	ı	1	i
Inventory: Material and									
snpplies	1	ı	ı	ı	ı	ı	1	1	ı
Inventory: Medical supplies	ı	Í	ı	ı	ı	1	ı	ı	Í
Inventory: Other supplies	ı	Í	ı	ı	ı	1	ı	ı	Í
Consumable supplies	26	~	ı	22	2	55	3.5%	20	13
Consumables: Stationery,								23	29
printing and office supplies	က	ı	ı	က	4	(1)	133.3%		
Operating leases	ı	ı	ı	ı	ı	ı	ı	ı	ı
Property payments	40	ı	ı	40	ı	40	ı		ı
Transport provided:								4	ı
Departmental activity	I	I	ı	ı	I	ı	1	ı	ı
Travel and subsistence	336	65	ı	401	1,333	(932)	332.4%	6,419	8,304

Economic classification									
Training and development	1	1	1	1	523	(523)	1	831	1
Operating payments	267	(2)	1	266	475	(203)	178.6%	2.599	2.727
Venues and facilities	119	(65)	1	54	96	(42)	177.8%	5,713	6.454
Rental and hiring	1		ı	. 1	243	(243)	) I	) 1	199
Transfers and subsidies	201		0 0 0	7.1	200.00	(460)	700	2000	020 23
Denartmental agencies and	107,80	1	2,070	177,10	162,20	(400)	0/ 1.001	7,030	670,10
accounts	11.350		1	11.350	35.296	(23.946)	311.0%	15.952	34.155
Departmental agencies	11.350	ı	1	11.350	35.296	(23.946)	311.0%	15,952	34.155
Higher education institutions		1	•		11,307	(11,307)	•		
Foreign governments and					,				
international organisations	1	1	1	1	1	ı	1	Ī	1
Public corporations and									
private enterprises	•	1	1	ı	6,442	(6,442)	1	1	8,685
Public corporations	•	1	1	•	3,178	(3,178)	•	1	8,016
Other transfers to public						•			
corporations	ı	ı	1	ı	3,178	(3,178)	i	i	8,016
Private enterprises	•	1	•	1	3,264	(3,264)	•	1	699
Other transfers to private									
enterprises	ı	ı	I	ı	3,264	(3,264)	ı	ı	699
Non-profit institutions	48,351	1	2,000	50,351	9,119	41,232	18.1%	56,023	24,814
Households	•	1	70	70	29	က	92.7%	123	225
Social benefits	1	1	70	70	29	က	92.7%	123	225
Other transfers to									
households	1	1	1	1	ı	1	ı	ı	Í
Payment for capital assets	ı	ı	ı	1	ı	I	ı	1	1
Confidence of the Confidence									
buildings and other lixed structures	ı	ļ	ī	I	1	ı	ı	ı	1
Machinery and equipment	1	1	1	1	1	1	ı	1	
Transport equipment	ı	ı	1	1	1	1	1	1	I

Economic classification									
Other machinery and									
equipment	1	ı	ı	1	1	ı	1	1	ı
Software and other intangible									
assets	1	1	1	1	1	1	1	1	ı
Payment for financial assets	•	1	51	51	51	•	100.0%	-	•
Total	116,802	•	2,500	119,302	114,229	5,073	92.7%	149,131	136,027

Subprogramme: 3.1: Multilateral Co-operation and Africa	Adjusted	Shifting of funds	Virement	Final	Actual expenditure	Variance	Expenditure as % of final appropriation	Final	Actual expenditure
Current payments	17,200		(83)	17,117	15,964	1,153	93.3%	22,660	22,468
Compensation of employees	16,120	1	•	16,120	15,245	875	94.6%	16,645	16,557
Salaries and wages	14,157	ı	1	14,157	13,532	625	92.6%	14,794	14,709
Social contributions	1,963	İ	ı	1,963	1,713	250	87.3%	1,851	1,848
Goods and services	1,080	•	(83)	266	719	278	72.1%	6,015	5,911
Administrative fees	46	(17)	1	29	~	28	3.4%	289	282
Advertising	178	(06)	(83)	5	ı	5	I	4	ı
Minor assets	ı	ı	ı	ı	ı	ı	ı	ı	ı
Audit costs: External	1	1	1	1	ı	ı	1	1	ı
Bursaries: Employees	ı	1	1	1	1	ı	1	1	1
Catering: Departmental									
activities	124	(115)	ı	6	က	9	33.3%	118	112
Communication (G&S)	109	352	ı	461	459	2	%9.66	328	327
Computer services	39	1	1	39	1	39	ı	2	1
Consultants: Business and									
advisory services	1	ı	I	1	ı	ı	1	I	ı
Legal services	1	1	1	1	1	1	I	1	ı
Contractors	1	1	1	1	1	1	I	10	10
Agency and support/									
outsourced services	ı	1	1	1	1	ı	1	1	1
Entertainment	131	(130)	1	_	1		1	32	2
Fleet services (incl.									
government motor									
transport)	ı	ı	1	ı	ı	ı	I	ı	ı
Inventory: Clothing, material									
and accessories	ı	ı	ı	ı	ı	ı	ı	ı	ı
Inventory: Fuel, oil and gas	-	1	I	1	1	-	1	1	1

Lac longitude Matterial									
velitory. Material and									
supplies	ı	1	ı	1	ı	1	ı	1	1
Inventory: Other supplies	Ī	ı	1	I	1	1	1	1	ı
Consumable supplies	27	~	1	28	~	27	3.6%	24	4
Consumables: Stationery,									
printing and office supplies	1	1	1	1	1	Í	1	2	_
Operating leases	1	ı	1	I	ı	Í	ı	ı	ı
Property payments	ı	I	1	1	ı	Î	1	ı	1
Travel and subsistence	164	65	1	229	229	ı	100.0%	3,093	3,074
Training and development									1
Operating payments	197	(1)	ı	196	26	170	13.3%	1,115	1,109
Venues and facilities	65	(65)	1	1	ı	Î	1	866	066
Rental and hiring									
Transfers and subsidies	10,351	1	70	10,421	10,418	က	100.0%	10,014	8,032
Departmental agencies and									
accounts	•	1	•	1	6,764	(6,764)	1	•	•
Departmental agencies	1	1	1	1	6,764	(6,764)	1	1	1
Higher education institutions	•	1	•	1	602	(602)	•	1	•
Public corporations and									
private enterprises	1	1	ı	1	2,785	(2,785)	ı	1	4,380
Public corporations	ı	I	1	1	2,785	(2,785)	1	ı	4,380
Subsidies on products	ı	I	1	1			1	ı	
Other transfers to									
public corporations	1	1	ī	1	2,785	(2,785)	ı	1	4,380
Private enterprises	1	•	1	•	1	ı	•	1	•
Other transfers to private									
enterprises	1	ı	1	i	1	ı	1	1	1
Non-profit institutions	10,351	1	•	10,351	200	10,151	1.9%	10,014	3,652
Households	•	1	70	70	29	က	%2'56	•	•
Social benefit	I	1	70	70	29	ဂ	92.7%	ı	1
Other transfers to									
nousenoids	1	1	1	1	-	1	1	-	-

Payment for capital assets	•	•	•	•	1	1	•	•	•
Buildings and other fixed									
structures	1	Î	ı	i	1	Î	1	1	i
Machinery and equipment	ı	I	ı	1	I	I	ı	ı	1
Transport equipment	1	Ì	ı	1	I	1	ı	ı	1
Other machinery and									
equipment	ı	ı	ı	I	ı	1	ı	1	1
Software and other intangible									
assets	Î	I	ı	1	1	1	Î	ı	ı
Payment for financial assets		1	13	13	13	•	100.0%		'
Total	27,551	•	-	27,551	26,395	1,156	95.8%	32,674	30,500

Subprogramme: 3.2 International Resources	Adjusted appropriatio n	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
Current payments	18,601	1 1	(38)	18,563	16,531	2,032	89.1%	19,724	17,612
Compensation of employees	17,157	1 1	1	17,157	14,599	2,558	85.1%	16,108	14,072
Salaries and wages	15,271	ı	1	15,271	13,361	1,910	87.5%	14,354	12,739
Social contributions	1,886	I	ı	1,886	1,238	648	%9'59	1,754	1,333
Goods and services	1,444	ı	(38)	1,406	1,932	(526)	137.4%	3,616	3,540
Administrative fees	117	İ	ı	117	7	110	%0.9	111	99
Advertising	236	I	ı	236		236	i	224	ı
Minor assets	ı	İ	ı	1	İ	I	1	1	ı
Audit costs: External	ı	I	1	ı	I	ı	1	ı	ı
Bursaries: Employees	ļ	1	ı	1	ı	1	1	ı	ı
Catering: Departmental		İ	1						
activities	217	Î	I	217	İ	217	1	206	66
Communication (G&S)	332	Î	(38)	294	421	(127)	143.2%	450	448
Computer services	165	Ĭ	1	165	80	157	4.8%	156	_
Consultants: Business and		ı	I						
advisory services	80			80	Î	80	ı	92	ı
Legal services	ı	İ	ı	1	ı	1	1	ı	ı
Contractors	ļ	Ĭ	1	1	ı	1	1	ı	ı
Agency and support/		İ	ı						
outsourced services	25	Î	ı	25	Ī	25	1	109	106
Entertainment	222	Ĭ	1	222	17	205	7.7%	208	73
Fleet services (incl.									
government motor									
transport)	ı	İ	I	ı	ı	ı	ı	ı	ı
Inventory: Clothing, material									
and accessories	ı	ı	ı	ı	ı	ı	ı	ı	ı
Inventory: Fuel, oil and gas	-	1	-	_	-	=	-	-	ı

Inventory: Material and									
supplies	1	I	ı	1	Ī	ı	ı	ı	ı
Inventory: Other supplies	1	ı	ı	1	Î	ı	ı	1	ı
Consumable supplies	18	Î	1	18	~	17	2.6%	17	8
Consumables: Stationery,									
printing and office supplies	ı	ı	ı	ı	ı	ı	ı	18	15
Operating leases	ı	ı	I	I	I	I	ı	1	ļ
Property payments	ı	ı	I	I	I	I	ı	1	ı
Travel and subsistence	22	ı	I	22	618	(296)	2809.1%	686	2,162
Training and development		ı	ı	1	523	(523)	1	ı	ļ
Operating payments	1	ı	ı	1		ı	ı	95	178
Venues and facilities	10	ı	ı	10	94	(84)	940.0%	296	200
Rental and hiring	1	İ	1	ı	239	(239)	1	1	199
Transfers and subsidies	38,000	1	2,000	40,000	41,098	(1,098)	102.7%	46,117	43,876
Departmental agencies and									
accounts	1	ı	•	•	25,949	(25,949)	•	•	18,279
Departmental agencies	ı	1	1	1	25,949	(25,949)	ı	1	18,279
Higher education institutions	1	ı	•	1	6,356	(6,356)	•	1	•
Foreign governments and									
international organisations	ı	ı	1	ı	I	1	ī	ı	1
Public corporations and									
private enterprises	ı	1	1	ı	3,657	(3,657)	I	ı	4,305
Public corporations	ı	ı	1	ı	393	(393)	I	ı	3,636
Subsidies on products	1	ı	ı	1	1	•	ı	1	
Other transfers to									
public corporations	ı	ı	1	ı	393	(393)	I	ı	3,636
Private enterprises	1	Î	ı	ı	3,264	(3,264)	1	1	699
Other transfers to									
private enterprises	1	r	1	ī	3,264	(3,264)	I	1	699
Non-profit institutions	38,000	1	2,000	40,000	5,136	34,864	12.8%	46,009	21,162
Households	1	1	•	1	1	•	•	108	130
Social benefits	•	1	•		1	•	•	108	130

Payment for capital assets Buildings and other fixed structures Machinery and equipment Transport equipment Other machinery and	ı									
r capital assets and other fixed / and equipment ort equipment		1	1	ı	I	I	ı	ı	ī	
r capital assets and other fixed / and equipment ort equipment										
and other fixed  / and equipment ort equipment nachinery and	•	•			•	1	•	•	ı	
/ and equipment ort equipment nachinery and										
r and equipment ort equipment nachinery and	1	1	ı	ı	ı	I	ı	1	Î	
ort equipment nachinery and	ı	1	1	1	1	1	ı	1	Ĩ	
machinery and	1	1	1	1	1	1	ı	ı	İ	
ednibment	ı	1	1	1	1	1	1	1	i	
Software and other intangible										
	1	1	į	1	1	Î	1	1	1	
Payment for financial assets	•	•	38	38	38	1	100.0%	1	Î	
					!		, , , ,			
56,601	0.1	•	2,000	58,601	27,667	934	98.4%	65,841	61,488	

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
Current payments	17,024	(1,900)	200	15,624	13,678	1,946	87.5%	27,746	21,403
Compensation of employees	16,556	(1,900)	1 1	14,656	11,782	2,874	80.4%	19,943	12,075
Salaries and wages	14,876	(1,900)	I	12,976	10,467	2,509	80.7%	18,380	10,768
Social contributions	1,680	I	ı	1,680	1,315	365	78.3%	1,563	1,307
Goods and services	468		200	896	1,896	(928)	195.9%	7,803	9,328
Administrative fees	19	I	I	19	İ	19	1	48	44
Advertising	10	I	I	10	İ	10	1	3	1
Minor assets	ı	ı	Î	1	Î	ı	1	ı	1
Audit costs: External	ı	I	ı	1	Î	ı	1	ı	ı
Bursaries: Employees	ı	I	ı	1	Î	ı	1	ı	ı
Catering: Departmental									
activities	46	1	ı	46	ı	46	ı	39	36
Communication (G&S)	80	I	200	580	951	(371)	164.0%	249	246
Computer services	1	1	İ	ı	15	(15)	ı	15	12
Consultants: Business and									
advisory services	37	I	Î	37	ļ	37	ı	3	1
Legal services	1	I	I		ļ				
Contractors	ı	1	ı	ı	Ī	ı	ı	ı	ı
Agency and support/									
outsourced services	47	ı	ı	47	Ī	47	1	8	ı
Entertainment	69	1	ı	69	İ	69	1	6	ဇ
Fleet services (incl.									
government motor									
transport)	ı	I	I	ı	Î	ı	ı	ı	1
Inventory: Clothing, material									
and accessories	-	1	1	1	1	1	1	1	1

Inventory: Fuel, oil and gas	1	1	1	1	1	1	1	•	1
Inventory: Material and									
supplies	ı	ı	1	ī	ı	ı	1	ı	Î
Inventory: Medical supplies	ı	ļ	ı	1	ı	i	ı	1	Í
Inventory: Other supplies	ı	ļ	ı	1	ı	i	ı	1	Í
Consumable supplies	80			80		80	ı	9	2
Consumables: Stationery,									
printing and office supplies	1	į	1	I	ı	1	1	1	Í
Operating leases	1	ı	1	I	ı	İ	1	ī	Ī
Property payments	40	1	1	40	ı	40	1	ı	Î
Transport provided:									
Departmental activity								4	Ī
Travel and subsistence	28	1	1	28	475	(417)	819.0%	2,337	2,336
Training and development	ı	ı	1	ī		ı	1	ı	Î
Operating payments	10	1	1	10	449	(439)	4490.0%	1,389	1,385
Venues and facilities	44	1	1	44	2	42	4.5%	3,698	5,264
Rental and hiring	ı	1	Î	1	4	(4)	ı	ı	ı
					1	1	;	1	
ransters and subsidies	11,350	1	•	11,350	10,715	635	94.4%	15,967	12,971
Departmental agencies and									
accounts	11,350	1	•	11,350	2,583	8,767	22.8%	15,952	15,876
Departmental agencies	11,350	į	I	11,350	2,583	8,767	22.8%	15,952	15,876
Higher education institutions	•	1	•	•	4,349	(4,349)	•	•	•
Foreign governments and international organisations									
Public corporations and	I	1	I	I	I	Ī	I	1	Ī
private enterprises	•	•	•	1	•	1	1	•	•
Public corporations	•	į	•	1	•	•	•	•	•
Subsidies on products	1	ļ	ı	I	ı	i	ı	1	i
Other transfers to									
public corporations	ı	1	1	ı	ı	ı	1	ı	ı
Private enterprises	•	•	•	•	•	•	•	•	•

Subprogramme: 3.4 Office of the DDG: International Cooperation and	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
Current payments	4,276	1,900	1	6,176	5,774	402	93.5%	6,903	6,665
Compensation of employees	3,972	1,900	•	5,872	5,689	183	%6'96	5,760	5,653
Salaries and wages	3,577	1,700	i	5,277	5,141	136	97.4%	5,177	5,122
Social contributions	395	200	I	262	548	47	92.1%	583	531
Goods and services	304	1	•	304	85	219	28.0%	1,143	1,012
Administrative fees	14	I	1	14	1	41	1	14	13
Advertising									
Minor assets	15	1	1	15	1	15	1	15	ı
Audit costs: External	1	1	1	1	1	1	1	1	1
Bursaries: Employees	ı	ı	ı	ı	1	1	1	1	1
Catering: Departmental									
activities	25	Ī	1	25	ı	25	1	25	27
Communication (G&S)	06	1	1	06	74	16	82.2%	06	77
Computer services	1	1	1	1	1	1	1	1	1
Consultants: Business and									
advisory services	1	ı	Î	ı	Î	I	ı	ı	ı
Scientific and technological	1	Ĭ	1	1	İ	I	ļ	I	ı
Legal services	1	1	1	1	1	1	1	1	1
Contractors							1	100	1
Agency and support/									
outsourced services	1	ı	Î	ı	Î	I	ı	ı	ı
Entertainment	2	1	1	2	1	2	1	2	91
Fleet services (incl.									
government motor									
transport)	1	Ĭ	1	1	İ	I	ļ	I	ı
Inventory: Clothing, material									
and accessories	1	ī	1	-	1	1	1	Ī	ī

Inventory: Fuel, oil and gas	1	•	1	1	ı	I	1	1	ı
Inventory: Material and									
Supplies	1	•	ı	1	ı	1	i	ı	1
Inventory: Other supplies	1	•	ı	1	ı	1	i	ı	1
Consumable supplies	3	ı	ı	က	ı	က	ı	3	4
Consumables: Stationery,									
printing and office supplies	ဇ	ı	ı	e		က	İ	ဇ	13
Operating leases	1	ı	ı	1			ı	ı	ı
Property payments	1	•	1	1			ı	ı	ı
Travel and subsistence	92			92			12.0%	ı	732
Training and development		1	ı				İ	831	ı
Operating payments	09			09		09	İ	ı	22
Venues and facilities	1	•	1	1			ı	09	ı
Rental and hiring	Ī	1	ı				1	i	İ
Transfers and subsidies		•	1	•	,	1	ı		ı
Departmental agencies and									
accounts		•	•		1	1	•	•	1
Departmental agencies	ı	1	ı	,		ı	i	ı	ı
Higher education institutions	ı	1	ı	,	ļ	ı	i	ı	ı
Foreign governments and									
international organisations	ı	1	ı		ı	I	İ	ı	ı
Public corporations and									
private enterprises	ī	•	•	•	•	•	ī	•	•
Public corporations	1	•	•	'	1	1	•	1	1
Subsidies on products	1	1	Ī	1	Ī	ı	ı	1	ı
Other transfers to									
public corporations	1	•	1	1	ı	ı	ı	ı	I
Private enterprises	1	•	•	'	1	1	•	ı	I
Other transfers to private									
enterprises	ı	I	ļ	1	ı	I	ı	1	1
Non-profit institutions	ı	I	ļ	1				ı	I
Households	-	'	_	_	•	•	-	1	ı

Social benefits	1	1	1	I	1	1	ı	1	I
Other transfers to									
households	1	Ĭ	1	1	Î	I	1	Í	İ
Payment for capital assets	1	1		1	ı	ı	1	ı	ı
Buildings and other fixed									
structures	ı	1	Î	1	1	ı	1	ı	ı
Machinery and equipment	ı	1	ı	ı	ı	ı	ı	ı	Î
Transport equipment	ı	1	ı	1	ı	ı	ı	ı	ı
Other machinery and									
equipment	ı	1	ı	ı			ı	1	Ì
Software and other intangible									
assets	1	1	1	1	Î	I	1	Í	İ
Payment for financial assets	•	1		•	1		1	1	
Total	4,276	1,900	1	6,176	5,774	402	93.5%	6,903	6,665

		Detail per	programme 4 for the ye	Detail per programme 4 – Research Development and Support for the year ended 31 March 2021	elopment and S ch 2021	upport			
			2020/21					2019/20	/20
Sub-programme	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
4.1 Human Capital and Science Promotion	2,282,971	(490)	23,535	2,306,016	2,305,758	258	100.0%	2,631,959	2,629,802
4.2 Science Missions	202,771	2,360	13,824	218,955	215,718	3,237	98.5%	239,532	239,201
4.3 Basic Science and Infrastructure	757,026	1,440	(70,866)	687,600	687,217	383	%6:66	979,128	978,717
4.4 Astronomy	498,347	(1,990)	23,977	520,334	520,185	149	100.0%	729,703	728,392
4.5 Office of the DDG: Research Development and Support	4,133	(1,320)	-	2,813	2,098	715	74.6%	3,354	2,319
Total	3,745,248	•	(9,530)	3,735,718	3,730,976	4,742	%6.66	4,583,676	4,578,431

Economic Classification									
Current payments	48,110	•	(4,011)	44,099	42,920	1,179	97.3%	57,565	52,696
Compensation of employees	39,270	Ī	1,500	40,770	40,590	180	%9.66	42,640	39,915
Salaries and Wages	34,267	793	1,500	36,560	36,415	145	%9.66	38,167	35,747
Social contributions	5,003	(793)	ı	4,210	4,175	35	99.2%	4,473	4,168
	8,840	ľ	(5,511)	3,329	2,330	666	%0.07	ı	ı
Goods and services	48,110	1	(4,011)	44,099	42,920	1,179	97.3%	14,925	12,781
Administrative fees	287	(75)	(135)	77	3	74	3.9%	652	430

Advertising	47	9	(40)	13	9	7	46.2%	909	293
Minor assets								4	~
Audit costs: External	ı	1	Î	I	ı	ı	Ī	1	ī
Bursaries: Employees	ī	ı	1	1	I	1	ī	1	1
Catering: Departmental									
activities	675	(33)	(388)	254	240	41	94.5%	440	187
Communication (G&S)	810	(86)	1	712	542	170	76.1%	693	662
Computer services	179	I	(179)	1	I	1	1	54	1
Consultants: Business and									
advisory services	1,222	406	(1,013)	615	612	က	89.5%	896	663
Scientific and technological									
services	1	ı	ı	ı	1	ı	1	ı	ı
Legal services	212	(211)	ı	~	1	~	1	ı	ı
Contractors	ī		1	1	1	1	ı	1	1
Agency and support/									
outsourced services	888	(125)	(707)	56	49	7	87.5%	353	273
Entertainment	237	(145)	(20)	72	ı	72	1	182	4
Fleet services (incl.									
government motor									
transport)	I	1	ı	I	ı	1	1	ı	1
Inventory: Clothing, material									
and accessories	1	ı	ı	ı	ı	ı	1	ı	ı
Inventory: Fuel, oil and gas	ı	Ī	1	ı	ı	1	ı	1	ı
Inventory: Material and									
snpplies	I	1	ı	I	ı	1	1	ı	1
Inventory: Other supplies	1	1	ı	ı	1	ı	1	ı	1
Consumable supplies	22	Ī	(20)	2	ı	2	ı	33	7
Consumables: Stationery,								86	84
printing and office supplies	5	1	1	5	ı	5	ı		
Operating leases	1	ı	ı	ı	ı	1	ı	ı	ı
Property payments	I	1	ı	I	ı	1	1	ı	1
Travel and subsistence	2,945	35	(1,610)	1,370	743	627	54.2%	8,652	8,310
Training and development	1	1	ı	1	1	1	1	16	14

Operating payments	535	200	(674)	61	55	9	90.2%	851	804
Venues and facilities	2776	40	(725)	91	80	1	87.9%	1,423	1,049
Rental and hiring	1	ı	. 1	ı	ı	ı	i	1	ı
Transfers and subsidies	3 607 138	ı	(5,520)	3 601 600	2 688 046	3 563	700 00	7 526 100	A 525 73A
Departmental agencies and	5,50,5	İ	(5,55)	20,50	2,000	,,	200	20-,010,	1,000,1
accounts	3,636,920		(5,731)	3,631,189	3,202,382	428,807	88.2%	4,274,423	3,891,520
Departmental agencies	3,636,920	1	(5,731)	3,631,189	3,202,382	428,807	88.2%	4,274,423	3,891,520
Higher education institutions	i	İ	İ	1	Î	Î	ı	İ	Ī
Foreign governments and									
international organisations	ı	ı	ı	ı	ı	i	ı	Í	ı
Public corporations and									
private enterprise	60,218	1	•	60,218	206,655	(146,437)	343.2%	251,686	432,416
Public corporations	60,218	1	1	60,218	204,655	(144,437)	339.9%	251,686	432,416
Subsidies on products	i	ı	i	ı	i	İ	ı	İ	İ
Other transfers to									
public corporations	60,218	ı	ı	60,218	204,655	(144,437)	339.9%	251,686	432,416
Private enterprises	1	Î	i	1	2,000	(2,000)	ı	1	ī
Other transfers to									
private enterprises	1	Î	i	1	2,000	(2,000)	ı	Î	Í
Non-profit institutions	1	Ī	1		158,472	(158,472)	1	ı	200,438
Households	•	1	202	202	243	(41)	120.3%	ı	1,360
Social benefit	ı	Ī	202	202	193	· ດ	95.5%	Í	
Other transfers to									
households	1	Î	Í	ı	20	(20)	ı	Î	1,360
Payment for capital assets	•	Ī	•	ı	•	•	•	•	•
Buildings and other fixed									
structures	1	ı	i	ı	i	İ	ı	İ	İ
Machinery and equipment	1	Î	i	1			ı	Í	
Transport equipment	1	ı	i	ı	i	İ	ı	İ	İ
Other machinery and									
equipment	ı	ı	ı	ı	ı	ı	ı	ı	ı
Software and other intangible									
assets	ı	1	1	ı	1	ı	ı	ı	I
Payment for financial assets	•	1	10	10	10	1	100.0%	2	_
Total	3,745,248	•	(9,530)	3,735,718	3,730,976	4,742	%6'66	4,583,676	4,578,431

Subprogramme: 4.1: Human Capital and Science Promotion	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
Current payments	14,627	(490)	(1,545)	12,592	12,334	258	%0'86	15,827	14,027
Compensation of employees	12,157	(290)	1	11,867	11,808	59	99.5%	11,589	10,282
Salaries and wages	10,189	200	1	10,689	10,649	40	%9'66	10,481	9,272
Social contributions	1,968	(200)	ı	1,178	1,159	19	98.4%	1,108	1,010
Goods and services	2,470	(200)	(1,545)	725	526	199	72.6%	4,238	3,745
Administrative fees	59	1	(20)	6	_	80	11.1%	152	148
Advertising	47	ı	(40)	7	ı	7	1	58	54
Minor assets	1	ı	ı	Î	Í	ı	ı	ı	ı
Audit costs: External	1	ı	ı	i	1	ı	1	1	1
Bursaries: Employees	1	ı	I	Î	i	ı	ı	1	1
Catering: Departmental									
activities	262	I	(21)	241	233	80	%2'96	113	54
Communication (G&S)	351	(200)	I	151	I	151	1	143	135
Computer services	88	1	(88)	i	ı	ı	1	6	1
Consultants: Business and									
advisory services	1	ı	ı	İ	İ	ı	ı	215	211
Legal services	1	ı	I	ı	ı	I	1	ı	ı
Contractors	1	1	1	i	ı	ı	1	ı	1
Agency and support/									
outsourced services	215	ı	(160)	55	49	9	89.1%	279	273
Entertainment	18	I	(15)	3	ı	က	1	6	ı
Fleet services (incl.									
government motor									
transport)	1	1	ı	İ	ı	ı	1	I	ı
Inventory: Clothing, material									
and accessories	1	ı	I	ı	ı	I	1	ı	ı
Inventory: Fuel, oil and gas	1	1	1	Ī	1	ı	ı	1	1

ı	ı	_		9	ı	1	2,518	ı	311	34	1	2,615,774		2,545,283	2,545,283	•	ı		41,234	41,234			41,234	•		ı	28,177	1,080	1
1	1	21		∞	ī	ı	2,523	1	314	394	ı	2,616,130		2,616,130	2,616,130	•	ı		1	•			ı	•		1	1	1	ı
1	ı	I		ı	1	I	%6'56	ı	90.2%	1	ī	100.0%		%6'26	%6'26	1	1		1				1	•		1	1	1	1
ı	1	2		ı	I	I	80	ı	9	1	ī	1		49,298	49,298	(5,498)			(42,000)	(42,000)	,		(42,000)				(1,800)	1	ı
ı	ı	1		1	ı	1	188		22	ı	ı	2,293,424		2,244,126	2,244,126	5,498			42,000	42,000			42,000				1,800	ı	1
-	1	2		ı	ı	ı	196	ı	61	1	1	2,293,424		2,293,424	2,293,424	1	I		1	1			ı	1		1	1	1	ı
ı	1	(20)		1	ı	ı	(630)		(175)	(345)	ı	25,080		25,080	25,080	1	ı		i	•				•		1		1	1
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ı	ı	22		1	ı	ı	826	ı	236	345	ı	2,268,344		2,268,344	2,268,344	•	ı		ı	•				•		ı		ı	1
Inventory: Material and supplies	Inventory: Other supplies	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	Transfers and subsidies	Departmental agencies and	accounts	Departmental agencies	Higher education institutions	Foreign governments and international organisations	Public corporations and	private enterprises	Public corporations	Subsidies on products	Other transfers to	public corporations	Private enterprises	Other transfers to	private enterprises	Non-profit institutions	Households	Social benefits

2,629,802	2,631,959	100.0%	258	2,305,758	2,306,016	23,535	(490)	2,282,971	Total
									Payment for financial assets
_	2	•	•	•	•	•	1	•	
ı	ı	ı	ı	1	1	Ĭ	1	ı	assets
									Software and other intangible
1	ī	1	1	Ī	1	Î	1	ı	equipment
									Other machinery and
1	ı	ı	ı	ı	ı	ı	ı	ı	Transport equipment
ı	1	ī	Ī	ı	ı	ī	ı	ī	Machinery and equipment
ī	ī	ı	ı	1	1	I	1	ı	structures
									Buildings and other fixed
1	ı	1	•	•	ı	•	•	1	Payment for capital assets
									households
1,080	1	1	•	•	1	1	1	1	Other transfers to

Subprogramme: 4.2: Science Mission	Adjusted appropriation	Shifting of funds	Virement	Final appropriatio n	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
Current payments	12,162	2,360	(478)	14,044	14,011	33	%8'66	17,356	17,036
Compensation of employees	9,859	2,160	1,500	13,519	13,508	7	%6.66	14,172	13,940
Salaries and wages	8,615	2,060	1,500	12,175	12,170	2	100.0%	12,681	12,493
Social contributions	1,244	100		1,344	1,338	9	%9.66	1,491	1,447
Goods and services	2,303	200	(1,978)	525	503	22	92.8%	3,184	3,096
Administrative fees	65		(62)	8		3	1	91	88
Advertising	ı		ı					82	62
Minor assets	ı	1	ı	I	I	İ	1	1	1
Audit costs: External	ı	I	ı	ı	I	Î	1	1	ı
Bursaries: Employees	ı	1	ı	I	ı	Î	1	1	ı
Catering: Departmental									
activities	47	ı	(47)	1	ı	Ī	1	25	54
Communication (G&S)	216			216	208	80	%8:96	165	163
Computer services	46	1	(46)	I	1	ı	1	3	1
Consultants: Business and									
advisory services	586	ı	(286)	1	ı	İ	ı	455	452
Legal services	1	1	1	ı	ı	Î	ı	ı	I
Contractors	ı	I	1	I	I	ļ	1	Î	1
Agency and support/									
outsourced services	310	İ	(310)	1	1	ı	ı	4	ı
Entertainment	5	1	(5)	ı	ı	Î	ı	5	က
Fleet services (incl.									
government motor									
transport)	ı	ı	ı	•	ı	Ī	1	ı	ı
Inventory: Clothing, material									
and accessories	ı	1	1	ı	I	ı	1	ı	ı
Inventory: Fuel, oil and gas	-	1	-	-	I	1	-	_	1

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202.771	7	2.360	13.824	218.955	215.718	3.237	98.5%	239.532	239.201
į	1	) OO	1000	10,000	5	0,10	2000	100,001	. 00,100

Subprogramme: 4.3: Basic Science and Infrastructure	Adjusted	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
Current payments	9,788	1,440	(1,733)	9,495	9,471	24	%2'66	11,088	10,685
Compensation of employees	7,680	1,440	•	9,120	9,112	∞	%6'66	060'6	8,863
Salaries and wages	6,611	1,470	İ	8,081	8,078	8	100.0%	8,049	7,865
Social contributions	1,069	(30)	ı	1,039	1,034	5	%9'66	1,041	866
Goods and services	2,108	1	(1,733)	375	359	16	95.7%	1,998	1,822
Administrative fees	15	I	(13)	2	_	~	20.0%	52	46
Advertising	1	ı	ı	1	ı	ı	ı	ı	1
Minor assets	ı	i	ı	i	Î	ı	ı	1	1
Audit costs: External	ı	ı	ı	i	1	ı	ı	ı	1
Bursaries: Employees	1	ı	ı	1	ı	ı	ı	ı	1
Catering: Departmental									
activities	87	Ī	(75)	12	7	5	28.3%	82	46
Communication (G&S)	195	Ī		195	193	2	%0'66	146	136
Computer services	44	ı	(44)	1	ı	ı	ı	42	1
Consultants: Business and									
advisory services	427	Ī	(427)	ı		ı	ı	5	ı
Legal services	1	I	ı	I	I	1	ı	ı	1
Contractors	ı	ı	ı	1	ı	ı	ı	ı	1
Agency and support/	1		Í					ļ	
outsourced services	237	ı	(237)	1	İ	•	Ī	92	ı
Entertainment	1	ı	ı	Î	ı	ı	1	ı	ı
Fleet services (incl.									
government motor									
transport)	1	1	1	Ī	1	1	1	1	1
Inventory: Clothing, material									
and accessories	ı	ı	1	ı	ı	1	ı	1	ı
Inventory: Fuel, oil and gas	1	ı	ı	i	1	ı	1	1	1

Iliveritory. Material and									
snbblies	ı	1	1	Ī	ı	Î	Î	1	1
Inventory: Other supplies	1	İ	1	1	ı	1	1	1	ı
Consumable supplies	i	1	ı	Ī	ı	1	ı	2	2
Consumables: Stationery,									
printing and office supplies	ı	1	I	I	1	1	1	1	I
Operating leases	i	1	ı	Ī	ı	1	ı	1	Ī
Property payments	i	1	ı	Ī	ı	1	ı	1	Ī
Travel and subsistence	808		(650)	158	151	7	92.6%	1,569	1,564
Training and development	1	1	ı	ı	ı	ı	ı	İ	İ
Operating payments	26	1	(26)	Ī	ı	1	ı	8	~
Venues and facilities	198		(190)	80	7	~	87.5%	29	27
Rental and hiring	•	ı	i	ı	Î	İ	ı	Ţ	ı
Transfers and subsidies	747,238	1	(69,133)	678,105	677,746	359	%6.66	968,040	968,032
Departmental agencies and			•						
accounts	687,020	1	(69,133)	617,887	281,978	335,909	45.6%	716,354	435,139
Departmental agencies	687,020	İ	(69,133)	617,887	281,978	335,909	45.6%	716,354	435,139
Higher education institutions	•	•	1	1	102,526	(102,526)	•	1	ı
Foreign governments and									
international organisations	ı	ı	ı	ı	Î	Ī	ı	Ī	I
Public corporations and									
private enterprises	60,218	ı	ī	60,218	142,555	(82,337)	236.7%	251,686	376,282
Public corporations	60,218	•	1	60,218	142,555	(82,337)	236.7%	251,686	376,282
Subsidies on products	ı	İ	ı					1	Î
Other transfers to									
public corporations	60,218			60,218	142,555	(82,337)	236.7%	251,686	376,282
Private enterprises	•	İ	•	•	į	•	1	1	•
Other transfers to private									
enterprises	ı	Í	ı	ı	1	1	1	1	Í
Non-profit institutions	•	•	1	•	150,687	(150,687)	•	•	156,331
Households	ı	ī	1	1	ı	r	1	ı	280

Social benefits	1	1	1	1	1	I	1	1	1
Other transfers to households	,	I	ı	ļ	ļ	į	į	1	280
	ı	İ	ı	1	I	I	1	1	000
Payment for capital assets	•	į	Ī	•	•	•	1	Ī	Ī
Buildings and other fixed									
structures	ı	ı	ı	ı	ı	ı	ı	ı	ı
Machinery and equipment	ı	1	ı	I	1	1	1	1	1
Transport equipment	Ī	ı	i	ī	1	I	ı	1	1
Other machinery and									
equipment	ı	ı	ı	ı	1	ı	1	1	ı
Software and other intangible									
assets	ı	ı	ı	1	1	1	1	ı	ı
Payment for financial assets	İ	ı	I	1	ı	I	ı	İ	ı
Total	757,026	1,440	(70,866)	687,600	687,217	383	99.9%	979,128	978,717

Subprogramme: 4.4 Astronomy	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
Current payments	7,400	(1,990)	(255)	5,155	5,006	149	97.1%	9,940	8,629
Compensation of employees	6,216	(1,990)	1	4,226	4,162	64	98.5%	5,187	4,875
Salaries and wages	5,494	(1,700)	ı	3,794	3,735	59	98.4%	4,616	4,376
Social contributions	722	(290)	I	432	427	5	%8.8%	571	499
Goods and services	1,184	1	(255)	929	844	85	%6'06	4,753	3,754
Administrative fees	86	(75)	(10)	~	1	~	1	295	142
Advertising	ı	9		9	9	ı	100.0%	366	160
Minor assets	ı	I	i	ı	ı	ı	1	4	~
Audit costs: External	ı	I	i	ı	ı	ı	1	ı	ı
Bursaries: Employees	ı	I	Ī	ı	Î	ı	ı	ı	Ī
Catering: Departmental									
activities	274	(28)	(245)	~	1	~	1	176	23
Communication (G&S)	ı	97	ı	76	88	6	%2'06	80	77
Computer services	ı	ı	ı	ı	ı	ı	1	ı	ı
Consultants: Business and									
advisory services	209	406	ı	615	612	3	89.5%	293	1
Scientific and technological									
services	ı	İ	ı	ı	ı	ı	ı	Ī	1
Legal services	212	(211)	ļ	~	ı	~	1	ļ	1
Contractors	ı	Î	ı	ı	ı	1	1	Ī	1
Agency and support/									
outsourced services	126	(125)	ļ	~	ı	_	1	2	1
Entertainment	212	(145)	ı	29	1	29	1	166	~
Fleet services (incl.									
government motor									
transport)		ı	ı	-	1	1	-	-	I

	1	1		1	1	က		09	ı	ı	2,129	1	477	681	1	719,763		719,763	719,763	•		ı		•	•	1		1	•		1
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Inventory: Clothing, material	and accessories	Inventory: Fuel, oil and gas	Inventory: Material and	snpplies	Inventory: Other supplies	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	Transfers and subsidies	Departmental agencies and	accounts	Departmental agencies	Higher education institutions	Foreign governments and	international organisations	Public corporations and	private enterprises	Public corporations	Subsidies on products	Other transfers to	public corporations	Private enterprises	Other transfers to private	enterprises

Non-profit institutions	•	1	•	1	4,985	(4,985)	1	ı	•
Households	1	•	1	1	•	•	•	1	1
Social benefits	ı	ı	1	ı	ı	I	1	ı	ı
Other transfers to households	1	ı	ı	ı	ı	1	I	I	ı
Payment for capital assets	,	1	1	1	ı	ı	ı	1	
Buildings and other fixed structures	ı	1	1	1	1	1	I		1
Machinery and equipment	1	1	1	ı	İ	1	1	ı	ı
Transport equipment	1	1	1	1	1	1	ī	1	1
Other machinery and equipment	ı	ı	ı	ı	1	ı	ı	ı	ı
Software and other intangible									
assets	1	1	1	ı	Î	1	ı	1	ı
Payment for financial assets	-	1	10	10	10	ı	100.0%	•	1
Total	498,347	(1,990)	23,977	520,334	520,185	149	100.0%	729,703	728,392

Subprogramme:	Adjusted	Shifting of	Virement	Final	Actual	Variance	Expenditure	Final	Actual
4.5 Office of the DDG: Research Development and Support	appropriation	funds		appropriation	expenditure		as % of final appropriation	appropriation	expenditure
Current payments	4,133	(1,320)	1	2,813	2,098	715	74.6%	3,354	2,319
Compensation of employees	3,358	(1,320)	•	2,038	2,000	38	98.1%	2,602	1,955
Salaries and wages	3,358	(1,537)	I	1,821	1,783	38	%6'26	2,340	1,741
Social contributions	ı	217	ı	217	217	ı	100.0%	262	214
Goods and services	775	ı	•	775	86	677	12.6%	752	364
Administrative fees	62	I	ı	62	_	61	1.6%	62	9
Advertising	ı	I	ı	ı	I	ı	ı	ı	ı
Minor assets	1	ı	ı	ı	ı	ı	ı	ı	1
Audit costs: External	1	I	ı	I	ı	1	1	ı	1
Bursaries: Employees	1	ı	I	I	Ī	I	I	ı	1
Catering: Departmental									
activities	5	(5)	ı	ı	ı	1	ı	12	10
Communication (G&S)	48	5	ı	53	53	1	100.0%	159	151
Computer services	1	1	1	1	I	1	1	1	1
Consultants: Business and									
advisory services	1	ı	ı	ı	ı	ı	ı	ı	1
Scientific and technological	1	ı	ı	ı	ı	ı	ı	ı	1
Legal services	1	ı	ı	ı	ı	ı	ı	ı	1
Contractors	ı	ı	ı	ı	I	1	ı	ı	ı
Agency and support/									
outsourced services	ı	I	I	ı	1	1	ı	ı	ı
Entertainment	2	ı	ı	2	I	2	ı	2	ı
Fleet services (incl.									
government motor									
transport)	1	1	1	1	I	1	1	1	1
Inventory: Clothing, material									
and accessories	1	1	1	1	I	1	1	1	1
Inventory: Fuel, oil and gas	ı	1	ı	ı	I	_		-	-

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	ı	1	1		ı	ı	ı	(15)	i	ı	15	•	•		1	ı	1		i		ī	1	ī		ī	ī		Ĭ	ı	1	i
	1	ı	ı		5	ı	ı	646	ı	1	7	I	,		1	ı	Ī		Í		ī	ī	ī		ī	Ī		Ĭ	ı	ī	Í
Inventory: Material and	Supplies	Inventory: Other supplies	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	Transfers and subsidies	Departmental agencies and	accounts	Departmental agencies	Higher education institutions	Foreign governments and	international organisations	Public corporations and	private enterprises	Public corporations	Subsidies on products	Other transfers to	public corporations	Private enterprises	Other transfers to private	enterprises	Non-profit institutions	Households	Social benefits

Other transfers to									
households	I	ı	I	I	I	ı	ı	I	ı
Payment for capital assets Buildings and other fixed	1		•	1	1	•	•	1	i
structures	ı	ı	I	ı	Î	I	1	ı	1
Machinery and equipment	ı	Į.	ı	ı	ı	ı	1	1	ı
Transport equipment	1	ı	ı	1	1	ı	1	ı	1
Other machinery and									
equipment	ı	I	1	1	Î	ı	ı	1	ı
Software and other intangible									
assets	1	1	ı	1	ı	i	1	ī	1
Payment for financial assets		1	'			1		1	1
Total	4,133	(1,320)	1	2,813	2,098	715	74.6%	3,354	2,319

		Detail per Pr	rogramme 5 – \$ for the ye	per Programme 5 – Socio –Economic Innovation Partnerships for the year ended 31 March 2021	: Innovation Par ch 2021	tnerships			
			202021					2019/20	1/20
Subprogramme	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
5.1 Sector Innovation and Green Economy	995,259	09	(10,534)	984,785	984,318	467	100.0%	1,043,183	1,042,703
5.2 Innovation for Inclusive Development	384,703	(800)	ı	383,903	332,556	51,347	86.6%	374,158	373,080
5.3 Science and Technology Investment	27,649	3,490	ı	31,139	30,664	475	98.5%	36,534	33,983
5.4 Technology Localisation, Beneficiation and Advanced Manufacturing	322,669	(4,200)	8,511	326,980	325,739	1,241	%9'66	327,889	323,574
5.5 Office of the DDG: Socio- Economic Innovation Partnerships	3,529	1,450	1	4,979	4,702	277	94.4%	5,128	4,856
Total	1,733,809	•	(2,023)	1,731,786	1,677,979	53,807	%6.96	1,786,892	1,778,196

Economic classification									
Current payments	52,083	•	(2,051)	50,032	46,997	3,035	93.9%	57,343	48,959
Compensation of employees	44,805	•	1	44,805	42,191	2,614	94.2%	48,628	43,193
Salaries and wages	39,857	(300)	I	39,557	37,614	1,943	95.1%	43,554	38,757
Social contributions	4,948	300	ı	5,248	4,577	671	87.2%	5,074	4,436
Goods and services	7,278	ı	(2,051)	5,227	4,806	421	91.9%	8,715	5,766
Administrative fees	162	(152)	1	10	2	80	20.0%	112	75
Advertising	245	(235)	1	10	1	10	ı	152	41
Minor assets	ı	1	ı	ı	1	1	1	ı	1
Audit costs: External	ı	1	ı	ı	1	1	1	ı	1
Bursaries: Employees	ı	1	ı	ı	I	ı	ı	ı	ı
Catering: Departmental									
activities	347	(235)	(100)	12	1	12	ı	159	31
Communication (G&S)	1,223	1,158	1	2,381	2,363	18	99.2%	866	772
Computer services	84	(42)	I	42	38	4	%5'06	2	1
Consultants: Business and									
advisory services	1,845	481	(1,300)	1,026	1,003	23	%8'.26	935	208
Legal services	ı	308	I	308	304	4	%2'86	797	743
Contractors	ļ	1	I	ı	1	1	ı	1	1
Agency and support/									
outsourced services	207	710	1	917	906	1	%8'86	926	936
Entertainment	118	(65)	1	53	1	53	ı	66	5
Fleet services (incl.									
government motor									
transport)	ı	1	ı	ı	1	1	1	ı	1
Inventory: Clothing, material									
and accessories	ī	ı	ı	1	I	ı	ı	1	I
Inventory: Fuel, oil and gas	1	1	ī	-	1	1	-	1	1

Inventory: Material and									
Supplies	!	ļ	ı	1	ļ	ı	ļ	ı	ļ
	Ĭ	ı			I		l		ĬII
Inventory: Other supplies	1	ı	1	ı	İ	i	ı	Î	ı
Consumable supplies	2	ı	1	2	ı	2	2	16	2
Consumables: Stationery,									
printing and office supplies	ı	25	1	25	22	က	1	45	42
Operating leases	ı	ı	1	ī	ı	I	1	I	Î
Property payments	1	1	1	ı	1	Ī	1	1	Î
Travel and subsistence	2,056	(1,057)	(651)	348	139	209	39.9%	3,111	2,190
Training and development	ı	1		ı	ı	I	ı	ı	ı
Operating payments	47	(41)	1	9	2	4	33.3%	713	692
Venues and facilities	626	(855)	ı	84	27	22	32.1%	627	53
Rental and hiring	1	. 1	1	1	1	ı	1	1	1
Transfers and subsidies	1,681,726	1	28	1,681,754	1,630,982	50,772	%0'.26	1,729,549	1,729,237
Departmental agencies and									
accounts	593,800	1	8,961	602,761	437,981	164,780	72.7%	590,796	470,177
Departmental agencies	593,800	ı	8,961	602,761	437,981	164,780	72.7%	590,796	470,177
Higher education institutions	1	ı	1	1	ī	1	ı	ı	Î
Foreign governments and									
international organisations	1	1	1	1	1	1	1	ı	ı
Public corporations and									
private enterprises	1,087,926	•	(8,933)	1,078,993	1,164,723	(85,730)	107.9%	1,138,689	1,216,188
Public corporations	1,087,926	•	(8,933)	1,078,993	1,159,794	(80,801)	107.5%	1,138,689	1,211,116
Subsidies on products	893,581	i	1	893,581	893,581	1	100.0%	965,823	965,823
Other transfers to									
public corporations	194,345	ı	(8,933)	185,412	266,213	(80,801)	143.6%	172,866	245,293
Private enterprises	•	1	•	1	4,929	(4,929)	1	•	5,072
Other transfers to									
private enterprises	1	ı	ı	ı	4,929	(4,929)	ı	ı	5,072
Non-profit institutions	•	•	1	•	28,278	(28,278)	ī	•	42,816
Households	•	•	1	•	•	•	Ī	64	26
Social benefits	1	1	1	1	1	1	ī	64	56

Other transfers to									
households	I	ı	ı	1	I	I	1	I	ı
Payment for capital assets	1	ı	1	•	•	·	ı	ı	•
Buildings and other fixed									
structures	Î	ı	ı	ı	ı	ı	1	ı	1
Machinery and equipment	İ	ı	ı	ı	ı	ı	ı	ı	ı
Transport equipment	Î	ı	i	ı	ı	ı	1	ī	1
Other machinery and									
equipment	Î	ı	ı	ı	ı	ı	1	ı	1
Software and other intangible									
assets	1	I	I	ı	1	ı	1	ı	1
Payment for financial assets	1	•	ī	-	-	ı	-	-	-
Total	1,733,809	,	(2,023)	1,731,786	1,677,979	53,807	96.9%	1,786,892	1,778,196

Subprogramme: 5.1: Sector Innovation and Green Economy	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final	Actual expenditure
Current payments	10,892	09	(610)	10,342	9,875	467	95.5%	9,425	9,228
Compensation of employees	9,199	800	•	666'6	9,566	433	95.7%	8,529	8,481
Salaries and wages	7,998	800	ı	8,798	8,498	300	%9.96	7,582	7,541
Social contributions	1,201	ı	I	1,201	1,068	133	88.9%	947	940
Goods and services	1,693	(740)	(610)	343	309	34	90.1%	896	747
Administrative fees	73	(70)	1	8	1	3	1	20	16
Advertising	95	(06)	1	5	ı	5	1	5	ı
Minor assets	1	1	ı	ı	1	ı	I	1	ı
Audit costs: External	1	1	1	1	1	ı	1	ı	1
Bursaries: Employees	1	1	ı	ı	1	ı	I	1	ı
Catering: Departmental									
activities	106	(9)	(100)	•	Ī	ı	1	5	2
Communication (G&S)	399	(06)	1	309	307	2	99.4%	278	236
Computer services	84	(80)	1	4	1	4	ı	5	ı
Consultants: Business and			ı		ı			29	1
advisory services	45	(45)		ı		ı	ı		
Legal services	1	ı	I	1	ı	1	Į	ı	1
Contractors	ı	I	1	ı	1	ı	ı	ı	ı
Agency and support/			1		ı			9	ı
outsourced services	49	(48)		ı		ı	•		
Entertainment	23	(20)	1	က	1	က	1	7	ı
Fleet services (incl.									
government motor									
transport)	ı	ı	I	ı	ı	1	1	1	1
Inventory: Clothing, material									
and accessories	Ī	ı	1	1	ı	1	I	ı	I
Inventory: Fuel, oil and gas	1	I	-	ı	1	-	1	1	1

Inventory: Material and									
supplies	1	ı	1	ı	ı	Í	ı	ı	1
Inventory: Other supplies	1	1	ı	i	ı	Î	ı	ı	ı
Consumable supplies	2	ı	ı	2	ı	2	ı	5	ı
Consumables: Stationery,									
printing and office supplies	1	1	1	1	ı	ı	1	ı	1
Operating leases	1	1	ı	i	ı	Î	ı	ı	ı
Property payments	1	1	ı	i	ı	Î	ı	ı	ı
Travel and subsistence	518	ı	(210)	80	2	9	25.0%	355	347
Training and development	1			i		Î	ı	ı	ı
Operating payments	21	(20)	I	~	ı	_	ı	148	146
Venues and facilities	275	(270)	1	2	ı	2	ı	8	Ī
Rental and hiring	ı	. 1	ı	ı	ı	ı	ı	ı	1
Transfers and subsidies	984.367	ı	(9.924)	974.443	974.443	•	100.0%	1.033.758	1.033.475
Departmental agencies and	`		`	•	`			`	`
accounts	42,947		•	42,947	24,302	18,645	%9'95	29,402	19,361
Departmental agencies	42,947			42,947	24,302	18,645	26.6%	29,402	19,361
Higher education institutions	1	1	1	i	ı	Î	ı	1	Ī
Foreign governments and									
international organisations	1	Î	Î	ı	ı	ı	1	ı	Î
Public corporations and									
private enterprises	941,420	•	(9,924)	931,496	943,241	(11,745)	101.3%	1,004,356	1,002,799
Public corporations	941,420	•	(9,924)	931,496	943,241	(11,745)	101.3%	1,004,356	1,002,799
Subsidies on products									
and production	893,581	1	Ī	893,581	893,581	Ī	100.0%	965,823	965,823
Other transfers to									
public corporations	47,839		(9,924)	37,915	49,660	(11,745)	131.0%	38,533	36,976
Private enterprises	•		•	1	•	•	•	•	•
Other transfers to private									
enterprises	1	1	ı	1	ı	1	ı	ı	ı
Non-profit institutions				I	006'9	(006'9)	ı	1	11,315
Households	•		•	1		ı	1	•	1

Social benefits	ı	1	1	ı	1	1	1	1	1
Other transfers to									
households	1	ı	Î	ı	1	Ī	1	ı	ı
Payment for capital assets	1	1	•	1	ı	1	•	1	1
Buildings and other fixed									
structures	ı	1	ī	1	ı	I	ī	ı	ı
Machinery and equipment	ı	ı	I	ı	I	ı	ı	ı	1
Transport equipment	ı	į	1	ı	I	1	I	i	I
Other machinery and									
equipment	1	ı	1	ı	1	ı	1	ı	1
Software and other intangible									
assets	1	1	ļ	ı	ı	ı	ļ	1	1
Payment for financial assets	-	•	•	•	ı	•	•	-	•
Total	995,259	09	(10,534)	984,785	984,318	467	100.0%	1,043,183	1,042,703

Subprogramme: 5.2: Innovation for Inclusive Development	Adjusted appropriation	Shiffing of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
Current payments	10,380	(800)		9,580	8,831	749	92.2%	11,098	10,020
Compensation of employees	9,647	(800)	1	8,847	8,110	737	91.7%	9,566	8,772
Salaries and wages	8,869	(006)	1	7,969	7,243	726	%6.06	8,608	7,887
Social contributions	778	100	ı	878	867	<u></u>	%2'86	958	882
Goods and services	733	1	ı	733	721	12	98.4%	1,532	1,248
Administrative fees	48	(46)	I	2	_	_	20.0%	40	59
Advertising	13	(12)	1	~		_	1	17	41
Minor assets	ı	ı	I	1	1	1	1	I	1
Audit costs: External	ı	1	1	1	1	1	1	ı	ı
Bursaries: Employees	ı	1	1	1	1	1	1	ı	ı
Catering: Departmental	ı	ı	I	ı	I	I	I	1	ı
activities	64	(63)		~		_	ı	~	ı
Communication (G&S)	187	290	ı	477	476	_	%8'66	215	112
Computer services	1	38	ı	38	38	ı	100.0%	1	1
Consultants: Business and			ı						
advisory services	20	(19)		_		_	•	19	ı
Legal services	1	115	İ	115	113	2	98.3%	367	352
Contractors	ı	1	ı	ļ		1	ı	1	1
Agency and support/									
outsourced services	158	(150)	Î	8	ı	80	•	5	ı
Entertainment	16	(15)	Î	~	ı	_	•	15	2
Fleet services (incl.			ı						
government motor									
transport)	1	1		1	1	1	1	1	1
Inventory: Clothing, material			ı						
and accessories	-	_		_	-	_	-	I	I

Inventory: Fuel, oil and gas	1	1	-	1	1	1	1	ı	1
Inventory: Material and									
Supplies	1	ı	Î	ı	1	I	ı	ı	1
Inventory: Other supplies	1	1	Î	ı	ı	ı	1	1	ı
Consumable supplies	ı	1	Î	1	1	1	Ī	Ī	1
Consumables: Stationery,									
printing and office supplies	1	1	İ	ı	1	1	1	1	1
Operating leases	1	1	Î	ı	ı	ı	I	ı	ī
Property payments	ī	1	Ī	1	1	1	ī	1	1
Travel and subsistence	61			61	93	(32)	152.5%	703	200
Training and development	1	ı	Î	ı	1	I	ı	ı	1
Operating payments	26	(23)	Î	က	ı	က	I	25	13
Venues and facilities	140	(115)	Í	25	Í	25	1	125	26
Rental and hiring	1		ı	1	Í	1	1	ı	1
Transfers and subsidies	374,323	ı	ı	374,323	323,725	50,598	86.5%	363,060	363,060
Departmental agencies and									
accounts	374,323	ı	ı	374,323	319,771	54,552	85.4%	363,060	348,984
Departmental agencies	374,323			374,323	319,771	54,552	85.4%	363,060	348,984
Higher education institutions	1	1	Í	1	ı	1	1	1	1
Foreign governments and									
international organisations	1	I	ı	1	1	I	I	I	ı
Public corporations and									
private enterprises	•	ı	1	•			ı	•	1,000
Public corporations	1	ı	Î	ı			ı	ı	1,000
Subsidies on products	1	ı	Î	ı			ı	ı	1
Other transfers to									
public corporations	1	ı	Í	ı			1	ı	1,000
Private enterprises	•	ı	ı	1	•	•	•	•	•
Other transfers to									
private enterprises	ı	ī	ı	1	1	ī	ı	ī	ı
Non-profit institutions					3,954	(3,954)		1	13,076

Households	•	•	-	-	-	,	ı	-	•
Social benefit	i	1	1	ı	ı	1	1	ı	ı
Other transfers to									
Households	ı	1	Î	ı	ı	ı	Î	1	1
Payment for capital assets	•	•	Ī	1	1	į	•	Ī	•
Buildings and other fixed									
structures	1	1	ı	1	1	1	1	ı	1
Machinery and equipment	ı	1	Î	ı	ı	ı	Î	1	1
Transport equipment	ı	1	Î	ı	ı	ı	Î	1	1
Other machinery and									
equipment	1	1	I	ı	ı	ı	1	ı	1
Software and other intangible									
assets	ı	I	Î	1	ı	i	1	ı	1
Payment for financial assets	1	-	İ	-	-	-	ı	-	•
Total	384,703	(800)		383,903	332,556	51,347	86.6%	374,158	373,080

Subprogramme: 5.3: Science and Technology Investment	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual
Current payments	10,165	3,490	•	13,655	13,180	475	96.5%	15,618	13,075
Compensation of employees	8,461	1,800	ı	10,261	9,892	369	96.4%	12,467	11,084
Salaries and wages	7,044	2,100	ı	9,144	8,859	285	%6.96	10,920	696'6
Social contributions	1,417	(300)	ı	1,117	1,033	84	92.5%	1,547	1,115
Goods and services	1,704	1,690	ı	3,394	3,288	106	%6:96	3,151	1,991
Administrative fees	22	(19)	ı	3	~	2	33.3%	21	
Advertising	137	(133)	ı	4		4	1	130	1
Minor assets	ı	ī	ı	i	ı	Î	1	i	1
Audit costs: External	ı	ı	ı	i	ı	İ	1	1	1
Bursaries: Employees	ı	1	ı	İ	1	Í	1	i	1
Catering: Departmental			I						
activities	87	(80)		7	I	7	1	77	16
Communication (G&S)	339	795	į	1,134	1,130	4	%9.66	221	213
Computer services	ı	I	į	ı	ı	Î	1	ı	ı
Consultants: Business and									
advisory services	460	545	I	1,005	1,003	2	%8'66	231	208
Legal services	ı	193	İ	193	191	2	%0.66	400	391
Contractors	ı	į	Ì	ı	1	İ	1	İ	ı
Agency and support/									
outsourced services	ı	606	1	606	906	င	%2'66	006	874
Entertainment	44	ı	Ì	44	I	44	1	42	2
Fleet services (incl.									
government motor									
transport)	1	1	İ	ı	ı	į	1	Ĭ	1
Inventory: Clothing, material									
and accessories	1	ı	İ	ı	1	Î	ı	Î	ı
Inventory: Fuel, oil and gas		1	1	1	1	1	-	1	1

			_					_								-				_					_				
	•	·	_		·	·	·	259	·	·	16		20.908		20,852	20,852		·		•	•	•			•		·	•	26
	1	1	5		ļ	ı	ı	868	ı	ı	226	1	20.916		20,852	20,852	ı	ı		1	1	ı		I	1		1	I	64
	1	1			88.0%	ı	ı	67.3%	ı	ı	ı	1	100.0%		100.0%	100.0%	1	1		•	•	1		ı	•		1	1	1
	1	i			က	1	1	17	1	1	18	ī	,		1	1	ı	ı		ī	1	1		ı	ī		í	İ	1
	ī	ı			22	Î	Î	35	Î	1		Ī	17.484		17,484	17,484		1		1	ı	Ī		ı	1		ı	Ī	1
	I	1			25	ī	ī	52	ī	1	18	1	17,484		17,484	17,484	ı	1		ı	1	Ī		I	ı		1	Ī	1
	ı	1			ı	ı	ı		ı	1		ı			1		ı	1		1	1	ı		ı	1		1	1	1
-	1	i			25	ı	ı	(325)	ı		(220)	ı	,		1		ı	1		•	•	1		ı	•		İ	1	1
	1	1	ı		1	ı	ı	377	ı	ı	238	1	17.484		17,484	17,484		1		•	•	1		1	•		1	ı	1
Inventory: Material and	Supplies	Inventory: Other supplies	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	Transfers and subsidies	Departmental agencies and	accounts	Departmental agencies	Higher education institutions	Foreign governments and international organisations	Public corporations and	private enterprises	Public corporations	Subsidies on products	Other transfers to	public corporations	Private enterprises	Other transfers to	private enterprises	Non-profit institutions	Households

Social benefit	1	i	ı	1	1	1	1	64	56
Other transfers to									
households	ı	1	ı	1	ı	ı	1	ı	Í
Payment for capital assets	1	1	Ī	1	1	Ī	1	1	1
Buildings and other fixed									
structures	ı	1	ı	1	ı	1	ı	ı	1
Machinery and equipment	ı	1	ı	1	ı	ı	1	ı	Í
Transport equipment	ı	1	ı	1	ı	1	1	ī	1
Other machinery and									
equipment	1	1	ı	1	1	ı	ı	I	ı
Software and other intangible									
assets	ı	1	I	I	ı	ı	ı	ı	ı
Payment for financial assets		ı	ı	ı	ı	ı	ı	ı	ı
Total	27,649	3,490	ı	31,139	30,664	475	98.5%	36,534	33,983

Subprogramme: 5.4: Technology Localisation, Beneficiation and Advanced Manufacturing	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
Current payments	17,117	(4,200)	(1,441)	11,476	10,409	1,067	%2'06	16,074	11,780
Compensation of employees	14,698	(3,550)	•	11,148	10,177	971	91.3%	13,662	10,614
Salaries and wages	13,146	(3,550)	I	9,596	6,063	533	94.4%	12,503	9,554
Social contributions	1,552	ı	ı	1,552	1,114	438	71.8%	1,159	1,060
Goods and services	2,419	(029)	(1,441)	328	232	96	70.7%	2,412	1,166
Administrative fees			I					12	00
Advertising	1	ļ	ı	ı	Į	ı	ı	ı	I
Minor assets	1	1	Ì	Ī	I	ı	Ī	1	Î
Audit costs: External	1	1	Ì	Ī	I	ı	Ī	1	Î
Bursaries: Employees	ı	ı	1	1	1	ı	1	ı	I
Catering: Departmental									
activities	72	(70)	1	2	ı	2	1	58	13
Communication (G&S)	230	1	Ì	230	226	4	98.3%	218	161
Computer services	1	ļ	İ	ı	ı	ı	ı	ı	ı
Consultants: Business and									
advisory services	1,320	1	(1,300)	20	I	20	Ī	626	Î
Legal services	1	ļ	ı	ı	Į	ı	ı	ı	I
Contractors	ı	ı	Ì	Î	Ī	1	Ĭ	ı	Î
Agency and support/									
outsourced services	1	ı	ı	Î	1	1	ı	9	62
Entertainment	35	(30)	İ	5	ı	5	ı	33	İ
Fleet services (incl.									
government motor									
transport)	1	ļ	İ	ı	ı	ı	ı	1	İ
Inventory: Clothing, material									
and accessories	1	1	1	1	1	1	1	ı	1

Inventory: Fuel, oil and gas	1		ı	ı	-	1	1	1	İ
Inventory: Material and									
Supplies	1	1	ī	Ĭ	Ī	1	1	Ĭ	1
Inventory: Other supplies	ı	1	ı	ı	ı	1	ı	ı	ı
Consumable supplies	ı							9	4
Consumables: Stationery,									
printing and office supplies	ı	ı	I	Ĩ	1	ı	ı	45	42
Operating leases	1	1	1	ı	Į	1	ı	1	ı
Property payments	ı	1	ı	ı	ı	1	ı	ı	ı
Travel and subsistence	510	(302)	(141)	29	4	63	%0.9	929	343
Training and development								1	ı
Operating payments	ı	2	ı	2	2	1	100.0%	240	533
Venues and facilities	252	(220)		2		2	ı	239	ı
Rental and hiring	ı		1	1	ı	ı	ı	ı	İ
Transfers and subsidies	305,552		9,952	315,504	315,330	174	%6.66	311,815	311,794
Departmental agencies and									
accounts	159,046	1	8,961	168,007	76,424	91,583	45.5%	177,482	80,980
Departmental agencies	159,046		8,961	168,007	76,424	91,583	45.5%	177,482	80,980
Higher education institutions	1	1	1	ī	ı	1	1	•	1
Foreign governments and									
international organisations	1	1	ī	Ī	Ī	1	1	Ĩ	1
Public corporations and									
private enterprises	146,506	•	991	147,497	221,482	(73,985)	150.2%	134,333	212,389
Public corporations	146,506	1	991	147,497	216,553	(69,056)	146.8%	134,333	207,317
Subsidies on products	1	1	ı	ı	ı	1	1	i	1
Other transfers to									
public corporations	146,506	ı	991	147,497	216,553	(93,056)	146.8%	134,333	207,317
Private enterprises	1	1	1	ī	4,929	(4,929)	1	•	5,072
Other transfers to private									
enterprises	1	1	Ī	Ĭ	4,929	(4,929)	ı	Ì	5,072
Non-profit institutions	1	ı	1	ī	17,424	(17,424)	1	1	18,425
Households	•	•	•	•	•	•	•	1	•

1	1	ı	ı	1	ı	1	1	1
1	1	ı	i	ī	ı	1	1	•
	•	•	•	•	1	•	•	•
	ļ	Î	1	1	I	1	1	1
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	ı	1	ı	ı	I	ı	ı	I
- 1	ı	1	1	1	1	ı	1	1
322,669	(4,200)	8,511	326,980	325,739	1,241	99.6%	327,889	323,574

Subprogramme: 5.5 Office of the DDG: Socio- Economic Innovation Partnerships	Adjusted appropriation	Shifting of funds	Virement	Final appropriation	Actual expenditure	Variance	Expenditure as % of final appropriation	Final appropriation	Actual expenditure
Current payments	3,529	1,450	•	4,979	4,702	277	94.4%	5,128	4,856
Compensation of employees	2,800	1,750	•	4,550	4,446	104	%1.7%	4,404	4,242
Salaries and wages	2,800	1,250	ı	4,050	3,951	66	%9'.26	3,941	3,806
Social contributions	ı	200	ı	200	495	5	%0.66	463	436
Goods and services	729	(300)	•	429	256	173	29.7%	724	614
Administrative fees	19	(17)	ı	2	I	2	1	19	-
Advertising	ı	1	ı	1	1	1	ı	1	1
Minor assets	1	1	ļ	1	ı	1	1	1	1
Audit costs: External	1	ı	Í	1	ı	ı	1	I	ı
Bursaries: Employees	ı	1	ı	1	1	1	ı	1	1
Catering: Departmental									
activities	18	(16)	1	2	Ī	2	1	18	1
Communication (G&S)	89	163	ı	231	224	7	%0'.26	99	20
Computer services	1	1	ļ	1	ı	1	1	1	1
Consultants: Business and									
advisory services	1	ı	ı	1	ı	ı	1	I	I
Legal services	ı	ī	I	ı	ī	Ī	ı	ı	1
Contractors	1	ı	ļ	1	i	1	1	1	1
Agency and support/									
outsourced services	1	I	1	ı	I	I	1	ı	1
Entertainment	1							2	~
Fleet services (incl.									
government motor									
transport)	1	ı	1	ı	ı	Î	ı	I	1
Inventory: Clothing, material									
and accessories	1	1	1	1	1	1	1	1	1

ı		1	ļ	ļ		ı	ı	ı	541	1	į	1-	1	ı		ı	1	ı	ı		ļ	ı	ı		I	I		I	ı	
1		1	ı	ı		1	1	ı	585	1	1	34	ı	ı		1	1	ı	ı		ı	ı	ı		ı	ı		ī	ı	1
1		ı	i	i		ı	1		3.1%	ı	ı	79.4%	ı	1		1	Ì	i	ı		i	i	İ		1	1		1	i	•
1		1	1	1		1	ı		155	1	1	7	ı	ı		ı	1	1	1		1	1	1		1	1		ı	1	•
1		ı	ı	ı		ı	ı		5	ı	ı	27	İ	ı		ı	1	ı	ı		ı	ı	ı		1	1		ı	ı	•
1		ı	1	1		1	ı		160	ı	ı	34	ı	ı		ı	1	1	ı		1	1	1		1	1		ī	1	•
1		ı	ı	ı		1	ı		ı	ı	ı	ı	ı	1		ı	1	ı	ı		ı	ı	ı		1	1		1	ı	1
1		1	1	1		1	1		(430)	1	1	1	1	ı		1	ı	1	ı		1	1	ı		1	1		ı	1	
1		Í	İ	İ		ı	1		290	Í	Í	34	1	ı		1	Ī	İ	ı		İ	İ	İ		ı	ı		ı	İ	
Inventory: Fuel, oil and gas	Inventory: Material and	Supplies	Inventory: Other supplies	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	Transfers and subsidies	Departmental agencies and	accounts	Departmental agencies	Higher education institutions	Foreign governments and international organisations	Public corporations and	private enterprises	Public corporations	Subsidies on products	Other transfers to	public corporations	Private enterprises	Other transfers to private	enterprises	Non-profit institutions	Households

Social benefits	1	1	ı	ı	1	1	1	ı	1
Other transfers to									
households	ı	ı	İ	1	ı	1	1	1	İ
Payment for capital assets	•	•	•	•	Ī	1	•	Ī	Ī
Buildings and other fixed									
structures	ı	ı	ı	1	Í	Ī	Í	1	1
Machinery and equipment	ı	ı	ı	1	ı	ı	ī	ı	Î
Transport equipment	1	1	1	1	İ	1	1	Ī	Ī
Other machinery and									
equipment	1	ı	ı	1	Î	1	İ	i	1
Software and other intangible									
assets	1	I	ı	ı	1	ī	ı	ı	í
Daymont for financial accate	1								
i ayıncın ioi iiilanda assets	1	1	1			1		1	1
Total	3,529	1,450	1	4,979	4,702	277	94.4%	5,128	4,856

# NOTES TO THE APPROPRIATION STATEMENT FOR THE YEAR ENDED 31 MARCH 2021

## 1. Details of transfers and subsidies as per 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.

### 2. Details of specifically and exclusively appropriated amounts voted (after virement):

Details of these transactions can be viewed in Note 1 (Annual Appropriation) to the Annual Financial Statements.

## 3. Details on payments for financial assets.

The details of these transactions can be viewed in Note 7 to the Annual Financial Statements.

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

4.1 Per Programme:	Final appropriation	Actual expenditure	Variance R'000	Variance as a % of final appropriation
	R'000	R'000	R'000	%
Programme name Administration				
Compensation	170,401	151,579	18,822	11.0%
Goods and services	100,760	88,300	12,460	12.4%
Payments for capital assets	· -	_	_	-

The variances are due to delays in filling prioritised positions, reduced expenditure on water and electricity due to officials working remotely and reduced expenditure on finance lease due to the Department not receiving all cellphones from Vodacom before the end of the financial year.

Programme name
<b>Technology Innovation</b>
Compensation

Compensation				
Goods and services	52,212	40,263	11,949	22.9%
Payments for capital assets	-	-	-	-
	_	-	-	_

The variance is due to delays in filling prioritised positions.

Programme name	
International Resour	ces and
Co-operation	
Compensation	

Compensation 53,805 47,315 6,490 12.1% Goods and services

Transfers and subsidies

The variance is due to delays in filling prioritised positions.

# NOTES TO THE APPROPRIATION STATEMENT FOR THE YEAR ENDED 31 MARCH 2021

4.2 Per Programme:	Final appropriation	Actual expenditure	Variance	Variance as a % of final appropriation
	R'000	R'000	R'000	%
Current payments				
Compensation of employees	361,993	321,938	40,055	11.1%
Goods and services Interest and rent on land	119,369	107,016	12,353	10.3%
	-	-	-	-
Transfers and subsidies				
Departmental agencies and accounts	5,156,034	4,721,326	434,708	8.4%
Higher education institutions	-	252,948	(252,948)	-
Public corporations and private enterprises	1,237,811	1,495,783	(257,972)	-20.8%
Non-profit institutions		-	-	-
Households	395,086	259,117	135,969	34.4%
Payments for capital assets				
Machinery and equipment Intangible assets	6,994 -	6,062 -	932	13.3%

The variance on transfers and subsidies was due delays in finalising the process to identify savings to cover a shortfall on health promotion agents project and contracting.

## **STATEMENT OF FINANCIAL PERFORMANCE FOR THE YEAR ENDED 31 MARCH 2021**

PERFORMANCE	Note	2020/21 R'000	2019/20 R'000
REVENUE Annual appropriation Departmental revenue Aid assistance	1 2 3	7,278,287 2,241 69,552	8,172,304 19,416 12,189
TOTAL REVENUE		7,350,080	8,203,909
EXPENDITURE Current expenditure			
Compensation of employees Goods and services Aid assistance Total current expenditure	<u>4</u> <u>5</u> <u>3</u>	321,938 107,016 250 <b>429,204</b>	323,876 207,059 970 <b>531,905</b>
Transfers and subsidies Transfers and subsidies	<u>7</u>	6,729,702	7,513,932
Aid assistance Total transfers and subsidies	<u>3</u>	68,881 <b>6,798,583</b>	11,219 <b>7,525,151</b>
Expenditure for capital assets  Tangible capital assets Intangible assets	<u>8</u> <u>8</u>	6,062	7,541
Total expenditure for capital assets  Unauthorised expenditure approved without funding		6,062	7,541 -
Payment for financial assets	<u>6</u>	547	89
TOTAL EXPENDITURE		7,234,396	8,064,686
SURPLUS FOR THE YEAR		115,684	139,223
Reconciliation of net surplus for the year Voted funds Departmental revenue Aid assistance	<u>14</u> <u>3</u>	113,022 2,241 421	119,807 19,416
SURPLUS FOR THE YEAR		115,684	139,223

# **STATEMENT OF FINANCIAL POSITION**FOR THE YEAR ENDED 31 MARCH 2021

POSITION	Note	2020/21 R'000	2019/20 R'000
ASSETS			
Current assets Cash and cash equivalents Prepayments and advances Receivables	<u>9</u> <u>10</u> <u>11</u>	113,872 105,361 6,000 2,511	73,756 70,948 136 2,672
Non-Current Assets Receivables	<u>11</u>	<b>143</b> 143	<b>191</b> 191
TOTAL ASSETS		114,015	73,947
LIABILITIES			
Current liabilities  Voted funds to be surrendered to the Revenue Fund	<u>13</u>	<b>113,506</b> 113,022	<b>73,843</b> 73,679
Departmental revenue to be surrendered to the Revenue Fund Payables Aid assistance repayable	14 15 3	27 36 421	13 151
TOTAL LIABILITIES		113,506	73,843
NET ASSETS		509	104
Represented by: Recoverable revenue		509	104
TOTAL		509	104

# **STATEMENT OF CHANGES IN NET ASSETS**FOR THE YEAR ENDED 31 MARCH 2021

NET ASSETS	Note	2020/21	2019/20	
NET ASSETS	R'000		R'000	
Recoverable revenue				
Opening balance		104	31	
Transfers:		405	73	
Debts revised		-	-	
Debts recovered (included in departmental				
receipts)		(75)	(51)	
Debts raised	L	480	124	
Closing balance		509	104	
TOTAL	_	509	104	

# **CASH FLOW STATEMENT**FOR THE YEAR ENDED 31 MARCH 2021

CASH FLOWS FROM OPERATING ACTIVITIES           Receipts         7,350,080         8,157,781           Annual appropriated funds received         1,1         7,278,287         8,126,176           Departmental revenue received         2         2,228         19,403           Interest received         2.2         13         13           Aid assistance received         2         69,552         12,189           Net (increase) decrease in working capital         (5,818)         (1,612)           Surrendered to Revenue Fund         (75,906)         (85,227)           Surrendered to RDP Fund/Donor         -         -           Current payments         (429,204)         (531,905)           Interest paid         (547)         (89)           Payments for financial assets         (547)         (89)           Transfers and subsidies paid         (6,798,583)         (7,525,151)           Net cash flow available from operating activities         16         40,022         13,797           CASH FLOWS FROM INVESTING ACTIVITIES         2.3         -           Payments for capital assets         8         (6,062)         (7,541)           Net cash flows from investing activities         48         30           Net cash flows fr	CASH FLOW	Note	2020/21 R'000	2019/20 R'000
Annual appropriated funds received Departmental revenue received D	CASH FLOWS FROM OPERATING ACTIVITIES			
Departmental revenue received Interest received Interest received Interest received Interest received Interest received Interest received Interest received Interest received Interest received Interest received Interest received Interest received Interest paid	Receipts		7,350,080	8,157,781
Interest received	Annual appropriated funds received	<u>1.1</u>	7,278,287	8,126,176
Interest received	Departmental revenue received	<u>2</u>	2,228	19,403
Aid assistance received         3         69,552         12,189           Net (increase) decrease in working capital         (5,818)         (1,612)           Surrendered to Revenue Fund         (75,906)         (85,227)           Surrendered to RDP Fund/Donor         -         -           Current payments         (429,204)         (531,905)           Interest paid         -         -           Payments for financial assets         (547)         (89)           Transfers and subsidies paid         (6,798,583)         (7,525,151)           Net cash flow available from operating activities         16         40,022         13,797           CASH FLOWS FROM INVESTING ACTIVITIES         Payments for capital assets         2.3         (6,062)         (7,541)           Proceeds from sale of capital assets         2.3         -         -           Increase in non- current-current receivables         48         30           Net cash flows from investing activities         (6,014)         (7,511)           CASH FLOWS FROM FINANCING ACTIVITIES         405         73           Net cash flows from financing activities         405         73           Net increase/(decrease) in cash and cash equivalents         34,413         6,359           Cash and cash equivalents a	Interest received		13	13
Surrendered to Revenue Fund  Surrendered to RDP Fund/Donor  Current payments  (429,204)  (531,905) Interest paid  Payments for financial assets  (547)  (89) Transfers and subsidies paid  (6,798,583)  (7,525,151)  Net cash flow available from operating activities  Payments for capital assets  (6,798,583)  (7,525,151)  CASH FLOWS FROM INVESTING ACTIVITIES  Payments for capital assets  Payment	Aid assistance received		69,552	12,189
Surrendered to RDP Fund/Donor         -         -         -           Current payments         (429,204)         (531,905)           Interest paid         -         -           Payments for financial assets         (547)         (89)           Transfers and subsidies paid         (6,798,583)         (7,525,151)           Net cash flow available from operating activities         16         40,022         13,797           CASH FLOWS FROM INVESTING ACTIVITIES         Payments for capital assets         8         (6,062)         (7,541)           Proceeds from sale of capital assets         2.3         -         -           Increase in non- current-current receivables         48         30           Net cash flows from investing activities         (6,014)         (7,511)           CASH FLOWS FROM FINANCING ACTIVITIES         (6,014)         (7,511)           CASH FLOWS from financing activities         405         73           Net cash flows from financing activities         34,413         6,359           Cash and cash equivalents at the beginning of the period         70,948         64,589	Net (increase) decrease in working capital		(5,818)	(1,612)
Current payments         (429,204)         (531,905)           Interest paid         -           Payments for financial assets         (547)         (89)           Transfers and subsidies paid         (6,798,583)         (7,525,151)           Net cash flow available from operating activities         16         40,022         13,797           CASH FLOWS FROM INVESTING ACTIVITIES         Payments for capital assets         2.3         -           Proceeds from sale of capital assets         2.3         -           Increase in non- current-current receivables         48         30           Net cash flows from investing activities         (6,014)         (7,511)           CASH FLOWS FROM FINANCING ACTIVITIES         405         73           Increase/(decrease) in net assets         405         73           Net cash flows from financing activities         405         73           Net increase/(decrease) in cash and cash equivalents         34,413         6,359           Cash and cash equivalents at the beginning of the period         70,948         64,589	Surrendered to Revenue Fund		(75,906)	(85,227)
Interest paid Payments for financial assets Transfers and subsidies paid Net cash flow available from operating activities  CASH FLOWS FROM INVESTING ACTIVITIES Payments for capital assets Proceeds from sale of capital assets Increase in non- current-current receivables Net cash flows from investing activities  CASH FLOWS FROM FINANCING ACTIVITIES Proceeds from sale of capital assets Increase in non- current-current receivables Net cash flows from investing activities  CASH FLOWS FROM FINANCING ACTIVITIES Increase/(decrease) in net assets Net cash flows from financing activities  Australia (6,014)  CASH FLOWS FROM FINANCING ACTIVITIES Increase/(decrease) in cash and cash equivalents  Australia (6,014)  Cash and cash equivalents at the beginning of the period  Payments for financial assets (6,798,583) (7,525,151)  (6,062) (7,541) (7,541) (7,511)	Surrendered to RDP Fund/Donor		-	-
Payments for financial assets Transfers and subsidies paid Net cash flow available from operating activities  CASH FLOWS FROM INVESTING ACTIVITIES Payments for capital assets Proceeds from sale of capital assets Perceeds from sale of capital assets Perceeds from investing activities  CASH FLOWS FROM FINANCING ACTIVITIES Proceeds from investing activities  CASH FLOWS FROM FINANCING ACTIVITIES Increase in non- current-current receivables Increase/(decrease) in net assets Increase/(decrease) in net assets  Australia Austral	Current payments		(429,204)	(531,905)
Transfers and subsidies paid  Net cash flow available from operating activities  16  40,022  13,797  CASH FLOWS FROM INVESTING ACTIVITIES  Payments for capital assets  Proceeds from sale of capital assets  Increase in non- current-current receivables  Net cash flows from investing activities  CASH FLOWS FROM FINANCING ACTIVITIES  Increase/(decrease) in net assets  Net cash flows from financing activities  Cash and cash equivalents at the beginning of the period  (6,798,583)  (7,525,151)  40,022  13,797  (7,541)  (7,541)  (7,541)  (7,511)  CASH FLOWS FROM FINANCING ACTIVITIES  Increase/(decrease) in net assets  48  405  73  August 405  73  Net increase/(decrease) in cash and cash equivalents  34,413  6,359	Interest paid			-
Net cash flow available from operating activities1640,02213,797CASH FLOWS FROM INVESTING ACTIVITIESPayments for capital assets8(6,062)(7,541)Proceeds from sale of capital assets2.3-Increase in non- current-current receivables4830Net cash flows from investing activities(6,014)(7,511)CASH FLOWS FROM FINANCING ACTIVITIESIncrease/(decrease) in net assets40573Net cash flows from financing activities40573Net increase/(decrease) in cash and cash equivalents34,4136,359Cash and cash equivalents at the beginning of the period70,94864,589			, ,	(89)
CASH FLOWS FROM INVESTING ACTIVITIES Payments for capital assets Proceeds from sale of capital assets Increase in non- current-current receivables Net cash flows from investing activities  CASH FLOWS FROM FINANCING ACTIVITIES Increase/(decrease) in net assets Increase/(decrease) in net assets  Net cash flows from financing activities  Net increase/(decrease) in cash and cash equivalents  Cash and cash equivalents at the beginning of the period  70,948  64,589	Transfers and subsidies paid		(6,798,583)	(7,525,151)
Payments for capital assets Proceeds from sale of capital assets Increase in non- current-current receivables Net cash flows from investing activities  CASH FLOWS FROM FINANCING ACTIVITIES Increase/(decrease) in net assets Net cash flows from financing activities  Net increase/(decrease) in cash and cash equivalents  Cash and cash equivalents at the beginning of the period  Proceeds from sale of capital assets 2.3	Net cash flow available from operating activities	<u>16</u>	40,022	13,797
Proceeds from sale of capital assets Increase in non- current-current receivables  Net cash flows from investing activities  CASH FLOWS FROM FINANCING ACTIVITIES Increase/(decrease) in net assets  Net cash flows from financing activities  Net increase/(decrease) in cash and cash equivalents  Cash and cash equivalents at the beginning of the period  70,948  64,589	CASH FLOWS FROM INVESTING ACTIVITIES			
Proceeds from sale of capital assets Increase in non- current-current receivables  Net cash flows from investing activities  CASH FLOWS FROM FINANCING ACTIVITIES Increase/(decrease) in net assets  Net cash flows from financing activities  Net increase/(decrease) in cash and cash equivalents  Cash and cash equivalents at the beginning of the period  70,948  64,589	Payments for capital assets	8	(6,062)	(7,541)
Net cash flows from investing activities(6,014)(7,511)CASH FLOWS FROM FINANCING ACTIVITIES Increase/(decrease) in net assets40573Net cash flows from financing activities40573Net increase/(decrease) in cash and cash equivalents34,4136,359Cash and cash equivalents at the beginning of the period70,94864,589			,	_
CASH FLOWS FROM FINANCING ACTIVITIES Increase/(decrease) in net assets 405 73  Net cash flows from financing activities 405 73  Net increase/(decrease) in cash and cash equivalents 34,413 6,359  Cash and cash equivalents at the beginning of the period 70,948 64,589	Increase in non- current-current receivables		48	30
Increase/(decrease) in net assets  Net cash flows from financing activities  Net increase/(decrease) in cash and cash equivalents  Cash and cash equivalents at the beginning of the period  70,948  64,589	Net cash flows from investing activities		(6,014)	(7,511)
Net cash flows from financing activities40573Net increase/(decrease) in cash and cash equivalents34,4136,359Cash and cash equivalents at the beginning of the period70,94864,589	CASH FLOWS FROM FINANCING ACTIVITIES			
Net cash flows from financing activities40573Net increase/(decrease) in cash and cash equivalents34,4136,359Cash and cash equivalents at the beginning of the period70,94864,589	Increase/(decrease) in net assets		405	73
Cash and cash equivalents at the beginning of the period 70,948 64,589	•		405	73
period 70,948 64,589	Net increase/(decrease) in cash and cash equivalents		34,413	6,359
Cash and cash equivalents at end of period 105,361 70,948			70,948	64,589
	Cash and cash equivalents at end of period	<u>17</u>	105,361	70,948

The financial statements have been prepared in accordance with the policies indicated below, which have been applied consistently in all material aspects, unless otherwise indicated. Management has concluded that the financial statements fairly present 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 where necessary. 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 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 due to the following reasons amongst others:

- (i) The Department was allocated a budget over the Medium-Term Expenditure Framework period that includes R8\ 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 on going. The plan is being implemented and will only be reviewed after 2020.

### 3. Presentation currency

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

### 4. Rounding

Unless otherwise stated 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.

#### 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 is measured at the fair value of the consideration receivable. Write-offs if any are made according to the Department's debt write-off policy.

#### 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 former 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.

### 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.

#### 8.4. Leases

#### 8.4.1. Operating leases

Operating lease payments made during the reporting period are recognised as current expenditure in the Statement of Financial Performance on the date of payment. The operating lease commitments are recorded in the notes to the financial statements.

#### 8.4.2. Finance leases

Finance lease payments made during the reporting period are recognised as capital expenditure in the Statement of Financial Performance on the date of payment. The finance lease commitments are recorded in the notes to the financial statements and are not apportioned between the capital and interest portions.

Finance 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.

#### 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, departments must measure their 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 in 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

Payables are recognised in the Statement of Financial Position at cost.

### 16. Capital assets

### 16.1. Immovable capital assets

Immovable capital assets are reflected in the asset register of the Department and recorded in the notes to the financial statements at cost or fair value where the cost cannot be determined reliably. Immovable capital assets acquired in a non- exchange transaction are recorded at fair value at the date of acquisition. Immovable assets are subsequently carried in the asset register at cost and are not currently subject to depreciation or impairment.

Subsequent expenditure of a capital nature forms part of the cost of the existing asset when ready for use.

Additional information on immovable assets not reflected in the asset register is provided in the notes to financial statements.

#### 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 are measured at fair value as at the date of acquisition.

Where the cost of movable capital assets cannot be determined reliably, 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 reliably, the intangible capital assets are measured at fair value and where fair value cannot be determined; the intangible assets are measured at R1. All assets acquired prior to 1 April 2002 (or a later date as approved by the OAG) are recorded at R1. Intangible assets are subsequently carried at cost and are not subject to depreciation or impairment.

Subsequent expenditure that is of a capital nature is added to the cost of the asset at the end of the capital project unless the intangible asset is recorded by another department/entity, in which case the completed project costs are transferred to that department.

## 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 assets 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.

#### 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. Capital Commitments

Capital 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.

### 20. Irregular expenditure

Irregular expenditure is recorded in the notes to the financial statements when confirmed after its assessment. The amount recorded is equal to the value of the irregular expenditure incurred unless it is impracticable to determine, in which case reasons therefore are provided in the note.

Irregular expenditure is reduced from the note when it is either condoned by the relevant authority, transferred to receivables for recovery or not condoned and removed or written-off.

Irregular expenditure receivables are measured at the amount that is expected to be recoverable and are derecognised when settled or subsequently written-off as irrecoverable.

### 21. Changes in accounting estimates

Changes in accounting estimates that are effected by management have been applied retrospectively in accordance with Modified Cash Standards (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 must 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 party to a principal-agent arrangement with the Department of Justice and Constitutional Development. In terms of the arrangement of a principal agent, all related revenues, expenditures, assets and liabilities have to be recognised or recorded in terms of the relevant policies listed herein. Additional disclosures have to be 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 MCS and that there was no departure from any particular requirement to achieve fair presentation.

### 25. Capitalisation reserve

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

#### 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 led to the revaluation of inventory includes but not limited to obsolesce, 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 and 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. The department is not a party to any public-private partnership.

### 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.

#### 31. Transfer of functions

Transfer of functions are accounted for by the acquirer by recognising or recording assets acquired and liabilities assumed at their carrying amounts at the date of transfer. Transfer of functions are accounted for by the transferor by derecognising or removing assets and liabilities at their carrying amounts at the date of transfers.

### 32. Mergers

Mergers are accounted for by the combined department by recognised or recording assets acquired and liabilities assumed at their carrying amounts at the date of the merger.

Mergers are accounted for by the combining departments by derecognising or removing assets and liabilities at their carrying amounts at the date of the merger.

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2021

## 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 2020/2021	Actual funds received 2020/2021	Funds not requested /not received 2020/2021	Final appropriation 2019/2020	Actual funds received 2019/2020	Funds not requested /not received 2019/2020
	R'000	R'000	R'000	R'000	R'000	R'000
Administration Technology	304,107	304,107	-	372,313	337,981	34,332
Innovation	1,378,321	1,378,321	-	1,280,292	1,273,011	7,281
International Cooperation and Resources Research	116,802	116,802	-	149,131	146,943	2,188
Development and Support	3,745,248	3,745,248	-	4,583,676	4,582,801	875
Socio-Economic Innovation						
Partnerships	1,733,809	1,733,809	_	1,786,892	1,785,440	1,452
Total	7,278,287	7,278,287	-	8,172,304	8,126,176	46,128

The Final Appropriation amount disclosed is based on the approved adjusted budget.

## 2. Departmental revenue

Note	2020/21 R'000	2019/20 R'000
<u>2.1</u>	71	69
<u>2.2</u>	13	13
<u>2.3</u>	-	-
<u>2.4</u>	2,157	19,334
_	2,241	19,416
	2.1 2.2 2.3	R'000  2.1 71 2.2 13 2.3 - 2.4 2,157

## 2.1 Sales of goods and services other than capital assets

		Note	2020/21 R'000	2019/20 R'000
Oth	ner sales	_ [	69	67
	les of scrap, waste and other used current		2	2
Total	ods	=	71	<u>2</u> <b>69</b>
		=		
2.2	Interest, dividends and rent on land	N/-4-	2020/21	2019/20
		Note <u>2</u>	R'000	R'000
Intere	st		13	13
Total		=	13	13
2.3	Sale of capital assets	Note	2020/21	2019/20
		<u>2</u>	R'000	R'000
Machinery and equipment		-	<u> </u>	
Total		=	<u> </u>	-
2.4	Transactions in financial assets and liabilities			
		Note	2020/21	2019/20
		<u>2</u>	R'000	R'000
Other receipts, including recoverable revenue		-	2,157	19,334
Total		=	2,157	19,334
3.	Aid assistance			
3.1	Aid assistance received in cash from RDP			
		Note	2020/21	2019/20
		<u>3</u>	R'000	R'000
Forei	_			
-	ing balance year error		_	-
As res		-		_
	ferred from Statement of Financial			
	rmance		421	-
	during the year <b>ng balance</b>	-	<u>-</u> 421	
CIUSI	ng balance	=	441	

## 3.2 Analysis of balance by source

	Note		
Aid assistance from RDP RDP Fund Closing balance	<u>3</u>	421 <b>421</b>	- - -
3.3 Analysis of balance	Note		
Aid assistance repayable  Closing balance	<u>3</u>	421 <b>421</b>	-
3.4 Aid assistance expenditure per economic cla	ssification		
	Note		
Current	<u>3</u>	250	970
Capital		-	-
Transfers and subsidies		68,881	11,219
Closing balance		69,131	12,189

The analysis on sub-note 3.4 was introduced in 2019/20 to indicate the allocation of donor funds expenditure during the financial year.

## 4. Compensation of employees

## 4.1 Salaries and wages

	Note	2020/21	2019/20
	<u>4</u>	R'000	R'000
Basic salary		214,313	214,868
Performance award		3,178	5,594
Service-based		22	154
Compensative/circumstantial		3,803	4,358
Periodic payments		-	-
Other non-pensionable allowances	_	66,425	64,831
Total	_	287,741	289,805
	_		

## 4.2 Social contributions

Total compensation of employees         321,938         323,8           .         .           Average number of employees         383         3           5. Goods and services         Note         2020/21         2019/20           R'000         R'000         R'000           Administrative fees         95         2,1           Advertising         4,261         13,1           Minor assets         5.1         282         3           Bursaries (employees)         469         1,1           Catering         49         2,9           Communication         12,793         7,2           Computer services         5.2         25,577         13,0           Consultants: Business and advisory services         10,359         12,3           Legal services         814         1,0           Contractors         1,672         7,0           Agency and support/outsourced services         10,242         9,1	640 61 <b>)71</b>
Pension         27,315         27,4           Medical         6,842         6,5           Bargaining council         40         34,197         34,0           Total         321,938         323,8           Average number of employees         383         33           5. Goods and services           Note 2020/21 R*000         2019/20 R*000           Administrative fees         95         2,1           Advertising         4,261         13,1           Minor assets         5.1         282         3           Bursaries (employees)         469         1,1           Catering         49         2,9           Communication         12,793         7,2           Computer services         5.2         25,577         13,0           Consultants: Business and advisory services         10,359         12,3           Legal services         814         1,0           Contractors         1,672         7,0           Agency and support/outsourced services         10,242         9,1	540 61 <b>)71</b> <b>376</b>
Medical Bargaining council       6,842       6,5         Total       34,197       34,0         Total compensation of employees       321,938       323,8         Average number of employees       383       3         5. Goods and services         Note 2020/21 R'000       2019/20 R'000         Administrative fees       95       2,1         Advertising       4,261       13,1         Minor assets       5.1       282       3         Bursaries (employees)       469       1,1         Catering       49       2,9         Communication       12,793       7,2         Computer services       5.2       25,577       13,0         Consultants: Business and advisory services       10,359       12,3         Legal services       814       1,0         Contractors       1,672       7,0         Agency and support/outsourced services       10,242       9,1	540 61 <b>)71</b> <b>376</b>
Bargaining council   40   34,197   34,0	61 <b>071</b> <b>376</b>
Total compensation of employees         321,938         323,8           .         .           Average number of employees         383         3           5. Goods and services         Note         2020/21         2019/20           R'000         R'000         R'000           Administrative fees         95         2,1           Advertising         4,261         13,1           Minor assets         5.1         282         3           Bursaries (employees)         469         1,1           Catering         49         2,9           Communication         12,793         7,2           Computer services         5.2         25,577         13,0           Consultants: Business and advisory services         10,359         12,3           Legal services         814         1,0           Contractors         1,672         7,0           Agency and support/outsourced services         10,242         9,1	376
Total compensation of employees         321,938         323,8           Average number of employees         383         3           5. Goods and services         Note         2020/21         2019/20           R'000         R'000         R'000           Administrative fees         95         2,1           Advertising         4,261         13,1           Minor assets         5.1         282         3           Bursaries (employees)         469         1,1           Catering         49         2,9           Communication         12,793         7,2           Computer services         5.2         25,577         13,0           Consultants: Business and advisory services         10,359         12,3           Legal services         814         1,0           Contractors         1,672         7,0           Agency and support/outsourced services         10,242         9,1	376
Average number of employees 383 3  5. Goods and services    Note   2020/21   2019/20     R'000   R'000     Administrative fees 95 2,1     Advertising 4,261 13,1     Minor assets 5.1 282 3     Bursaries (employees) 469 1,1     Catering 49 2,9     Communication 12,793 7,2     Computer services 5.2 25,577 13,0     Consultants: Business and advisory services 10,359 12,3     Legal services 814 1,0     Contractors 814 1,0     Contractors 1,672 7,0     Agency and support/outsourced services 10,242 9,1	
5. Goods and services         Note       2020/21       2019/20         R'000       R'000         Administrative fees       95       2,1         Advertising       4,261       13,1         Minor assets       5.1       282       3         Bursaries (employees)       469       1,1         Catering       49       2,9         Communication       12,793       7,2         Computer services       5.2       25,577       13,0         Consultants: Business and advisory services       10,359       12,3         Legal services       814       1,0         Contractors       1,672       7,0         Agency and support/outsourced services       10,242       9,1	180
5. Goods and services         Note       2020/21       2019/20         R'000       R'000         Administrative fees       95       2,1         Advertising       4,261       13,1         Minor assets       5.1       282       3         Bursaries (employees)       469       1,1         Catering       49       2,9         Communication       12,793       7,2         Computer services       5.2       25,577       13,0         Consultants: Business and advisory services       10,359       12,3         Legal services       814       1,0         Contractors       1,672       7,0         Agency and support/outsourced services       10,242       9,1	380
5. Goods and services         Note       2020/21       2019/20         R'000       R'000         Administrative fees       95       2,1         Advertising       4,261       13,1         Minor assets       5.1       282       3         Bursaries (employees)       469       1,1         Catering       49       2,9         Communication       12,793       7,2         Computer services       5.2       25,577       13,0         Consultants: Business and advisory services       10,359       12,3         Legal services       814       1,0         Contractors       1,672       7,0         Agency and support/outsourced services       10,242       9,1	
Note         2020/21 R'000         2019/20 R'000           Administrative fees         95         2,1           Advertising         4,261         13,1           Minor assets         5.1         282         3           Bursaries (employees)         469         1,1           Catering         49         2,9           Communication         12,793         7,2           Computer services         5.2         25,577         13,0           Consultants: Business and advisory services         10,359         12,3           Legal services         814         1,0           Contractors         1,672         7,0           Agency and support/outsourced services         10,242         9,1	
Administrative fees         R'000         R'000           Advertising         95         2,1           Advertising         4,261         13,1           Minor assets         5.1         282         3           Bursaries (employees)         469         1,1           Catering         49         2,9           Communication         12,793         7,2           Computer services         5.2         25,577         13,0           Consultants: Business and advisory services         10,359         12,3           Legal services         814         1,0           Contractors         1,672         7,0           Agency and support/outsourced services         10,242         9,1	
Administrative fees       95       2,1         Advertising       4,261       13,1         Minor assets       5.1       282       3         Bursaries (employees)       469       1,1         Catering       49       2,9         Communication       12,793       7,2         Computer services       5.2       25,577       13,0         Consultants: Business and advisory services       10,359       12,3         Legal services       814       1,0         Contractors       1,672       7,0         Agency and support/outsourced services       10,242       9,1	)
Advertising       4,261       13,1         Minor assets       5.1       282       3         Bursaries (employees)       469       1,1         Catering       49       2,9         Communication       12,793       7,2         Computer services       5.2       25,577       13,0         Consultants: Business and advisory services       10,359       12,3         Legal services       814       1,0         Contractors       1,672       7,0         Agency and support/outsourced services       10,242       9,1	U3
Minor assets       5.1       282       3         Bursaries (employees)       469       1,1         Catering       49       2,9         Communication       12,793       7,2         Computer services       5.2       25,577       13,0         Consultants: Business and advisory services       10,359       12,3         Legal services       814       1,0         Contractors       1,672       7,0         Agency and support/outsourced services       10,242       9,1	
Bursaries (employees)       469       1,1         Catering       49       2,9         Communication       12,793       7,2         Computer services       5.2       25,577       13,0         Consultants: Business and advisory services       10,359       12,3         Legal services       814       1,0         Contractors       1,672       7,0         Agency and support/outsourced services       10,242       9,1	95 849
Catering       49       2,9         Communication       12,793       7,2         Computer services       5.2       25,577       13,0         Consultants: Business and advisory services       10,359       12,3         Legal services       814       1,0         Contractors       1,672       7,0         Agency and support/outsourced services       10,242       9,1	
Communication       12,793       7,2         Computer services       5.2       25,577       13,0         Consultants: Business and advisory services       10,359       12,3         Legal services       814       1,0         Contractors       1,672       7,0         Agency and support/outsourced services       10,242       9,1	
Computer services         5.2         25,577         13,0           Consultants: Business and advisory services         10,359         12,3           Legal services         814         1,0           Contractors         1,672         7,0           Agency and support/outsourced services         10,242         9,1	
Consultants: Business and advisory services10,35912,3Legal services8141,0Contractors1,6727,0Agency and support/outsourced services10,2429,1	
Legal services8141,0Contractors1,6727,0Agency and support/outsourced services10,2429,1	
Contractors 1,672 7,0 Agency and support/outsourced services 10,242 9,1	
Agency and support/outsourced services 10,242 9,1	
Entertainment 30 2	236
Audit cost – external <u>5.3</u> 4,219 5,5	
	37
Consumables <u>5.4</u> 2,874 7,2	
Operating leases 4,129 2,6	
Property payments <u>5.5</u> 13,306 42,3	
Rental and Hiring 331 2,1	
Travel and subsistence <u>5.6</u> 7,414 46,9	
Venues and facilities 1,456 17,4	
Training and development 1,558 3,0	59
Other operating expenditure 5.7 4,309 9,0	
Total 107,016 207,0	112

5.1 Minor assets	Note	2020/21 R'000	2019/20 R'000
Tangible assets	<u>5</u>	17 000	349
Machinery and equipment	[	282	349
Intangible assets	L		
Total	=	282	349
5.2 Computer services			
	Note	2020/21	2019/20
OLTA .	<u>5</u>	R'000	R'000
SITA computer services		7,846	8,610
External computer service providers  Total		17,731	4,480
Total	=	25,577	13,090
5.3 Audit cost – External			
	Note	2020/21	2019/20
	5	R'000	R'000
Regularity audits		4,219	5,580
Total		4,219	5,580
5.4 Consumables			
	Note	2020/21	2019/20
	<u>5</u>	R'000	R'000
Consumables supplies		1,231	2,237
Uniform and clothing		162	277
Households supplies		276	305
Communication accessories IT consumables		702 T	6
Other consumables		90	1,369 280
Stationery, printing and office supplies		1,643	4,987
Total		2,874	7,224
5.5 Property payments			
	Note	2020/21	2019/20
	<u>5</u>	R'000	R'000
Municipal services		2,705	3,579
Property maintenance and repairs		4,127	31,575
Other		6,474	7,168
Total		13,306	42,322

5.6 Travel and subsistence			
	Note	2020/21	2019/20
	<u>5</u>	R'000	R'000
Local		6,213	33,158
Foreign	_	1,201	13,770
Total	_	7,414	46,928
		_	
5.7 Other operating expenditure		0000/04	0040/00
	Note	2020/21	2019/20
Distancional hadian manufacturing and automotion	<u>5</u>	R'000	R'000
Professional bodies, membership and subscription		2.042	2.072
fees		2,043	3,972
Resettlement costs		20	910
Other	_	2,246	4,130
Total	_	4,309	9,012
6. Payments for financial assets			
	Note	2020/21	2019/20
	Note	R'000	R'000
Other material losses written off	<u>6.1</u>	547	54
Debts written off	<u>6.2</u>	<u>-</u>	35
Total		547	89
	=		
6.1 Other material losses written off			
	Note	2020/21	2019/20
	<u>6</u>	R'000	R'000
	×		
Nature of losses			
Losses in respect of damaged vehicle written off		547	54
Total	<u>-</u>	547	54
	-		

6.2 Debts written off	<i>Note</i> <u>6</u>	2020/21 R'000	2019/20 R'000
Nature of losses			
Irrecoverable debts written off		-	35
Total	- -		35
7. Transfers and subsidies		2020/21 R'000	2019/20 R'000
	Note		
Departmental agencies and accounts	Annex 1B	4,721,326	5,165,068
Higher education institutions	Annex 1C	252,948	-
Foreign governments and international	Annex 1E		
organisations Public corporations and private enterprises	Annex 1D	1,495,783	- 1,811,667
Non-profit institutions	Annex 1F	259,117	533,590
Households, Gifts, Donations and	Annex 1G&J		223,223
Sponsorships	_	528	3,607
Total	=	6,729,702	7,513,932
8. Expenditure for capital assets			
	Note	2020/21 R'000	2019/20 R'000
Tangible assets		6,062	7,541
Machinery and equipment	<u>8.1</u>	6,062	7,541
Intangible assets	г	<u>-</u>	
Software Patents, licences, copyright, brand names, trademarks	<u>8.1</u>	-	-
Total	- -	6,062	7,541

## 8.1 Analysis of funds used to acquire capital assets – 2020/21

	Voted funds	Aid assistance	Total
	R'000	R'000	R'000
Tangible assets  Machinery and equipment	6,062		6,062
Total	6,062		6,062

## 8.2 Analysis of funds utilised to acquire capital assets – 2019/20

	Voted funds	Aid assistance	Total
	R'000	R'000	R'000
Machinery and equipment	7,541	-	7,541
Total assets acquired	7,541	-	7,541
Total	7,541	<u> </u>	7,541

## 8.3 Finance lease expenditure included in expenditure for capital assets

	Note	2020/21 R'000	2019/20 R'000
Tangible assets Machinery and equipment		2,732	1,138
Total	=	2,732	1,138
9. Cash and cash equivalents			
	Note	2020/21 R'000	2019/20 R'000
Consolidated Paymaster-General Account		105,328	70,915
Cash on hand	_	33	33
Total	=	105,361	70,948

10. Prepayments and advances	10.	Prepay	yments	and	advances
------------------------------	-----	--------	--------	-----	----------

	Note	2020/21	2019/20
		R'000	R'000
Travel and subsistence		-	14
Advances paid	_	6,000	122
Total	_	6,000	136

#### 10.1 Advances paid (not expensed)

10.1 Advance	s paid (not expe	nsed)			
	Amount as at 1 April 2020	Less: Amount expensed in current year	Add/Less: Other	Add: Current year advances	Balance as at 31 March 2021
	R'000	R'000	R'000	R'000	R'000
National					
Departments	122	(459)	-	6,337	6,000
Provincial departments	_	_	_	_	_
Closing balance	122	(459)	_	6,337	6,000
					· · · · · · · · · · · · · · · · · · ·
	Amount as at 1 April 2019	Less: Amount expensed in current	Add/Less: Other	Add: Current year advances	Balance as at 31 March 2020
	R'000	year R'000	R'000	R'000	R'000
National					
departments	820	(2,256)	-	1,558	122
Provincial departments	-	-	_	-	_
Closing					

1,558

122

820

(2,256)

balance

11.	Receiva	bles	2020/21 202				2019/20		
			Current	Non- Current	Total		Current	Non- Current	Total
			R'000	R'000	R'000		R'000	R'000	R'000
		Note							
Claims	8								
recove Recov		<u>11.1</u>	1,918	12	1,930		2,070	16	2,086
expend		<u>11.2</u>	132	17	149		396	136	532
Staff d		<u>11.2</u> <u>11.3</u>	461	114	575		206	39	245
Total		<u> </u>	2,511	143	2,654		2,672	191	2,863
11.1	Claims re	ecovera	able			Note <u>11</u>	2020/21 R'000		019/20 R'000
Nation	al depart	ments				<u> </u>	66		32
			orofit institu	tions		_	1,26	3	2,054
Total						_	1,93	<u> </u>	2,086
11.2	Recovera	able exp	penditure (d	disallowanc	e accounts	S) Note	2020/21	20	019/20
						<u>11</u>	R'000	F	R'000
	e tax deb							-	-
	salaries ges to ve		oppages				14	- 10	- 532
-	learing a						17	-	-
Total						<del>-</del>	14	 19	532
11.3	Staff deb	ot				=			
						Note	2020/21	20	019/20
						<u>11</u>	R'000		R'000
Salary	overpay	ment					3	37	72
•	one debt	S					2	20	27
Other								-	18
	e tax deb							4	8
	dvance d						_	6	34
	-related o	debt						36	86
Bursar	y debt					-	42		- 0.45
Total						=	57	<u> </u>	245

#### 12. Investments

The Department acquired shares for 35% shareholding of the Biological and Vaccines Institute (Biovac) of South Africa valued at R142,035 million (calculated as percentage of retained earnings of Biovac as at 31 December 2020) 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

	<u>Note</u>	2020/21 R'000	2019/20 R'000
Opening balance		73,679	65,812
Prior period error			
As restated		73,679	65,812
Transfer from Statement of Financial Performance		113,022	119,807
Voted funds not requested/not received	1.1	-	(46,128)
Paid during the year		(73,679)	(65,812)
Closing balance	<u>.</u>	113,022	73,679

## 14. Departmental revenue to be surrendered to the Revenue Fund

	Note	2020/21 R'000	2019/20 R'000
Opening balance		13	12
Prior period error	_		
As restated		13	12
Transfer from Statement of Financial Performance		2,241	19,416
Paid during the year	_	(2,227)	(19,415)
Closing balance		27	13

## 15. Payables – current

Note	2020/21	2019/20
	R'000	R'000
15.1	36	151
15.2		
	36	151
		15.1 36 15.2 <u>-</u>

## 15 1 Clearing accounts

	Note 15	2020/21 R'000	2019/20 R'000
Sal: Government Employee Housing Scheme			
refund control account: Current liability		-	-
Sal: Income tax: Current liability		35	149
Sal: Pension Fund: Current liability		1_	2
Total		36	151

## 16. Net cash flow available from operating activities

٨	Vote	2020/21 R'000	2019/20 R'000
Net surplus as per Statement of Financial			
Performance		115,684	139,223
Add back non-cash/cash movements not deemed			
operating activities		(75,662)	(125,426)
(Increase)/Decrease in receivables – current		161	(2,562)
(Increase)/Decrease in prepayments and advances		(5,864)	817
Increase/(Decrease) in payables – current		(115)	133
Proceeds from sale of capital assets		-	-
Expenditure on capital assets		6,062	7,541
Surrenders to Revenue Fund	13	(75,906)	(85,227)
Surrenders to Donor Fund		-	-
Voted funds not requested/not received		-	(46,128)
Net cash flow generated by operating activities	=	40,022	13,797

## 17. Reconciliation of cash and cash equivalents for cash flow purposes

	Note	2020/21	2019/20
		R'000	R'000
Consolidated Paymaster-General Account		105,328	70,915
Cash on hand		33	33
Total		105,361	70,948

## 18. Contingent liabilities

	Note	2020/21 R'000	2019/20 R'000
<b>Liable to</b> Claims against the department	<u>Annex</u>	401	401
Total	<u>3B</u>	401	401

- 1. The Department received a claim at the end of the 2018/19 reporting period, where a former manager of science centre alleged unfair treatment and financial loss, and therefore claimed restitution fees. On 20 June 2019, management received a legal opinion that indicated that the claim was frivolous and vexatious should therefore be dismissed with costs, and furthermore the amount of the claim was not a reliable estimate, and it could therefore not be disclosed. For the purpose of disclosure for the 2020/21 financial year the Department requested a legal opinion to ascertain whether the status of the claim had changed and it was indicated in the legal opinion that the status remained the same.
- 2. The contingent liability of R401 000 has been disclosed since the 2013/14 financial year. The matter has been dormant for some time; however, it can only be removed when the matter has been removed from the court roll.
- 3. The Labour Appeal Court (LAC) declared the salary increases for the 2020/21 financial year unlawful and invalid. The LAC ruling has been appealed and referred to the Constitutional Court. The ruling by the Constitutional Court will confirm whether the Department will be obligated to pay the salary increases in dispute.

#### 19. Commitments

Capital commitments	Note	2020/21 R'000	2019/20 R'000
oupital communents		32	
Total commitments	=	32	

The disclosure is limited to capital asset disclosure only. The disclosure for goods and services commitment was discontinued in 2019/20 financial year.

## 20. Accruals and payables not recognised

20.1 Accruals			2020/21 R'000	2019/20 R'000
Listed by economic classification				
Goods and services	<b>30 days</b> 2,955	30+ days -	Total 2,955	Total 5,516
Capital assets Total	2,955	-	2,955	5,516
Listed by Programme		Note		
Programme 1: Administration			2,053	4,220
Programme 2: Technology Innovation Programme 3: International Cooperati			106	123
Resources			540	888
Programme 4: Research Developmen Support Programme 5: Socio-Economic Innov			148	242
Partnerships	attorr		108	43
Total		_	2,955	5,516
20.2 Payables not recognised  Listed by economic classification	30 days	30 +days	Total	Total
Goods and services	_	_	<u>-</u>	968
Capital assets	-	-	-	<u>-</u>
Total	-	-	-	968
Lists the Barress		Note	2020/21 R'000	2019/20 R'000
Listed by Programme Programme 1: Administration			_	581
Programme 2: Technology Innovation			_	-
Programme 3: International Cooperati	on and			
Resources Programme 4: Research Developmen	it and		-	-
Support	it and		-	-
Programme 5: Socio-Economic Innov	ation			007
Partnerships <b>Total</b>		_		387 <b>968</b>
Iotai		_		300

Confirmed b	Confirmed balances with other departments			<u>Annex 5</u>	1,083	922	
Confirmed	balances	with	other	government			
entities							
Total						1,083	922

The R424,000 is for expenditure vouchers that were awaited from the Department of International Relations and Cooperation at year-end. The Department of Science and Innovation (DSI) received confirmation of balance for R655,000 from the Department of Justice. The DSI requested the invoices to confirm the amount. In May 2021, the Department received confirmation of balances for R6,848,590.85 from the national Department of Public Works and Infrastructure (DPWI). The DSI is not in agreement with the amounts owed because there was no lease agreement between the DPWI and the Department during the said period. Further information was requested from the DPWI.

## 21. Employee benefits

	Note	2020/21	2019/20
		R'000	R'000
Leave entitlement*		22,193	12,572
Service bonus (13th cheque)		7,445	7,464
Performance awards		1,810	5,837
Capped leave commitments		3,209	3,194
Other (Long Service Awards)		11_	54
Total	_	34,668	29,121

\*A negative amount of R88,478.13 was offset against leave entitlement. The amount was because of a pro rata calculation of leave taken by employees as at the 31 March 2021. 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

2020/21	Land R'000	Buildings and other fixed structures R'000	Machinery and equipment R'000	Total R'000
Not later than 1 year	-	-	993	993
Later than 1 year and not later				
than 5 years	-	-	706	706
Total lease commitments	-	-	1,699	1,699

2019/20	Land	Buildings and other fixed structures	Machinery and equipment	Total
	R'000	R'000	R'000	R'000
Not later than 1 year Later than 1 year and not later	-	452	1,043	1,495
than 5 years	-	-	1,699	1,699
Total lease commitments	-	452	2,742	3,194
				_

## 22.2 Finance leases expenditure

2020/21	Land	Buildings and other fixed structures	Machinery and equipment	Total
Not later than 1 year	R'000	R'000	<b>R'000</b> 4,595	<b>R'000</b> 4,595
Later than 1 year and not later	·	_	4,595	4,333
than 5 years			2,488	2,488
Total lease commitments			7,083	7,083
2019/20	Land	Buildings and other fixed structures	Machinery and equipment	Total
2019/20	Land R'000	and other fixed	and	Total R'000
Not later than 1 year		and other fixed structures	and equipment	
		and other fixed structures	and equipment R'000	R'000

## 23. Accrued departmental revenue

	Note	2020/21	2019/20
Transactions in financial assets and liabilities	-	R'000	R'000
Total	_	-	

## 23.1 Analysis for accrued departmental revenue

	Note	2020/21	2019/20
		R'000	R'000
Opening balance		-	201
Less: Amounts received		-	(201)
Add: Amounts recognised		-	-
Less: Amounts written-off/reversed as irrecoverable	_		
Total	_	-	

## 24. Irregular expenditure

24.1	Reconciliation	of irregular	expenditure
A-7. I	1 (COOHOHIUH)	or irregular	CAPCHAILLIC

	Note	2020/21	2019/20
		R'000	R'000
Opening balance		32,770	35,104
As restated		32,770	35,104
Add: Irregular expenditure – relating to prior year		_	_
Add: Irregular expenditure – relating to current year		-	194
Less: Prior year amount condoned		-	
			(2,528)
Less: Current year amounts condoned			-
Less: Prior year amounts not condoned and removed		(24,909)	-
Less: Current year amounts not condoned and removed		-	-
Less: Amounts recoverable (current and prior year)		_	_
Less: Amounts written off		-	-
Irregular expenditure awaiting condonation		7,861	32,770

## Analysis of awaiting condonation per age classification

Current year	-	194	684
Prior years	7,861	32,576	34,420
Total	7,861	32,770	35,104

## 24.2 Details of irregular expenditure – current year

Incident	Disciplinary steps taken/criminal	2020/21	
	proceedings	R'000	
Total			-

## 24.3 Details of irregular expenditure – condoned

Incident Condoned by		2020/21 R'000
Non-compliance with SCM processes	National Treasury	24,909
Total		24,909

## 24.4 Irregular expenditures referred to the National Treasury

The request to remove Irregular Expenditure amounting to R24,909,382.10 was approved in the current financial year.

## 25. Fruitless and wasteful expenditure

## 25.1 Reconciliation of fruitless and wasteful expenditure

	Note	2019/20 R'000	2019/20 R'000
Opening balance		526	-
Prior year period error	_		
As restated		526	-
Fruitless and wasteful expenditure – relating to prior year			
Fruitless and wasteful expenditure – relating to current year		-	526
Less: Amounts written off	_	(526)	
Fruitless and wasteful expenditure awaiting condonement	_	-	526

## 25.2 Analysis of current year's fruitless and wasteful expenditure

Incident	Disciplinary steps taken	2020/21 R'000
		-
Total		

The write-off of the fruitless and wasteful expenditure was approved in the current financial year 2020/2021.

## 26. Events after the reporting date

There were no significant events after the reporting period

## 27. Related party transactions

#### 27.1 Related party transactions

Payments made	2020/21	2019/20
	R'000	R'000
Goods and services	-	-
Total		

## 27.2 DSI public entities under ownership control of the Department of Science and Innovation

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 Higher Education Science and Innovation, 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. Annexure 1C and 1E to the Annual Financial Statements reflect payments to these public entities. Where transactions other than these occur, they occur within a normal supplier/client relationship in terms of the procurement procedures of the Department and the Public Finance Management Act, 1999.

# 27.3 Public entities under ownership control of the Department of Higher Education and Training

## Schedule 3A - National public entities

Council on Higher Education and Training

National Student Financial Aid Scheme

South African Qualifications Authority

Quality Council for Trades and Occupations

National Skills Fund

## Sector education and training authorities (SETAs)

Agriculture SETA

Banking SETA

Chemical Industries Education and Training Authority Construction SETA

Culture, Arts, Tourism, Hospitality and Sports SETA

Education, Training and Development Practices SETA

**Energy and Water SETA** 

Fibre, Processing and Manufacturing SETA

Financial and Accounting Services SETA

Food and Beverages SETA

Health and Welfare SETA

Insurance SETA

Local Government SETA

Manufacturing, Engineering and Related Services SETA

Media, Information and Communication Technologies SETA

Mining Qualifications Authority

Public Services SETA

Safety and Security SETA

Services SETA

Transport Education and Training Authority

Wholesale and Retail SETA

#### Technical and vocational education and training colleges

Buffalo City College; East Cape Midlands College; Ikhala College; Ingwe College; King Hintsa College; King Sabata College; Lovedale College; Port Elizabeth College; Flavius Mareka College; Gold Fields College; Maluti College; Motheo College; Central Johannesburg College; Ekurhuleni East College; Ekurhuleni West College; Sedibeng College; South West College; Tshwane North College; Tshwane South College; Western College; Coastal College; Elangeni College; Esayidi College; Majuba College; Mnambithi College; Mthashana College; Thekwini College; Umfolozi College; Umgungundlovu College; Capricorn College; Lephalale College; Letaba College; Mopani College; Sekhukhune College; Vhembe College; Waterberg College; Ehlanzeni College; Gert Sibande College; Nkangala College; Rural College; Urban College; Orbit College; Taletso College; Vuselela College; Boland College; Cape Town College; False Bay College; Northlink College; South Cape College; West Coast College.

#### Community education and training colleges

Eastern Cape Community Education and Training College; Free State Community Education and Training College; Gauteng Community Education and Training College; KwaZulu-Natal Community Education and Training College; Limpopo Community Education and Training College; Mpumalanga Community Education and Training College; Northern Cape Community Education and Training College; Western Cape Community Education and Training College.

#### 27.4 Related party relationships with other departments

All government departments and public entities in the same sphere of government are related parties to the Department of Science and Innovation (DSI); however, the Department has a related party relationship with the Department of Public Works and Infrastructure (DPWI) that provides office accommodation free of charge to the Department. The DPWI claims maintenance fees only.

The DSI 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. The Department did not have transactions with these entities that required disclosure in terms of the Modified Cash Standards.

## 28. Key management personnel

	No. of individuals	2020/21	2019/20
		R'000	R'000
Political office bearers (provide detail below)	2	4,379	2,896
Officials:			
Level 15 to 16	10	16,392	16,621
Level 14 (incl. CFO if at a lower level)	31 _	30,515	30,224
Total	=	51,286	49,741

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).

## 29. Movable tangible capital assets

## MOVEMENT IN MOVABLE TANGIBLE CAPITAL ASSETS PER ASSET REGISTER FOR THE YEAR ENDED 31 MARCH 2021

	Opening balance	Value adjustme nts	Additions	Disposals	Closing balance
	R'000	R'000	R'000	R'000	R'000
MACHINERY AND EQUIPMENT	110,023	-	3,330	74	113,279
Transport assets	7,801	-	-	-	7,801
Computer equipment	58,218	-	3,212	74	61,356
Furniture and office equipment	21,551	-	118	-	21,669
Other machinery and equipment	22,453	-	-	-	22,453
TOTAL MOVABLE TANGIBLE					
CAPITAL ASSETS	110,023	-	3,330	74	113,279

#### 29.1 Additions

## ADDITIONS TO MOVABLE TANGIBLE CAPITAL ASSETS PER ASSET REGISTER FOR THE YEAR ENDED 31 MARCH 2021

	Cash R'000	Non-cash R'000	(Capital work in progress current costs and finance lease payments)	Received current, not paid (Paid current year, received prior year) R'000	Total R'000
MACHINERY AND EQUIPMENT	6,062	_	(2,732)	-	3,330
Transport assets	-	_		-	-
Computer equipment	3,212	-	_	-	3,212
Furniture and office equipment	118	-	_	-	118
Other machinery and equipment	2,732	_	(2,732)	-	-
TOTAL ADDITIONS TO MOVABLE TANGIBLE CAPITAL ASSETS	6,062	_	(2,732)	<u>-</u>	3,330

## 29.2 Disposals

## DISPOSALS OF MOVABLE TANGIBLE CAPITAL ASSETS PER ASSET REGISTER FOR THE YEAR ENDED 31 MARCH 2021

	Sold for cash R'000	Non-cash disposals R'000	Total disposals R'000	Cash received actual R'000
MACHINERY AND EQUIPMENT	_	74	74	_
Transport assets	_	-	-	_
Computer equipment	_	74	74	_
Furniture and office equipment	-	-	_	-
Other machinery and equipment	_	_	_	_
TOTAL DISPOSAL OF MOVABLE TANGIBLE CAPITAL ASSETS	-	74	74	

#### 29.3 Movement for 2019/20

## MOVEMENT IN MOVABLE TANGIBLE CAPITAL ASSETS PER ASSET REGISTER FOR THE YEAR ENDED 31 MARCH 2020

	Opening balance	Prior period errors	Additions	Disposals	Closing balance
	R'000	R'000	R'000	R'000	R'000
MACHINERY AND EQUIPMENT	105,075	-	6,403	(1,455)	110,023
Transport assets	7,801	_	_	_	7,801
Computer equipment	55,704	-	2,982	(613)	58,218
Furniture and office equipment	18,867	-	2,684	(756)	21,551
Other machinery and equipment	22,703	_	737	(86)	22,453
TOTAL MOVABLE TANGIBLE					
CAPITAL ASSETS	105,075	-	6,403	(1,455)	110,023

## 29.3.1 Prior period errors

Nature of prior error	2020/21 R'000
Total	

## 29.4 Minor assets

## MINOR ASSETS OF THE DEPARTMENT FOR THE YEAR ENDED 31 MARCH 2021

	Intangible assets	Heritage assets	Machinery and equipment	Biological assets	Total
	R'000	R'000	R'000	R'000	R'000
Opening balance	-	-	7,328	-	7,328
Value adjustments	-	-	-	-	-
Additions	-	-	282	-	282
Disposals	=	-	-	-	-
TOTAL MINOR ASSETS	-	-	7,610	=	7,610

	Intangible assets	Heritage assets	Machinery and equipment	Biological assets	Total
Number of R1 minor assets	-	-	5,750	-	5,750
Number of minor assets at cost	-	-	4,722	-	4,693
Total	_	-	10,472	-	10,443

#### Minor assets

## MINOR ASSETS OF THE DEPARTMENT FOR THE YEAR ENDED 31 MARCH 2020

	Intangible assets	Heritage assets	Machinery and equipment	Biological assets	Total
	R'000	R'000	R'000	R'000	R'000
Opening balance	_	-	7,027	-	7,027
Prior period error	-	-	-	-	-
Additions	-	_	349	-	349
Disposals	-	-	48	-	48
Total	-	-	7,328	-	7,328

	Intangible assets	Heritage assets	Machinery and equipment	Biological assets	Total
Number of R1 minor assets Number of minor assets at	-		5,750	-	5,750
cost	-	-	4,449	-	4,449
_	-		- 10,199	=	10,199

## 29.4.1 Prior period errors

Nature of prior error 2020/21 R'000

## 30 Intangible capital assets

## MOVEMENT IN INTANGIBLE CAPITAL ASSETS PER ASSET REGISTER FOR THE YEAR ENDED 31 MARCH 2021

	Opening balance R'000	Additions R'000	Disposals R'000	Closing balance R'000
Software Patents, licences, copyright, brand names, trademarks	7,483	-	-	7,483
TOTAL INTANGIBLE CAPITAL ASSETS	7,483	-	-	7,483

## 30.1 Additions

## ADDITIONS TO INTANGIBLE CAPITAL ASSETS PER ASSET REGISTER FOR THE YEAR ENDED 31 MARCH 2021

OT MARKOTI 2021	Cash	Non-cash	(Development work in	Received current, not	Total
			progress current costs)	paid (Paid current year, received prior year)	
	R'000	R'000	R'000	R'000	R'000
Software	_	-	-	-	-
TOTAL ADDITIONS TO MOVABLE TANGIBLE CAPITAL ASSETS				_	_

## 30.2 Disposals

DISPOSALS OF INTANGIBLE CAPITAL ASSETS PER ASSET REGISTER FOR THE YEAR ENDED 31 MARCH 2021

01 M/ ((01) 2021	Sold for cash	Transfer out or destroyed or scrapped	Total disposals	Cash received actual
	R'000	R'000	R'000	R'000
Software	-		-	
TOTAL DISPOSAL OF INTANGIBLE CAPITAL ASSETS	_	_	_	
IIII, III GIBEL GAI IIAL AGGETG				<del></del>

#### 30.3 Intangible capital assets

MOVEMENT IN INTANGIBLE CAPITAL ASSETS PER ASSET REGISTER FOR THE YEAR ENDED 31 MARCH 2020

31 MARCH 2020	Opening balance	Prior year error balances	Additions	Disposals	Closing balance
	R'000	R'000	R'000	R'000	R'000
Software Patents, licences, copyright, brand names, trademarks	7,483	-	-	-	7,483
TOTAL INTANGIBLE CAPITAL ASSETS	7,483		-	-	7,483

## 31. Principal-agent arrangements

## 31.1 Department acting as the principal

	2020/21 R'000	2019/20 R'000
Department of Justice and Constitutional		
Development	309	843
Total	309	843

The Department of Science, Innovation, Department of Justice, and Constitutional Development are in an agent-principal arrangement. The Department of Justice appoints legal representatives to settle litigations and labour matters on behalf of the Department. Department of Justice then claim the proceedings from the Department.

32. COVID-19 response expenditure	<b>Note</b> ANNEXURE 11	2020/21 R'000	2019/20 R'000
Goods and services		1,873	-
Transfers and subsidies		147,080	-
Expenditure for capital assets	-		
Total	_	148,953	

The note was introduced in the current financial year in order to allocate expenditure relating to COVID-19.

STATEMENT OF TRANSFERS TO DEPARTMENTAL AGENCIES AND ACCOUNTS

	1	RANSFER A	TRANSFER ALLOCATION		TRANSFER	SFER	2019/20
						% of	
	Adjusted					Available	
	Appropriation	Rollovers	Adjustment	Total	Actual	spunj	Appropriatio
	Act		S	available	transfer	transferred	n Act
DEPARTMENT/AGENCY/ACCOUNT	R'000	R'000	R'000	R'000	R'000	%	R.000
Agricultural Research Council	8,000			8,000	7,717	%96	39,288
Academy of Science of South Africa	33,702	•	•	33,702	30,702	91%	26,983
Human Science Research Council	353,123	•	•	353,123	323,123	92%	340,711
National Research Foundation	3,393,483	•	32,202	3,425,685	3,113,360	91%	4,159,014
National Metrology Institute of South Africa	1	1	•	1	ı		620
Council for Geoscience	852	1	•	852	752	88%	800
South African Council for Natural Science Profession	10,000	1	•	10,000	000'6	%06	•
South African Medical Research Council	196,211	1	1	196,211	176,211	%06	120,249
South African National Biodiversity Institute	24,050	1	•	24,050	22,050	95%	33,000
South African National Energy Development Institute	153,423	1	•	153,423	143,423	93%	•
South African National Space Agency	223,799	1	•	223,799	203,799	91%	260,329
South African Weather Services	1	1	1	1	ı		10,000
Technology Innovation Agency	660,399	1	1	660,399	620,399	94%	595,396
ASSAF	1	1	1	1	ı		26,983
Public Investment Commissioners	48,000	1	•	48,000	45,000	94%	•
Water Research Commission	27,790	-	-	27,790	25,790	83%	25,000
Total	5,132,832	•	32,202	5,165,034	4,721,326	•	5,638,373

## **ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS**

## **FOR THE YEAR ENDED 31 MARCH 2021**

# STATEMENT OF TRANSFERS TO HIGHER EDUCATION INSTITUTES

	Ē	TRANSFER ALLOCATION	LLOCATIO	Z		TRAN	TRANSFER	2019/20
	Adjusted	Rollovers	Adjustm	Total	Actual		% of	Appropriat
	Appropria		ents	available	transfer		available	ion Act
	tion Act						funds	
							transferred	
DEPARTMENT/AGENCY/ACCOUNT	R.000	R'000	R'000	R'000	R'000		%	R'000
Cape Peninsula University of Technology					1,507	(1,507)	-100%	
Central University of Technology	•	1	•	•	1,007	(1,007)	-100%	1
Durban University of Technology	1	1	ı	1	3,711	(3,711)	-100%	1
Nelson Mandela University	•	1	•	1	3,576	(3,576)	-100%	ı
North-West University	•	1	•	1	70,513	(70,513)	-100%	ı
Rhodes University	1	1	ı	1	2,670	(2,670)	-100%	•
Stellenbosch University	1	1	•	•	14,123	(14,123)	-100%	1
Tshwane University of Technology	1	1	ı	1	881	(881)	-100%	•
University of Cape Town	1	1	ı	1	48,090	(48,090)	-100%	•
University of Ford Hare	1	1	•	1	096	(096)	-100%	1
University of Johannesburg	•	1	•	1	1,134	(1,134)	-100%	1
University of KwaZulu-Natal	•	1	•	1	12,163	(12,163)	-100%	1
University of Limpopo	1	1	•	1	571	(571)	-100%	1
University of Pretoria	1	ı	Ī	1	22,208	(22,208)	-100%	ı
University of South Africa	1	1	•	1	918	(918)	-100%	1
University of the Free State	•	1	ı	1	19,694	(19,694)	-100%	•
University of the Western Cape	•	1	ı	1	30,657	(30,657)	-100%	•
University of the Witwatersrand	1	ı	Ī	1	1,152	(1,152)	-100%	ı
University of Venda	1	1	1	1	5,540	(5,540)	-100%	1
University of Zululand	1	ı	Ī	1	8,784	(8,784)	-100%	ı
Walter Sisulu University	1	1	1	•	3,089	(3,089)	-100%	1
Total	•	1	1	•	252,948	(252,948)		•

The expenditure for higher education institutions was disclosed under annexure 1F, as per National Treasury instruction note. In 2020/21 financial year expenditure was brought back to the annexure as per the changes on Standard Charts of Accounts (SCOA).

STATEMENT OF TRANSFERS/SUBSIDIES TO PUBLIC CORPORATIONS AND PRIVATE ENTERPRISES

	T T	TRANSFER A	FER ALLOCATION			EXPENDITURE	TURE		2019/20
NAME OF PUBLIC CORPORATION/PRIVATE	Adjusted Appropriation	Rollovers	Adjustments	Total	Actual	% of available funds			Appropriatio
ENTERPRISE	Act R'000	R'000	R'000	available R'000	transfer R'000	transferred %	Capital R'000	Current R'000	n Act R'000
Public corporations									
<b>Transfers</b> Council for Mineral									
Technology (Mintek)	000'6	ı	ı	0006	8,808	%6'26	1	8,808	82,863
Industrial Research	354,055	ı	(26,825)	327,230	570,873	174.5%	142,555	428,318	422,813
South African Nuclear Energy Corporation Ltd	8,000	•	ı	8,000	7,907	%8.86	ı	7,907	23,348
National Health Laboratory Services	•	ı	1	ı	ı	1	ı	ı	8,200
Subtotal	371,055		(26,825)	344,230	587,588	100%	142,555	445,033	537,224
Subsidies Council for Scientific and						I			
Industrial Research	893,581	1	•	893,581	893,581	•	•	893,581	965,823
Subtotal	893,581	•	•	893,581	893,581	<b> </b>	•	893,581	965,823
Total	1,264,636	•	(26,825)	1,237,811	1,481,169	119,7%	142,555	1,338,614	1,503,047

	Ĕ	TRANSFER ALLOCATION	LLOCATIC	Z		EXPENDITURE	TURE		2019/20
	Adjusted	Rollovers	Adjustm	Total available		% of	Capital	Current	Appropriatio
	Appropriation		ents		Actual	available			n Act
COPPORTION/PRIVATE	Act				transfer	funds			
CORPORATION/PRIVATE						transferred			
ENIERPRISE	R'000	R'000	R'000	R'000	R'000	%	R'000	R'000	R'000
Private enterprises:									
Transfers									
Manufacturing Indaba	•	ı	•	1	87	1	ı	ı	1
The Innovation Hub	•	ı	•		2,000				
Management Co				•		•	1	1	•
Citrus Research	•	ı	•		4,842				
International				•		•	ı	•	•
Wits Health Consortium	•	ı	•	•	200	•	1	1	•
Wits Enterprise	•	ı	•	•	5,055	•	1	1	•
Waterlab (Pty) Ltd	ı	1	į	ı	2,430	ı	•	•	ı
						ı			
Subtotal	•	•	•	•	14,614		•	•	•
Total	1,264,636		(26,825)	1,237,811	1,495,783	120.8%	142,555	1,338,614	1,503,047

STATEMENT OF TRANSFERS TO NON-PROFIT INSTITUTIONS

Adjusted  NON-PROFIT INSTITUTIONS  Transfers  Academy of Science of South Africa Aeronautical Society of South Africa African Astronomy Society Cape Peninsula University of Technology Central University of Technology Central University of Technology Centre for the Aids Programme Centre for Phonetic and Genomic  66,359			こうこくつつ		EXPENDITURE	ITURE	2019/20
Adjuste Appropriatic R'000  uth  of of one						% of available	
th tth of ology	ed ion Act	Rollovers	Adiustments	Total available	Actual transfer	funds transferred	Appropriation Act
of Science of South lical Society of South stronomy Society ninsula University of Oly Juiversity of Technology or the Aids Programme or Phonetic and	0	R'000	R'000	R.000	R'000	%	R'000
my of Science of South autical Society of South Astronomy Society Peninsula University of ology Il University of Technology for the Aids Programme for Phonetic and nic							
autical Society of South  Astronomy Society Peninsula University of ology Il University of Technology for the Aids Programme for Phonetic and							
autical Society of South  Astronomy Society Peninsula University of ology Il University of Technology for the Aids Programme for Phonetic and nic	ı	ı	1	ı	ı	I	14,608
Astronomy Society Peninsula University of ology Il University of Technology for the Aids Programme for Phonetic and							
of nology mme	ı	ı	•	1	1	ı	100
, 96	12,000	Ī	1	12,000	6,485	1	1
, 99							
99	1	Ì	ı	ı	ı	Ī	863
. 99	1	Ì	ı	ı	ı		17,877
	200	I	ı	200	200	40%	
	66,355	Ī	3,000	69,355	960'09	72%	18,054
Da Vinci TT100 Awards							
•	10,000	Ī	ı	10,000	4,500	45%	4,135
	200	Ī	1	200	200	40%	1
Department of Mineral Resource	1	Ī	1	1	ı	ı	800
Durban University of Technology	ı	•	ı	ı	ı	ı	1,527
Duzi-Umngeni Conservation							
	10,000	Ī	1	10,000	5,276	23%	•
Ebukhosini Empowerment 1,(	1,000	1	ı	1,000	400	40%	I

	<b>L</b>	TRANSFER ALLOCATION	OCATION		EXPENDITURE	ITURE	2019/20
	Adjusted			Total		% of available funds	Appropriation
NON-PROFIT INSTITUTIONS	Appropriation Act	Rollovers	Adjustments	available	Actual transfer	transferred	Act
	K.000	K.000	K.000	K.000	K.000	%	K.000
Forestry South Africa	000'9	Î	2,000	8,000	4,000	20%	4,000
Fresh Produce Exporters Forum	10,000	ı	ı	10,000	5,267	23%	5,677
Fine Bubble Technologies	3,000	ı	ı	3,000	1,448	48%	
Gauteng Provincial Government	1,000	Ī	1	1,000	200	20%	200
Green Youth Network	ı	1	1	ı	1		151
Greenfield Innovation	1,000	ı	1	1,000	442	44%	
Greenmatter	2,000	1	1	2,000	009	30%	1,000
International Atomic Energy							
Agency	2,000	1	3,000	8,000	4,294	24%	5,863
International Centre for Genetic	20,086	1	1	20,086	14,981	75%	55,816
Khulisa Management Services	1,500	ı	ı	1,500	835	%95	I
Mangosuthu Technikon	1	ı	ı	ı	ı	ı	2,591
Mapungubwe Institute for							
Strategic Reflection	1	I	ı	ı	I	ı	3,000
Mine industry network of							
expertise	ı	ı	ı	I	ı	ı	2,500
Mobile Application Laboratory							
۵N	8,000	1	1	8,000	4,000	20%	10,274
Mpilonhle	4,000	ı	2,000	6,000	2,228	37%	2,459
Mpumalanga Tourism and Parks							
Agency	3,000	1	1	3,000	200	17%	200
National Science and							
Technology Forum	13,000	1	2,000	15,000	5,818	39%	13,196

		TRANSFER ALLOCATION	OCATION		EXPENDITURE	ITURE	2019/20
						% of available	
	Adjusted Appropriation Act	Rollovers	Adiustments	Total available	Actual transfer	funds transferred	Appropriation Act
NON-PROFIT INSTITUTIONS	R'000	R.000	R.000	R.000	R'000	%	R'000
Nelson Mandela University	,	ı	•	•	•	•	6.564
North-West University	1	ı	1	I	1		40,792
Nuclear Medicine Research							
infrastructure	125,000	ı	ı	125,000	600'66	%62	ı
PAMDEV	2,000	1	ı	2,000	1,500	75%	1,500
Prof. M Gulumia	1	1	1	1	1		27
Rhodes University	1	1	ı	1	•		160
SA San Institute	1,000	ı	ı	1,000	200	20%	1,100
South African Council for Natural							
Scientific Professions	1	I	1	ı	1		4,725
South African Local Government							
Association	2,000	1	1,645	3,645	978	27%	313
SEDA Essential Oils	1	1	1	1	1		2,251
Sefako Makgatho Health							
Science	2,000	I	1	2,000	1,279	64%	Ī
South African Astronomical							
Observatory	1	I	ı	ı	ı		42
South African Institute of Physics	3,000	1	1	3,000	1,583	23%	1,500
South African Research							
Innovation Management							
Association	2,000	1	1	2,000	2,446	ı	1
South African Mathematics							
Foundation	ı	I	1	1	ı	I	1,060

	1	TRANSFER ALLOCATION	OCATION		EXPENDITURE	ITURE	2019/20
						% of available	
	Adjusted Appropriation Act	Rollovers	Adiustments	Total available	Actual transfer	funds transferred	Appropriation Act
NON-PROFIT INSTITUTIONS	R.000	R'000	R'000	R'000	R.000	%	R.000
Stellenbosch University	1	I	ı	1	ı		14,008
Sugar Milling Research Institute	13,000	ı	2,000	15,000	12,052	80%	3,847
Task Foundation	200	1	1	200	200	40%	1
The Green Cape Sector							
Development	1	1	ı	ı	1		41
The South African SME Fund Ltd	43,000	1	ı	43,000	25,000	28%	ı
Top Media and Communication	ı	1	ı	Ī	ı	ı	150
Tshwane University of							
Technology	•	ı	1	Ī	ı	ı	16,034
University of Cape Town	Ī	ı	1	ı	ı	ı	28,939
University of Fort Hare	ı	ı	1	Ī	ı	ı	1,436
University of the Free State	ı	1	1	Ī	1	ı	7,852
University of Johannesburg	ı	1	ı	Ī	ı	ı	6,093
University of KwaZulu-Natal	ı	1	ı	Ī	ı	ı	19,367
University of Limpopo	ı	1	ı	Ī	ı	ı	6,458
University of Pretoria	ı	ı	1	Ī	ı	ı	16,641
University of South Africa	1	ı	ı	Ì	Ī	ı	406
University of Stellenbosch	•	ı	ı	Ì	ı	ı	16,951
University of Venda	ı	1	1	Ī	1	ı	12,188
University of the Western Cape	1	1	1	Ī	1	ı	23,104
University of the Witwatersrand	•	1	ı	1	Ī	ı	1,697
University of Zululand Foundation	ı	1	1	Ī	1	ı	1,500
University of Zululand Foundation	1	1	ı	1	I	1	61

		TRANSFER ALLOCATION	OCATION		EXPENDITURE	ITURE	2019/20
						% of	
						available	
	Adjusted			Total		funds	Appropriation
SNOTH HILOGO NON	Appropriation Act	Rollovers	Adjustments	available	Actual transfer	transferred	Act
NON-PROFIL INSTITUTIONS	R'000	R'000	R'000	R'000	R'000	%	R'000
Foundation							
Walter Sisulu University	ı	ı	1	ı	ı	ı	26
Wine Industry Network of							
Expertise	2,000	I	1	5,000	2,500	20%	1
World Meteorological							
Organisation	I	I	Ī	I	1		2,000
		Ī		ı	•		•
Total	379,441	•	15,645	395,086	259,117	. 1	407,654
Subsidies							
		•	•	•	•		
		•	•	•	•	•	•
Total	379,441	•	15,645	395,086	259,117		407,654

## **ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS**

## **FOR THE YEAR ENDED 31 MARCH 2021**

## ANNEXURE 1G STATEMENT OF TRANSFERS TO HOUSEHOLDS

		TRANSFER ALLOCATION	LLOCATION		EXPEN	EXPENDITURE	2019/20
	Adjusted	Rollovers	Adjustmen	Total	Actual	% of	Appropriatio
	appropriati		ts	available	transfer	available	n Act
	on Act					funds	
HOUSEHOLDS	000'8	טטט.	000'8	000'A	000'A	transferred %	000'8
	200	200	000 1	000 \	200	0/	000 \
Transfers							
Claim against the state	ı	•	ı	I	•	ı	334
Leave gratuity: Aphane, MR	1	1	30	30	27	1	Ī
Leave gratuity: Basetse, HR	1	1	1	ı	ı	1	30
Leave gratuity: Dlamini, PS	1	ı	1	ı	ı	1	20
Leave gratuity: Du Toit, JCE	1	1	1	ı	1	1	2
Leave gratuity: Dube, LE	1	1	1	ı	1	1	14
Leave gratuity: Gule, V	1	1	1	ı	1	1	15
Leave gratuity: Hlabathi, HR	1	1	1	ı	ı	1	22
Leave gratuity: Higgins, PP	1	1	70	20	29	<b>%96</b>	1
Leave gratuity: January, MV	I	I	1	ı	I	ı	9/
Leave gratuity: Kgosiejang, SO	1	1	1	ı	ı	1	22
Leave gratuity: Letaba, P	1	1	70	20	89	%26	Ī
Leave gratuity: Mabeba, GJ	I	I	30	30	23	%22	Ī
Leave gratuity: Madiba, G	ı	ı	ı	ı	ı	ı	72
Leave gratuity: Madlala, N	I	ı	ı	ı	ı	ı	49
Leave gratuity: Mahlatsi, N	I	ı	ı	ı	ı	ı	24
Leave gratuity: Makgoba, ML	I	I	1	ı	I	ı	31
Leave gratuity: Makume, MK	1	1	1	ı	1	1	101
Leave gratuity: Mamanyuha, M	ı	ı	ı	ı	ı	ı	12
Leave gratuity: Masemola, MP	1	1	1	1	ı	1	74

347	2	19	43	22	14	108	14	22	ı	100	9	29	42	•	13	15	22	73	1	21	10	22	65		1,630	3,607	
ı	1	ı	1	1	1	ı	1	ı	120%	1	1	1	1	94%	1	1	1	1	%66	1	1	1	1	%08	100%		
ı	ı	Î	ı	ı	ı	ı	ı	ı	18	ı	ı	ı	ı	94	ı	ı	ı	ı	169	ı	ı	ı	ı	12	20	528	
ı	ı	ı	ı	1	ı	ı	ı	ı	15	ı	ı	ı	ı	100	ı	ı	ı	1	170	ı	ı	ı	1	15	20	550	
1	1	ı	1	ı	ı	I	ı	I	15	ı	ı	ı	ı	100	ı	ı	ı	ı	170	ı	ı	ı	ı	15	20	550	
ı	1	ı	1	1	ı	ı	ı	ı	ı	ı	1	1	1	ı	ı	ı	1	1	1	ı	ı	ı	ı				
ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı		•		

Leave gratuity: Ramolobeng A Leave gratuity: Mkwanazi SM Leave gratuity: Mmaseemma Leave gratuity: Matumba HE Leave gratuity: Tsetsane YN Leave gratuity: Netshwani R Leave gratuity: Mulaudzi HP -eave gratuity: Ramalata ET Leave gratuity: Mkwanazi S Leave gratuity: Tshabalala L Leave gratuity: Ndudane ZZ Leave gratuity: Mothiba HN -eave gratuity: Pinto CMST Leave gratuity: Mdletshe C Leave gratuity: Mbatha NS Leave gratuity: Shange SC Leave gratuity: Morgan AL Leave gratuity: Sefora MM Leave gratuity: Perumal S Leave gratuity: Talane RA Leave gratuity: Sithole TT Leave gratuity: Ntanzi SN Leave gratuity: Seleti YN -eave gratuity: Pillay G Women in Science

Leave gratuity: Masher GL

420

69,132

69,552

# STATEMENT OF LOCAL AND FOREIGN AID ASSISTANCE RECEIVED

NAME OF DONOR	Purpose	Opening			Paid back on/by 31 March	Closine
		balance R'000	Revenue R'000	Expenditure R'000	R.000	balance R'000
Received in cash						
	ESASTAP Plus: To develop a skilled and					
European Union	capable workforce	ı	1,025	605	•	420
European Union	GBS -Green Economy for Development	ı	36,000	36,000	1	•
European Union	GBS - National System of Innovation	ı	17,454	17,454	1	
European Union	GBS - Small Holder Essential Oil Value	ı	15,073	15,073	ı	
	Chain					
Subtotal			69,552	69,132	1	420
Received in kind		•	1			
subtotal						

Subtotal

Received in kind Subtotal TOTAL

European Union European Union European Union European Union

## REMISSIONS, REFUNDS AND PAYMENTS MADE AS AN ACT OF GRACE STATEMENT OF GIFTS, DONATIONS AND SPONSORSHIPS MADE AND

NATURE OF GIFT. DONATION OR SPONSORSHIP	2020/21	2019/20	
	R'000	R'000	

1,630	1,630
- 20	20
	1,63

Paid in cash

TOTAL

## **ANNEXURE 2B**

## STATEMENT OF INVESTMENTS IN AND AMOUNTS OWING BY/TO ENTITIES **AS AT 31 MARCH 2021**

	Nature of business	Cost of ir R'(	of investment R'000	Net asser inves R'(	Net asset value of investment R'000	Amount owing to entities R'000	owing to ies 00	Amount owing by entities R'000	ig by entities 100
NAME OF ENTITY Controlled entities		2020/2021	2019/2020	2020/2021	2019/2020	2020/2021	2020/2021 2019/2020	2020/2021	2019/2020
Non-controlled entities									
Biological Vaccine Institute (Biovac)	Pharmaceutical Industry (35% shareholding)	•	1	142,035	112,674	1	1	1	,
Total		•	•	142,035	112,674		1	1	1

The Department of Science and Innovation acquired Biovac shares from the Department of Health. The shares were transfer to the DSI without any financial implications for the Department. The amount of R142,035 million is the value of shares calculated at 35% of the retained earnings of Biovac as at 31 December 2020.

## STATEMENT OF CONTINGENT LIABILITIES AS AT 31 MARCH 2021 **ANNEXURE 3B**

	Opening	Liabilities	Liabilities	Liabilities	Closing balance
	balance 1 April	incurred	paid/cancelled/re	recoverable)	31 March 2021
	2020	during the year	duced during the		
			year		
NATURE OF LIABILITY	R'000	R'000	R'000	R'000	R'000

401 401 401 401 sustained when the claimant fell in an Claim against the Department in open manhole in the Pretoria respect of injuries allegedly Total

and financial loss, and is therefore claiming restitution fees. On 20 June 2019, management received a legal opinion that indicated that the claim is The Department received a claim at the end of the 2018/19 reporting period from a former manager of a science centre, who alleges unfair treatment rivolous and vexatious, and should therefore be dismissed with costs, and furthermore the amount of the claim was not a reliable estimate, and herefore cannot be disclosed. For the purpose of disclosure for 2020/21 financial year, the Department requested a legal opinion to ascertain whether the status of the claim had changed, and it was indicated in the legal opinion that the status remained the same. The Labour Appeal Court (LAC) declared the salary increases for the 2020/21 financial year unlawful and invalid. The LAC ruling has been appealed and referred to the Constitutional Court. The ruling by the Constitutional Court will confirm whether the Department will be obligated to pay the salary ncreases in dispute.

## CLAIMS RECOVERABLE

	Confirme	Confirmed balance	Unconfirm	Jnconfirmed balance		
	outst	outstanding	ontsta	outstanding	ř	Total
GOVERNMEN ENTILY	31/03/2021	31/03/2020	31/03/2021	31/03/2020	31/03/2021	31/03/2020
	R'000	R'000	R'000	R'000	R'000	R'000
Department						
Department of Trade, Industry and Competition	1	32	1	•	1	32
Department of Higher Education and Training	637	•	•	•	637	•
Subtotal	637	32	•		637	32
Other government entities						
	•	•	•	•	1	•
Subtotal	•	•	•	•	•	•
Total	637	32	•	•	637	32

## ANNEXURE 5 INTER-GOVERNMENT PAYABLES

	Confirmed balance	balance	Unconfirmed balance	d balance	IOIAL	
GOVERNMENT ENTITY	31/03/2021	31/03/2020	31/03/2021	31/03/2020	31/03/2021	31/03/2020
	R'000	R'000	R'000	R'000	R'000	R'000
Department						
Current						
Department of International Relations and						
Cooperation	424	816	•	•	424	816
Department of Justice and Constitutional						
Development	655	106	•	•	655	106
Department of Transport	4	1	•	•	4	•
Subtotal	1,083	922	•	•	1,083	922

of Science and Innovation (DSI) received confirmation of balance for R655,000 from the Department of Justice. The DSI requested the invoices to confirm the amount. In May 2021, the Department received confirmation of balances for R6,848,590.85 from the national Department of Public Works and The R424,000 is for expenditure vouchers that were awaited from the Department of International Relations and Cooperation at year-end. The Department Infrastructure (DPWI). The DSI is not in agreement with the amounts owed because there was no lease agreement between the DPWI and the Department during the said period. Further information was requested from the DPWI.

922

1,083

## ANNEXURE 6 INVENTORY

	Note	Quantity	2020/21	Quantity	2019/20
INVENTORY			R'000		R'000
Opening balance		1	1	1	•
Add/(Less): Adjustments to prior year balance		1	•	1	•
Add: Additions/Purchases - Cash		•	ı	•	•
Add: Additions - Non-cash		1	•	1	•
(Less): Disposals		1	•	1	1
(Less): Issues		•	•	1	1
Add/(Less): Adjustments	•	1	1	1	-
Closing balance	•	•	•	•	•

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 2020/21 financial year.

## ANNEXURE 8A INTER-ENTITY ADVANCES PAID (NOTE 17)

	Confirmed balance	balance	Unconfirmed balance	d balance	OT	TOTAL
GOVERNMENT ENTITY	31/03/2021	31/03/2020	31/03/2021	31/03/2020	31/03/2021	31/03/2020
	R'000	R'000	R'000	R'000	R'000	R'000
DEPARTMENTS						
Current						
Department of International Relations and						
Cooperation	•	122	•	•	•	122
Government Communication and Information						
System (GCIS)	000'9	•	•	•	000'9	
Total	000'9	122	•		000'9	122

## ANNEXURES TO THE ANNUAL FINANCIAL STATEMENTS

## **FOR THE YEAR ENDED 31 MARCH 2021**

## ANNEXURE 11 COVID-19 RESPONSE EXPENDITURE

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85

489

98

52

339

7

1,873

165

ANSFERS AND SUBSIDIES

**GOODS AND SERVICES** 

TRANSFERS AND SUBSIDIES																		
	April	April May June		-qnS	July	Aug	Sept	-qnS	Oct	Nov	Dec	-qns	Jan	Feb	Mar	-qnS	2020/21	2019/20
Expenditure per economic 2020 2020	2020	2020	2020	total	2020	2020	2020	total	2020	2020	2020	total	2021	2021	2021	total	Total	Total
classification				۵1				Q2				Q3				Q4		
																		ı
Health Innovation	1	1	1	1	27,095	1	2,344	29,439	ı	1	-	1	1	1	1	1	29,439	
HIV and AIDS prevention																		1
and treatment technologies	1	1	-	1	10,000	1	-	10,000	ı	1	1	1	1	1	1	1	10,000	
Global Science: AGR																		1
International Resource	1	1	1	1	ı	1	400	400	200	15,000	2,430	17,630	1	1	7,455	7,455	25,485	
Global Science: AFR MULT																		1
AGR	'	'	1	ı	'	'	'	'	802	200	'	1,002	ı	1	ı	ı	1,002	

	April	May	June	-qnS	July	Aug	Sept	-qnS	Oct	Nov	Dec	-qns	Jan	Feb	Mar	-qnS	2020/21	2019/20
	2020	2020	2020	total	2020	2020	2020	total	2020	2020	2020	total	2021	2021	2021	total	Total	Total
				Q				Q2				Q3				Q4		
Global Science : Bilateral Co-																		i
operation	1	ı	ı	1	1	1	1,500	1,500	1	1	1	1	1	1	844	844	2,344	
Indigenous Knowledge			_															ı
Systems	1	ı	ı	1	1	1,400	1	1,400	2,700	1	1	2,700	1	1	7,300	1	4,100	
Social Impact Board																		i
	-	1	ı	1	1	1	33,422	33,422	1	1	1	1	-	1	1	1	33,422	
Hydrogen Strategy Cap	-	-	-	-	1	1	1	-	1	-	15,000	15,000	-	1	1	1	15,000	1
Innovation for Inclusive																		i
Development	1	1	I	I.	1	ı	ı	1	1	1	15,000	15,000	1	1	2,225	1	15,000	
Local Manufacturing Capacity	1	ı	1	Ī	ı	1	1	1	ı	1	1	1	1	1	763	1	1	1
Strategic Scientific Platforms								_										
(TP)	1	Ì	1	ı	Ì	ı	1	1	Ì	ı	1	1	1	ı	1,000	1	1	1
TRANSFERS AND																		
SUBSIDIES	•	•	•	•	37,095	1,400	37,666	76,161	3,702	15,200	32,430	51,332	•	•	19,587	19,587	147,080	
																		-
TOTAL COVID 19 RESPONSE																		•
EXPENDITURE		1	21	21	37,434	1,452	37,764	76,650	3,787	15,277	32,433	51,497	1	1	20,785	20,785	148,953	

The annexure was introduced in the current financial year in order to allocate expenditure relating to COVID-19.

## APPROVAL

The Annual Financial Statements set out in pages 177 and 335 for the financial year ended 31 March 2021 have been approved.

PM MJWARA
DIRECTOR-GENERAL
30 AUGUST 2021

