



**science & innovation**

Department:  
Science and Innovation  
**REPUBLIC OF SOUTH AFRICA**

# **2021/22 Second Quarter Performance Report**

**Final**

**1 July – 30 September 2021**

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## LIST OF ABBREVIATIONS

<b>ACCESS</b>	Applied Centre for Climatic and Earth System Science South African
<b>AGSA</b>	Auditor-General of South Africa
<b>AMCOST</b>	African Ministerial Conference on Science and Technology
<b>APP</b>	Annual Performance Plan
<b>ASSAf</b>	Academy of Science of South Africa
<b>AU</b>	African Union
<b>BFG</b>	Bioinformatics and Functional Genomics
<b>CEO</b>	Chief Executive Officer
<b>CESTII</b>	Centre for Science, Technology and Innovation Indicators
<b>CIPC</b>	Companies and Intellectual Property Commission
<b>CRDP</b>	Comprehensive Rural Development Programme
<b>CSIR</b>	Council for Scientific and Industrial Research
<b>CTR</b>	Centre for Translational Research
<b>DBE</b>	Department of Basic Education
<b>DIRCO</b>	Department of International Relations and Cooperation
<b>DPME</b>	Department of Planning, Monitoring and Evaluation
<b>DSI</b>	Department of Science and Innovation
<b>DTIC</b>	Department of Trade, Industry and Competition
<b>EDCTP</b>	European and Developing Countries Clinical Trials Partnerships
<b>EE&amp;DSM</b>	Energy Efficiency and Demand Side Management
<b>EGP</b>	Eucalyptus Genome Platform
<b>EIAP</b>	Emerging Industries Action Plan
<b>ENE</b>	Estimates of National Expenditure

<b>ERA</b>	Emerging Research Areas
<b>ERM</b>	Enterprise Risk Management
<b>ESASTUP</b>	European South African Science and Technology Advancement Programme
<b>ESOF</b>	EuroScience Open Forum
<b>EU</b>	European Union
<b>Exco</b>	Executive Committee
<b>FACTS</b>	Follow on African Consortium for Tenofovir Studies
<b>FEI</b>	Fluorochemicals Expansion Initiative
<b>FP7</b>	Framework Programme – 7
<b>GCSSRP</b>	Global Change, Society and Sustainability Research Programme
<b>GDP</b>	Gross Domestic Product
<b>HCD</b>	Human Capacity Development
<b>HELP</b>	Herschel Extragalactic Legacy Programme
<b>HLPD</b>	High-Level Policy Dialogue
<b>HPC</b>	High-Performance Computing
<b>HSSIWG</b>	Human and Social Science Infrastructure Working Group
<b>HySA</b>	Hydrogen South Africa
<b>IAA</b>	Internal Audit Activity
<b>IATs</b>	Institute of Advanced Tooling
<b>ICASA</b>	Independent Communications Authority of South Africa
<b>ICR</b>	International Cooperation and Resources
<b>ICSU</b>	International Council for Science
<b>ICT</b>	Information and Communication Technology
<b>ICT4E</b>	Information and Communication Technology of Basic Education

<b>IDEWS</b>	Infectious Diseases Early Warning Systems
<b>iIKSSA</b>	Indigenous Knowledge Systems of South Africa trust
<b>IISA</b>	International Institute for Applied Systems Analysis
<b>IK</b>	Indigenous Knowledge
<b>IKS</b>	Indigenous Knowledge Systems
<b>IP</b>	Intellectual Property
<b>IR</b>	International Resources
<b>ISA</b>	Information System Architecture
<b>ISI</b>	Institute for Scientific Information
<b>IT</b>	Information Technology
<b>ITEC</b>	International Travel and Education Cooperation
<b>IU</b>	Implementation Unit
<b>MCA</b>	Multilateral Cooperation and Africa
<b>MEA</b>	Membrane Electrode Assembly
<b>MH</b>	Metal Hydride
<b>MoU</b>	Memorandum of Understanding
<b>MPFP</b>	MultiPurpose Fluorination Pilot Plant
<b>MTEF</b>	Medium-Term Expenditure Framework
<b>NACI</b>	National Advisory Council on Innovation
<b>NAM</b>	Non-Aligned Movement
<b>NECSA</b>	Nuclear Energy Corporation South Africa
<b>NEP</b>	National Equipment Programme
<b>NF</b>	National Facilities
<b>NICIS</b>	National Integrated Cyberinfrastructure System
<b>NIPMO</b>	National Intellectual Property Management Office
<b>NNEP</b>	National Nanotechnology Equipment Programme

<b>NRDS</b>	National Research and Development Strategy
<b>NRF</b>	National Research Foundation
<b>NSI</b>	National System of Innovation
<b>NSW</b>	National Science Week
<b>NT</b>	National Treasury
<b>NWSET</b>	National Women in Science, Engineering and Technology
<b>NYS</b>	National Youth Service
<b>OECD</b>	Organisation for Economic Cooperation and Development
<b>OTT</b>	Office of Technology Transfer
<b>PCT</b>	Patent Cooperation Treaty
<b>PHI</b>	Post-Harvest Innovation
<b>PPGME</b>	Policy, Planning, Governance, Monitoring and Evaluation
<b>PPP</b>	Public Participation Programme
<b>R&amp;D</b>	Research and Development
<b>RDI</b>	Research, development and innovation
<b>RDS</b>	Research, development and support
<b>RE</b>	Renewable Energy
<b>S&amp;T</b>	Science and Technology
<b>SACNASP</b>	South African Council for Natural Scientific Profession
<b>SADC</b>	South African Development Community
<b>SAEON</b>	South African Environmental Observation Network
<b>SAMCOST</b>	Southern African Ministerial Conference on Science and Technology
<b>SANSA</b>	South African National Space Agency
<b>SANWATCE</b>	Southern African Network of Water Centres of Excellence
<b>SARChi</b>	South African Research Chairs Initiatives

<b>SARIR</b>	South African Research Infrastructure Roadmap
<b>SASSCAL</b>	Southern African Science Service Centre for Climate Change and Adaptive Land Management
<b>SA-YSSP</b>	Southern African-Young Scientists Summer Program
<b>SEP</b>	Socio-Economic Innovation Partnership
<b>SETI</b>	Science, Engineering and Technology Innovation
<b>SIF</b>	Sector Innovation Fund
<b>SKA</b>	Square Kilometer Array
<b>SKA/AVN</b>	SKA and African Very Long Baseline Interferometry Network
<b>SKARAB</b>	SKA Reconfigurable Architecture Boards
<b>SLA</b>	Service Level Agreement
<b>STEPSA</b>	Spatial-Temporal Evidence for Planning South Africa
<b>STI</b>	Science, Technology and Innovation
<b>STISA</b>	Science, Technology and Innovation for South Africa
<b>TDGs</b>	Technology Development Grants
<b>TIA</b>	Technology Innovation Agency
<b>TIPS</b>	Trade and Industrial Policy Strategy
<b>TISC</b>	Technology and Innovation Support Centre
<b>TLIU</b>	Technology Localization Implementing Unit
<b>TMP</b>	Technology Matchmaking Project
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization
<b>USAID</b>	United States Agency for International Development
<b>WIPO</b>	World Intellectual Property Organisation
<b>WISA</b>	Women in Science Awards
<b>WRC</b>	Water Research Council

## **1. INTRODUCTION**

This report sets out to present the Department's progress in implementing the 2021/22 Annual Performance Plan (APP). The Department continues to contribute to the government's Programme of Action within the Medium-Term Strategic Framework (MTSF) by implementing its six strategic outcome-oriented goals, as articulated in the DSI Strategic Plan. These goals are a transformed, inclusive, responsive and coherent NSI; human capabilities and skills for the economy and development; increased knowledge generation and innovation outputs; knowledge utilisation for economic development (a) in revitalising traditional industries and (b) in stimulating R&D-led industrial development; knowledge utilisation for inclusive development; and innovation in support of a capable and developmental state.

The 2019 White Paper on Science, Technology and Innovation (STI), which sets the long-term policy direction for the South African government to ensure a growing role for STI in a more prosperous and inclusive society, guides the DSI's service delivery environment. Furthermore, Treasury Regulation 5.3.1 requires the accounting officer to establish procedures for quarterly reporting to the executive authority to facilitate effective performance monitoring, evaluation and corrective action.

Procedures for quarterly reporting have been established through the Department of Planning, Monitoring and Evaluation (DPME) Quarterly Performance Report 2021/22 Guidelines. The DPME, National Treasury, and the DSI's Performance Information Policy and Procedure Manual (PIPPM) all require that where there are deviations between planned and actual performance, reasons for the deviations must be provided.

This report presents the progress made from 1 July to 30 September 2021, including the challenges and issues confronting DSI Programmes in their pursuit of the 2021/22 financial year targets as outlined in the APP. The report also provides details of the financial transactions of the DSI as of 1 July 2021.



The overall progress of performance is based on the three classification categories. The legend keys below explain the overall progress as per the DSI performance indicators:

<b>Not Achieved</b>	<b>No target due</b>	<b>Achieved</b>
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Please note that the colour code is referring to the quarterly targets and these exclude the ones which were not planned for.

- Red – **Not achieved**: the target has not been achieved within the planned timeframes; major remedial action and urgent interventions are required.
- Green – **No target due**: no major action is needed since there are no planned targets within the planned timeframes.
- Blue – the quarterly target is **achieved** within the planned timeframes.

## 2. DSI SECOND QUARTER PERFORMANCE OVERVIEW

Figure 1 below illustrates the performance of the DSI from July to September 2021 after having integrated all the latest amendments by the Programmes concerning the finalisation of evidence, which was initially outstanding.

During the period under review, the total number of planned output targets is 31. The Department achieved 81% of the planned output targets and 19% of the planned output targets are not achieved.

**Figure 1: The overall 2021/22 DSI's second quarter performance**

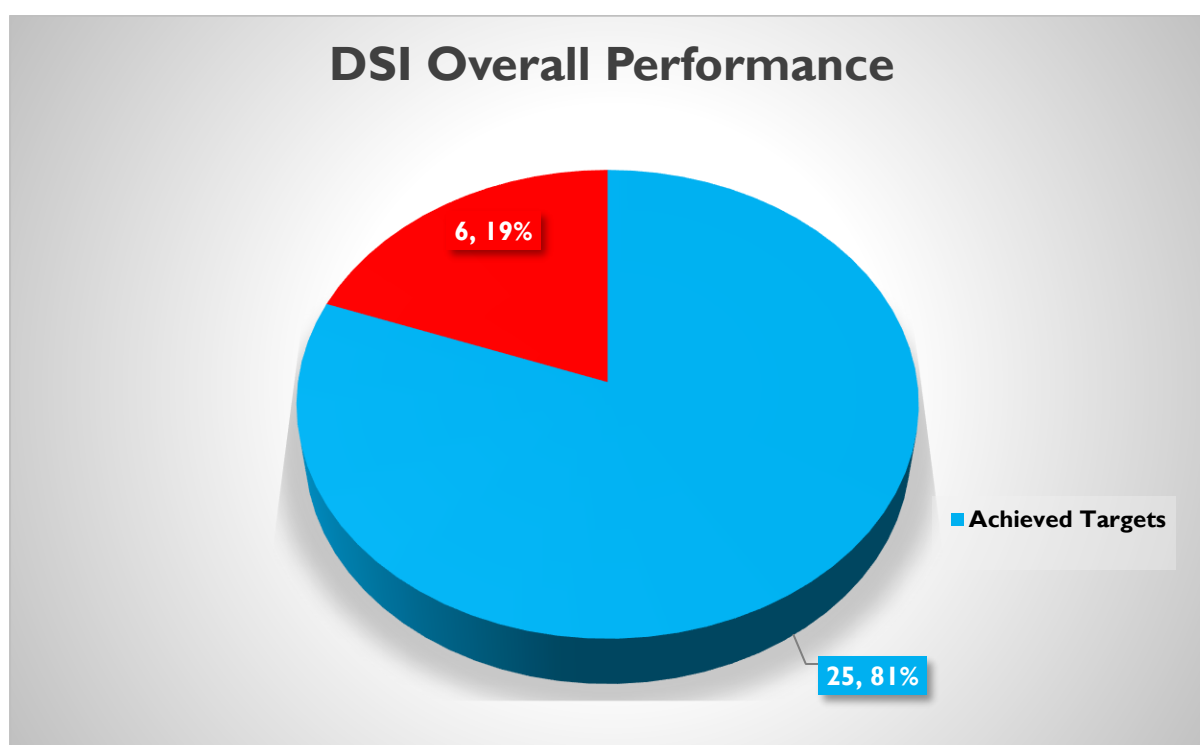
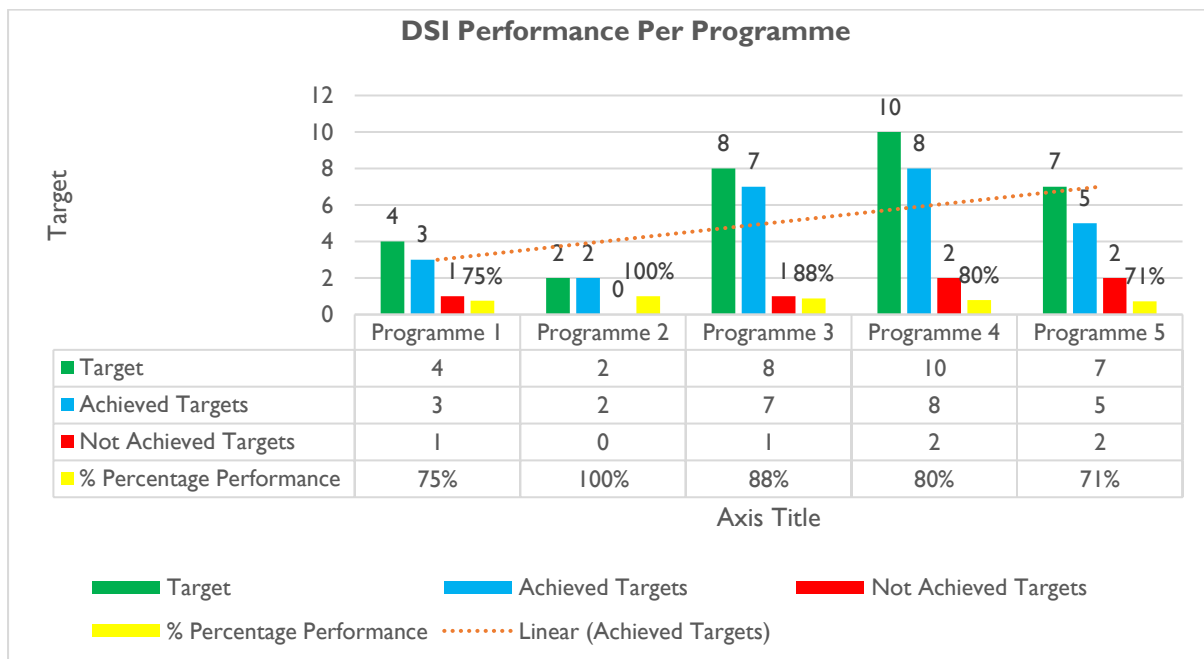


Figure 2 below illustrates the performance of the Department per Programme. The DSI planned to achieve a total number of 31 output targets for the 2021/22 financial year. Performance is based on all five Programmes.

- **Programme 1** achieved 75% of its targets and 25% of the planned targets were not achieved.
- **Programme 2** achieved 100% of its targets .

- **Programme 3** achieved 88% of its targets and 12% of the planned targets were not achieved.
- **Programme 4** achieved 80% of its targets and 20% of the planned targets were not achieved.
- **Programme 5** achieved 71% of its targets and 29% of the planned targets were not achieved.

**Figure 2: The DSI Second Quarter performance per Programme**



## **PROGRAMME 1: ADMINISTRATION**

The purpose of the Programme is to conduct the overall management and administration of the Department. To provide strategic policy and planning alignment, ensure effective governance, risk management, and monitoring and evaluation (M&E) within DSI and among entities, and provide strategic science communication and branding of the activities of the DSI, its entities and the national system of innovation (NSI).

The Programme consists of the following chief directorates:

- (a) The Ministry and Office of the Director-General:** Supports the Minister, Deputy Minister and Director-General by providing professional and executive support. This component is responsible for the 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..
- (b) Enterprise Risk Management (ERM):** Provides and drives an enabling environment in support of the identification, management and oversight of risks across strategic, tactical and operational levels in the Department. This role includes ensuring that countering fraud and/or corruption is made an integral part of strategy, operations and administration within the Department.
- (c) Policy, Planning, Governance, Monitoring and Evaluation (PPGME):** Supports the DSI leadership in steering the NSI by facilitating the coordination of selected cross-cutting issues in the Department, strategic and operational planning, monitoring and evaluation for the Department and its public entities, and governance of the public entities, in order to assist the Department and its entities to contribute to the realisation of departmental and national priorities.
- (d) Internal Audit Activity (IAA):** Serves as the primary assurance tool for improving the Department's governance, risk management and management controls by providing insight and recommendations based on the analysis and assessment of data and business processes.
- (e) Human Resources (HR):** Ensures that the Department is able to (a) provide a professional service through accurate, consistent and best employment

practices in all its activities; (b) attract, retain and motivate employees who share the organisational vision; (c) champion change and transition, with a view to being a catalyst in the transition of people and the organisation to embrace and implement change; (d) set performance standards and manage performance against them; (e) promote 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; (f) instil a culture of service excellence; and (g) provide an environment that promotes health, wellness and safety, and embraces the value of diversity.

- (f) **Finance:** Ensures the effective, efficient and economical 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.
- (g) **Information System 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 IT. The component's purpose is to align the IT strategy with the business strategy to ensure that the Department uses its resources optimally.
- (h) **Science Communication:** Provides strategic communication support to raise local and international awareness of the objectives and activities of the Department, its entities and the NSI, as well as to ensure effective communication among DSI and NSI stakeholders. Its overall focus is to create public awareness and brand the Department as a custodian of developments, benefits and opportunities in publicly funded STI initiatives across the country's science system. This is done through print, broadcast and online media, speeches and events, including public participation programmes. The component also supports science engagement programmes by the South African Agency for Science and Technology Advancement (SAASTA) and others, and ensures the alignment of the DSI communication strategy with the Government Communication Framework.
- (i) **Legal Services:** Is responsible for ensuring that the interests of the Department are protected against any legal risk. The component ensures that the

Department complies with all relevant legislation, and takes a proactive approach to deal with matters that have the potential to give rise to conflict or legal challenges.

**TABLE 1: PROGRAMME 1 ADMINISTRATION 1**

<b>Outcome: Innovation in support of a capable and Developmental state</b>						
<b>Annual target: DSI public entities' 2022/23 annual performance plans (NRF, HSRC, TIA, SANSA, NACI and ASSAf) and CSIR shareholder compact approved by the Minister and signed chairpersons of the boards by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: DSI public entities' annual performance plans and CSIR shareholder compact approved by the Minister and signed by the chairpersons of the boards</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
No target	No target due	No target	No target due	No target due	None	None
<b>Annual target: Finalisation of the decadal plan and approval by Cabinet by 30 June 2021 (Non-cumulative target)</b>						
<b>Performance indicator: Approved decadal plan to implement the 2019 White Paper on Science Technology and Innovation</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
Cabinet approval of the decadal plan	Cabinet approval for the Decadal Plan was obtained on 24 March 2021, so there is nothing to report on the First Quarter	Consultation with NSI stakeholders	Cabinet approved the Decadal Plan for further consultation in March 2021. These follow-up Decadal Plan consultations have been concluded. A final Plan is expected by the end of Q3	Not Achieved	The follow-up consultations were complicated by Covid restrictions, as well as the diaries of high-level government officials - outside of the DSI control	The DG leads the consultations, thereby making it easier to obtain meeting dates from other government departments
<b>Annual target: 85% of all approved funded positions filled by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Percentage of approved funded positions filled annually</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>

No target	No target due	No target	No target due	No target due	None	None
<b>Annual target: Unqualified audit opinion with no financial matters in the audit report from the Auditor-General by 30 September 2021 (Non-cumulative target)</b>						
<b>Performance indicator: Unqualified audit opinion with no financial matters in the audit report from the Auditor-General</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
No target	No target due	Unqualified audit opinion with no financial matters in the audit report from the Auditor-General	Unqualified audit opinion with no financial matters in the audit report from the Auditor-General	Achieved	None	None
<b>Outcome: A transformed, inclusive, responsive and coherent NSI</b>						
<b>Annual target: Six platforms (print, broadcast, online, media liaison, stakeholder engagement and social media) to profile the DSI and its entities by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of media platforms used to promote the DSI and its entities</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
Six platforms (print, broadcast, online, media liaison, stakeholder engagement and social media) to profile the DSI and its entities	Six platforms (print, broadcast, online, media liaison, stakeholder engagement and social media) to profile the DSI and its entities	Six platforms (print, broadcast, online, media liaison, stakeholder engagement and social media) to profile the DSI and its entities	Six platforms (print, broadcast, online, media liaison, stakeholder engagement and social media) to profile the DSI and its entities	Achieved	None	None
<b>Annual target: Two national thematic campaign reports on the branding roll-out initiatives by 31 March 2022 (Cumulative target)</b>						
<b>Performance indicator: Number of branding initiatives developed and implemented</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
Roll-out of branding and marketing initiatives (thematic	No target	One roll-out branding initiatives (thematic	One roll-out branding initiatives (thematic	Achieved	None	None



bill boards and social media) across Provinces and Metropolitan Municipalities		billboards and social media) across provinces and metropolitan municipalities	billboards and social media) across provinces and metropolitan municipalities			
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## **PROGRAMME 2: TECHNOLOGY INNOVATION**

The purpose of the Programme is to drive strategic research, development and innovation (RDI) in space science and technology, energy, the bioeconomy, and 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 RDI 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.

The Programme provides policy leadership in the DSI's long-term cross-cutting RDI initiatives through four chief directorates.

**Bioinnovation** Chief Directorate leads the DSI's implementation of the National Bioeconomy Strategy, with its prime focus on the socio-economic outcomes and the strengthening of research and innovation competencies that form the strategic base of the bio-based NSI, rather than the mere development of technologies.

**Hydrogen and Energy** Chief Directorate develops a portfolio of technologies to contribute towards resolving the energy security challenge, to increase local mineral beneficiation, and to facilitate South Africa's transition towards a knowledge-driven economy. In line with the NDP, the MTSF and the Nine-Point Plan, the chief directorate seeks to facilitate the achievement of economic development and social equity by including locally developed cleaner energy technology solutions in South Africa's energy system.

**Space Science and Technology** Chief Directorate supports the creation of an environment conducive to the implementation of the Space Science and Technology Grand Challenge, the National Space Strategy and SAEOS, as well as addressing the development of space technologies, innovative solutions and human capital to respond to national priorities and boost socio-economic growth. The chief directorate is also focusing on the development of human capital through targeted programmes

in the thematic areas of earth observation and satellite engineering; navigation and positioning; space science and exploration; and satellite communication. The satellite technology platforms and infrastructure in space S&T will play an important role in decision-making processes in both the public and private sectors.

### **Innovation Priorities and Instruments**

The Chief Directorate supports and strengthens the innovation policy package (and related interventions) aimed at creating and sustaining an enabling environment for innovation, technology development, and commercialisation of publicly-funded Research and Development (R&D) initiatives. In performing this function, IPI supports the identification, development, creation and support of policy and institutional structures that facilitate technology development and its progression into national and international markets. The chief directorate also focuses on the conceptualisation, piloting and monitoring and evaluation of innovation policy instruments, such as those centred on the Department's Commercialisation Framework. It is further supporting the development and implementation of emerging and converging technologies that have the potential to influence and affect social and economic development positively, in areas such as synthetic biology, structural biology, systems biology and functional genomics, nanotechnology, photonics and robotics.

**National Intellectual Property Management Office (NIPMO)** is the national implementing agency for the Intellectual Property Rights from Publicly Financed Research and Development Act (IPR-PFRD Act) which was promulgated on 22 December 2008 and came into effect on 2 August 2010. The long title of the IPR-PFRD Act reads *“To provide for more effective utilisation of intellectual property emanating from publicly financed research and development; to establish the National Intellectual Property Management Office and the Intellectual Property Fund; to provide for the establishment of offices of technology transfer at institutions, and to provide for matters connected therewith:*

## **Highlights of the Quarter**

### **A TRANSFORMED, INCLUSIVE, RESPONSIVE, COORDINATED & EFFICIENT NATIONAL SYSTEM OF INNOVATION (NSI)**

Cabinet's approval of the extension of the Hydrogen South Africa Programme for the next ten financial years, from 2022/23 to 2030/3, was obtained on 14 September 2021. Continued long-term investment in research, development and innovation (RDI), will contribute to economic reconstruction and recovery in three areas, namely RDI to revitalise and modernise existing industries/sectors; RDI that creates new sources of growth and stimulates R&D-led industrial development; and RDI in support of a capable and developmental state.

The DSI and Anglo American's released media statements on the commencement of the Hydrogen Valley project on 31 March 2021. Since then the DSI, in partnership with Turner and Townsend (Proprietary) Limited (T&T), has been exploring an opportunity to establish a trade relationship between a city in the United Kingdom (UK) and a city in South Africa to support trade based on high technology manufacturing centred in the Hydrogen Economy. This will support aspirations to move towards a net-zero economy.

The UK/SA trade deal opportunity is aimed at establishing strategic partnerships that will promote manufacturing of locally-developed intellectual property (IP) across the Hydrogen Valley corridor, and sell to UK markets. Consortia from both sides will be made up of the triple helix (academia, local government and business). T&T will bring in the private sector from both South Africa and the UK. DSI will bring in academia and science councils, as well as local municipalities, mainly from Gauteng and Limpopo provinces. The DSI-led proposal was submitted to the UK 2070 Commission on 31 August 2021 and was shortlisted for the next level of presentations, which took place on 21 September 2021. The current consortium is made up of the DSI, the Limpopo Economic Development Agency (LEDA) and Gauteng Economic Development Agency (GEDA). The next step is to bring in the private sector and academia to the consortium.

## ***HYDROGEN SOCIETY ROADMAP (HSRM)***

In July 2021, the DSI hosted a virtual HSRM multi-stakeholder Collaboration Workshop. The aim was to solicit more inputs from key relevant stakeholders, and consolidate inputs from earlier consultations. The workshop was a success. There were stakeholders from the private sector, government departments, academia and relevant energy associations. The DSI Director-General (DG) gave a brief on the Hydrogen South Africa journey, the process that had been undertaken to develop the HSRM, as well as the next, planned steps. The DG of the Department of Mineral Resources and Energy also gave a keynote address, that focused on the link between the HSRM and the Integrated Resource Plan.

In August 2021, a draft of the HSRM document with inputs from the Collaboration Workshop was presented at the DG Economic Sectors, Investment, Employment and Infrastructure and Development (ESIEID) cluster. This was meant to secure a go-ahead to table the document at Cabinet. The DG ESIEID Cluster recommended that the document be presented to the ESIEID Cabinet Committee; the presentation took place on 8 September. Subsequently, the document was presented to Cabinet on 14 September 2021, where the document was approved and permission granted for public release.

## **HUMAN CAPABILITIES AND SKILLS FOR THE ECONOMY AND DEVELOPMENT**

The IK-based Technology Transfer Platform is working in collaboration with the Innovation Hub, BioPark, the South African Bureau of Standards, and the CSIR, in training 40 IK-Based Entrepreneurs in business and financial management, entrepreneurship, marketing and general commercialisation processes. This is now a national initiative called the CoachLab Bio-Entrepreneurship Programme. The Agriculture Bioeconomy Innovation Partnership Programme (ABIPP) contract was extended through a second addendum to the contract, which was concluded between TIA and DSI. The contract was signed for a further 12 months implementation period, covering both active and new projects to be funded as per the ABIPP Business Plan.

During the second quarter, a total of three projects had funds disbursed. These include the Cape Aloe project (R1 571 902) managed by the CSIR, the Commercialisation of Nutrient-Dense and Drought Tolerant crops project managed by UKZN InQubate (R1 999 830), as well as the Grain SA managed project, Digital Agriculture (R995 100). Thus far, 89% of the allocated phase 2 funds have been disbursed to projects (excluding the programme management unit allocated funds). The Agriculture Bioeconomy Innovation Partnership Programme's (ABIPP) programme management unit (PMU) team conducted site visits to various projects for monitoring and evaluation purposes. The team went to the Western Cape in Stellenbosch, to visit the Stellenbosch University Plant Breeding Lab, where the wheat breeding platform is housed. The long-term trials are proceeding well with 200 plant lines released to plant breeding programmes within the country. The ABIPP programme has been supporting the platform since 2016/17, making a huge impact with the lines released to breeding programmes, which are further developed into cultivars that can be registered.

The Cassava Feasibility study managed by the National Agricultural Marketing Council (NAMC) held an inception workshop on-site in Tzaneen, at the Farmers Business-Cooperative Limited (FABCO) warehouse facilities. During this workshop, an engagement was held with various stakeholders, who will be implementing this project. These include the smallholder farmers across Mpumalanga, Limpopo and Kwa-Zulu Natal – the areas within the Cassava Red Belt. The third site visit, which the team conducted was in the Eastern Cape, where the Karoo Catch Aquaculture project is based. The project is at its completion stages and has launched some of its products. The project's approved project plan developed six products but only up to TRL6. The product names are (i) fish bobotie; (ii) chakalaka fish; (iii) fish cutlets; (iv) samp and fish; (v) fish breyani; and (vi) fish mince. Frontline Marketing tested the acceptance of six different canned fish products. Previously, only two products advanced to TRL 7, but now, the remaining have progressed to TRL 7. The demonstration stage was completed on (i) chakalaka fish and bean stew, and (ii) fish breyani.

## **INCREASED KNOWLEDGE GENERATION AND INNOVATION OUTPUTS**

The Bio-innovation Chief Directorate has been supporting a number of projects to address the need for simple, accurate and affordable rapid diagnostic tests that can be performed in remote settings to reliably detect SARS-COV-2. A few of these projects are at advanced stages of development, with CapeBio having successfully developed a versatile, ready-to-use continuous RT-PCR assay that is compatible with an array of point-of-care systems currently in use in South Africa. The test kit has been validated by the National Institute for Communicable Diseases (NICD), and approved by the South African Health Products Regulatory Authority (SAHPRA), thus paving the way for industrial-scale manufacturing to commence.

The second diagnostic test by Medical Diagnostech is designed to directly detect the COVID-19 Spike protein in saliva, to determine whether a patient currently has an acute infection – a prototype has been validated by the NICD, and is currently awaiting SAHPRA approval. Furthermore, SHIP has facilitated the development and deployment of COVID-19 PCR tests that can rapidly distinguish between viral variants – the test can distinguish between alpha and beta variants, as well as a test to distinguish beta and delta (from each other and alpha) variants. The tests have been deployed to three clinical sites in South Africa.

The African Medicines Platform of the IK-Based Bio-Innovation Programme has concluded pre-clinical studies on two multi-herbal formulations of Covid-19, and one for HIV/AIDS. One of these has been submitted to SAHPRA for Phase II clinical trial approval. Progress has been made in the development of seven Medicinal Cannabis products for cancers, diabetes, cosmeceuticals, neurodegenerative diseases and Covid-19, and part of the Cannabis Master-Plan. The African Medicines Working Group was established in collaboration with SAHPRA to finalise a framework for the regulation of African Medicines, evaluation of these medicines and their registration in the South African Essential Drug List for clinical application.

## KNOWLEDGE UTILISATION FOR ECONOMIC DEVELOPMENT

SANEDI received a royalty payment from a South African company MLT Inverters. This royalty is on the improved inverter system that was funded by the DSI, through the solar energy research programme. The Solar Energy Research Facility workshop was held on 21 July 2021, attended by NSI stakeholders to confirm the strategic orientation of the solar research facility. On 21 June 2021, the Director-General of the World Health Organization (WHO) Tedros Adhanom Ghebreyesus, announced that South Africa will become the first COVID-19 mRNA vaccine technology transfer hub. The first COVID-19 messenger RNA (mRNA) vaccine technology transfer hub consists of a South African consortium comprising Biovac, Afrigen Biologics and Vaccines, a network of universities, and the Africa Centres for Disease Control and Prevention (CDC).

The move follows the WHO's global call for expressions of interest on 16 April 2021, to establish COVID-19 mRNA vaccine tech transfer hubs to scale up production and access to COVID vaccines. This announcement was followed up with a technical visit from WHO and Medicines Patent Pool between 6 and 9 September 2021, and a Funders meeting on 22 September 2021. On 23 September 2021, President Ramaphosa and Dr Patrick Soon-Shiong, Executive Chair of Nantworks, a USA-based company, announced the Nantworks partnership with the CSIR and the SAMRC, as well as some universities.

The initiative involves the transfer of biologic manufacturing technology for Covid-19 and cancer vaccines and next-generation cell-based immunotherapies. Nantworks is also in the process of establishing manufacturing facilities in Cape Town. Under the DSI-funded Strategic industrial Bioinnovation Partnership (SIIP) Programme, the Industry and Environment Directorate financially supported the conclusion of the inbound technology transfer and agreement between a local Biotech start-up (Sawubona Myceillum (Pty) Ltd) and the Universiti Teknologi Malaysia to localise the "Submerged Cultivation of Pleurotus Ostreatus for Pleuron Polysccharides Production" technology.



During this period, Sawubona Mycelium also concluded an equity investment acquisition deal with the OneBio Seed Investment Fund (OBSIF) whereby the Fund would invest R2m in SM. OneBio had also agreed to fund Sawubona Myceillum with an additional R6m in the form of a grant of R1m (OneBio administers this facility on behalf of Small Enterprise Funding Agency) and a concessional loan of R5m (from a Loan Facility the SA SME Fund administers). In total, Sawubona Myceillum would be receiving R8m to fund its development objectives over the next two years. Through the National Indigenous Product Programme (NIPP), the DSI is working with the Industrial Development Corporation in piloting the commercialisation of six IK-based products in African medicines, cosmeceuticals, health infusions and nutraceuticals. The CSIR continues to support IK-Based SMMEs with the production and manufacturing of commercial products.

**TABLE 2: PROGRAMME 2 – TECHNOLOGY INNOVATION**

<b>Outcome: Innovation in support of a capable and developmental state</b>						
<b>Annual target: 2 decision-support tools developed and/or maintained by 31 March 2022 (<i>Non-cumulative target</i>)</b>						
<b>Performance indicator: Number of decision-support tools utilised in all spheres of government</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
No target	No target due	No target	No target due	No target due	None	None
<b>Annual target: 8 strategic and technical engagements with SANSA and TIA to alignment with national priorities by 31 March 2022 (<i>Non-cumulative target</i>)</b>						
<b>Performance indicator: Number of strategic and technical engagements with SANSA and TIA to ensure alignment with national priorities</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
2 strategic and technical engagements with SANSA and TIA to alignment with national priorities by 30 June 2021	2 strategic and technical engagements with SANSA and TIA to alignment with national priorities by 30 June 2021	2 strategic and technical engagements with SANSA and TIA to alignment with national priorities by 30 September 2021	2 strategic and technical engagements with SANSA and TIA took place	Achieved	None	None
<b>Annual target: 3 new Products and /or Services developed (linked to High Frequency Propagation and / or Global Navigation Satellite System applications) by 31 March 2022 (<i>Cumulative target</i>)</b>						
<b>Performance indicator: Provision of space weather information for the aviation industry in South Africa and the African continent</b>						

1 <sup>st</sup> Quarter target as per APP	1 <sup>st</sup> Quarter actual output	2 <sup>nd</sup> Quarter target as per APP	2 <sup>nd</sup> Quarter actual output	Status	Reason for variance	Actions taken
No target	No target due	1 Product and/ or Services developed	5 new products were developed	Achieved	This is a new performance indicator with no base line for target setting.	None
<b>Annual target: Launch of 3 CubeSats for MDASat constellation by 30 December 2021 (Non-cumulative target)</b>						
<b>Performance indicator: Number of maritime domain awareness (MDA) missions completed in support of the Oceans Economy Phakisa</b>						
1 <sup>st</sup> Quarter target as per APP	1 <sup>st</sup> Quarter actual output	2 <sup>nd</sup> Quarter target as per APP	2 <sup>nd</sup> Quarter actual output	Status	Reason for variance	Actions taken
Flight Acceptance Review completed	Flight acceptance review was completed on 25 June 2021	No target	No target due	No target due	None	None
<b>Outcome: Human capabilities and skills for the economy and for development</b>						
<b>Annual target: 190 postgraduate students (master's and doctoral) supported in designated energy, space, Innovation Priorities and Instruments and bioeconomy sectors by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of postgraduate students (master's and doctoral) supported in designated energy, space, Innovation Priorities and Instruments and bioeconomy areas</b>						
1 <sup>st</sup> Quarter target as per APP	1 <sup>st</sup> Quarter actual output	2 <sup>nd</sup> Quarter target as per APP	2 <sup>nd</sup> Quarter actual output	Status	Reason for variance	Actions taken
No target	No target due	No target	No target due	No target due	None	None
<b>Annual target: 20 artisans and/or technicians trained in hydrogen and energy and bio-economy by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of artisans and/or technicians trained in hydrogen and energy and bio-economy</b>						
1 <sup>st</sup> Quarter target as per APP	1 <sup>st</sup> Quarter actual output	2 <sup>nd</sup> Quarter target as per APP	2 <sup>nd</sup> Quarter actual output	Status	Reason for variance	Actions taken

No target	No target due	No target	No target due	No target due	None	None
<b>Annual target: 250 trainees upskilled in intellectual property management and technology transfer skills by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of trainees upskilled in intellectual property management and technology transfer</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter target as per APP</b>
150 trainees upskilled	277 trainees were upskilled in IP and technology transfer during Q1	No target	No target due	No target due	None	None
<b>Outcome: Increased knowledge generation and innovation outputs</b>						
<b>Annual target: 235 disclosures received from publicly financed research and development institutions by NIPMO by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of disclosures, received from publicly financed research and development institutions by NIPMO</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
130 disclosures received from publicly financed research and development institutions by NIPMO	106 disclosures were received by publicly financed research and development institutions by NIPMO	No target	No target due	No target due	None	None
<b>Annual target: 15 disclosures licensed for the first time received from publicly financed research and development institutions and recipients as reported to NIPMO by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of disclosures licensed for the first time received from publicly financed research and development institutions and recipients as reported to NIPMO</b>						

1 <sup>st</sup> Quarter target as per APP	1 <sup>st</sup> Quarter actual output	2 <sup>nd</sup> Quarter target as per APP	2 <sup>nd</sup> Quarter actual output	Status	Reason for variance	Actions taken
8 disclosures licensed for the first time received from publicly financed research and development institutions and recipients as reported by NIPMO	6 disclosures were licensed for the first time received from publicly financed research and development institutions and recipients as reported by NIPMO	No target	No target due	No target due	None	None
<b>Annual target: 4 intellectual property rights filed based on RDI conducted in designated areas by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of intellectual property rights filed based on RDI conducted in designated areas</b>						
1 <sup>st</sup> Quarter target as per APP	1 <sup>st</sup> Quarter actual output	2 <sup>nd</sup> Quarter target as per APP	2 <sup>nd</sup> Quarter actual output	Status	Reason for variance	Actions taken
No target	No target due	No target	No target due	No target due	None	None
<b>Annual target: 10 technology demonstrations, prototypes, products and services developed in designated energy, space, and bioeconomy areas by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of technology demonstrations, prototypes, products and services developed.</b>						
1 <sup>st</sup> Quarter target as per APP	1 <sup>st</sup> Quarter actual output	2 <sup>nd</sup> Quarter target as per APP	2 <sup>nd</sup> Quarter actual output	Status	Reason for variance	Actions taken
No target	No target due	No target	No target due	No target due	None	None
<b>Outcome: Knowledge utilisation for economic development in (a) revitalising existing (traditional) industries and (b) stimulating R&amp;D-led development</b>						
<b>Annual target: 2 stationary fuel cell systems/ clean energy technologies deployed in partnership with local and district municipalities in rural and informal settlements by 31 March 2022 (Non-cumulative target)</b>						

<b>Performance indicator: Number of stationary fuel cell systems/clean energy technologies deployed in partnership with local and district municipalities in rural and informal settlements</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
No target	No target due	No target	No target due	No target due	None	None
<b>Annual target: 9 SMMEs assisted with business development and commercialisation by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of SMMEs contracted and/or assisted with business development and commercialisation</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
No target	No target due	No target	No target due	No target due	None	None
<b>Annual target: 4 commercial outputs in designated areas by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of commercial outputs in designated areas</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
No target	No target due	No target	No target due	No target due	None	None
<b>Annual target: 200 black emerging farmers benefiting from technology/ innovation support programmes by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of black emerging farmers (subsistence, small-scale and potential commercial farmers) benefiting from technology/ innovation support programmes</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
No target	No target due	No target	No target due	No target due	None	None

## **PROGRAMME 3: INTERNATIONAL COOPERATION AND RESOURCES**

The Purpose of the programme is to strategically develop, promote and manage international relationships, opportunities and S&T agreements that strengthen the NSI and enable an exchange of knowledge, capacity and resources between South Africa and its regional and international partners. International Cooperation and Resources (ICR) also support South African foreign policy through science diplomacy. The Programme has three chief directorates.

**International Resources:** Works to increase the flow of international funding into South African STI initiatives, as well as African regional and continental programmes, through foreign investment promotion efforts, and fostering strategic partnerships with partners such as the European Union, as well as foundations and philanthropic organisations and the multinational private sector.

**Multilateral Cooperation and Africa:** Advances and facilitates South Africa's participation in bilateral STI cooperation initiatives with other African partners, in African multilateral programmes, especially SADC and AU programmes, and broader multilateral STI partnerships, with a strategic focus on South-South cooperation.

**Overseas Bilateral Cooperation:** Promotes and facilitates South Africa's bilateral STI cooperation with partners in Europe, the Americas, Asia and Australasia, especially for STI HCD, for collaborative research and innovation, and to secure partners' support for joint cooperation with other African partners.

### **Highlights of the quarter**

## **A TRANSFORMED, INCLUSIVE, RESPONSIVE AND COHERENT NSI**

The DSI participated in a SA-Argentina Senior Officials Meeting with the primary objective to evaluate progress made in the implementation of key bilateral engagements and to prepare for the Bi-National Commission, planned for 22 October

2021. Joint Committee meetings were held with Germany and Iran through which STI relations were advanced and strengthened, including the identification of new areas of mutual interests as they align with the New White Paper. A Ministerial meeting with Portugal gave strategic direction to the STI relationship and the bilateral activities were clearly defined, which both countries would mutually pursue. The BRICS partners signed the Agreement on Remote Satellite Sensing and will be implemented by the Space Agencies of the five countries.

Minister signed a Memorandum of Understanding on scientific and technological cooperation with Ethiopia during a virtual signing ceremony in September 2021 and senior officials in both Countries now have to implement successful initiatives in support of the development of both countries. The DSI participated in the Launch of the European Union (EU) Framework Programme for Research and Innovation, Horizon Europe in July 2021. The event was organised in partnership with the DSI and intended to inform the scientific community of the programmes and calls under the Africa Initiative of the EU. The DSI launched the AgTech Innovation Challenge under the F'SAGRI programme in partnership with the French Embassy and the World Bank. Public awareness is continuously raised on the engagements and projects with international partners and during this quarter, the Traffic in Persons research project in cooperation with USAID was featured in an article in the Daily Maverick and a TV interview (eNCA) on the.

### **Human capabilities and skills for the economy and for development**

DSI participated in several BRICS Working Groups:

1. The BRICS Working Group on Science, Technology Innovation and Entrepreneurship Programme Working Group, which deliberated on the enabling framework for the BRICS Centres to facilitate tech-transfer cooperation in the innovation plan for 2021-2024 and reviewed the work done in the previous years.
2. The BRICS Working Group on Ocean Science focused on sharing experiences, enhancing cooperation mechanisms, strengthen capacity building and train young scientists; and



3. The Young Scientist Forum Conclave where 24 South African young scientists presented in three thematic areas namely Healthcare, Energy Solutions and Cyber-Physical system and real-life applications, with representatives from the other BRICS countries. For the Young innovator's Prize, South Africa was represented by two innovators.

### **Increase knowledge generation and innovation outputs**

DSI through the ESASTAP website disseminated knowledge generation and innovation output events/opportunities with international partners to the NSI during the quarter. In addition, the EUREKA Network secretariat is aiming to attract more African countries to join the network. The working group that was established will place the SA NSI closer to working with other African countries and the rest of the world aiming at growing innovation capabilities and outputs.

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

#### **(a) revitalising existing traditional industries**

To support specific South African industry master plans through international Research and Development cooperation as well as leveraging resources to support international partnerships in these areas, discussions were initiated with the following: SASOL SOUTH AFRICA LIMITED, to develop an initial Africa-SASOL programme. The DSI is now in the process of signing an MOU with the SASOL, identifying cooperation in the areas of energy research, development and innovation, though, sharing information on international cooperation efforts; sharing resources; seek opportunities to combine their skills development portfolios; and develop and implement efficient and effective institutional, national and international research.

The DSI established relations with the ZZ2 Company to strengthen cooperation in Agriculture. This will witness the DSI signing an MOU with ZZ2 and strengthen Public, Private Partnerships which will contribute to the agricultural value chains nationally and on the African Continent. The following are areas identified for cooperation: technology transfer to the rest of Africa; RDI with regards to increased productivity; yield control; partnerships at provincial and community level and commercialisation; domestic and regional initiatives on entrepreneurship; support of farmers; support of

black women and youth; setting up of research, development and innovation infrastructures and establishment of internship programmes.

**(b) stimulating R&D-led industrial development**

The process to conceptualise the intra-Africa Mobility programme started in early 2021, DSI has thus far managed to draw on the support of Programme 4 (High-End Skill Directorate), Department of Higher Education and Training (DHET), National Research Foundation (NRF), DAAD and the European Commission (EC). In September 2021 the partners had a working session to rewrite the concept document to broaden its scope and include new policy imperatives outlined in the Policy Framework for Internationalisation of Higher Education in South Africa and the DSI Decal Plan. The DSI hosted an information session to encourage students to take up opportunities to study in the continent in partnership with the Pan African University (PAU).

During the period under review, the DSI participated in a series of Technical Working Group meetings and Validation workshops convened by the SADC Secretariat to implement the following SADC STI initiatives:

The SADC Regional ICT Centre of Excellence, where a study on the establishment of such a centre was commissioned to help drive rapid, targeted improvements in the quality of training in the SADC ICT sector. The results from the study will be tabled at the SADC Meeting of Ministers responsible for ICT in 2022 for endorsement;

SADC Indigenous Knowledge Systems; where SA chairs the technical working group which developed the draft SADC Indigenous Knowledge Systems (IKS) Policy Guidelines. The Guidelines are aimed to strengthen the SADC Member States capacity and efforts to develop national IKS Policies to effectively implement their IKS programmes in support of the SADC Protocol on STI. The guidelines will be tabled at the SADC Joint Meeting of Ministers responsible for Education and Training and Science, Technology and Innovation in June 2022;

The SADC STI Validation Experts meeting, where SA participated to validate the scientific toolbox and the ethics guidelines that have been developed to capacitate Member States with the relevant skills and knowledge on how to implement their STI policies in line with the provisions of the SADC Protocol on STI. The validated toolbox and ethics guidelines will be tabled for endorsement at the Joint Meeting of SADC Ministers responsible for ET-STI to be held in June 2022.

SADC STI Policy Training course, where South Africa nominated experts to participate in the SADC STI Policy Training course, which aims at enhancing the capacities of senior policymakers and experts in the region to advance the implementation of the SADC Protocol on STI, national STI policies and contribute towards the strengthening of national and regional systems of innovation. The key outcome of the training programme would be to shift the location of STI policy and governance towards the core of national and regional development planning.

A consultative meeting on the establishment of the WAITRO Africa Chapter was held in September 2021. The meeting was attended by active WAITRO members in Africa and WAITRO Global. The meeting aimed to consult WAITRO African members on the proposed establishment of the WAITRO Africa Chapter to better organize African RTOs to contribute to the development of the continent. African WAITRO members were encouraged to reach out to the governments to consider supporting the establishment of the Chapter. The next steps will include the establishment of the Task Team to work on the Terms of Reference of the Chapter, and discuss the proposal for a financing model to be considered to finance the activities and programmes of the Chapter.

A memorandum of understanding was signed between the DSI and the Japan International Cooperation Agency on a carbon recycling system toward a decarbonized society, under the JICA SATREPS (Science and Technology Research Partnership for Sustainable Development) programme. This project will be implemented over the next five years

## **Knowledge utilisation for inclusive development**

The first steering committee meeting of the World Science Forum 2022 took place virtually in September. The meeting was convened by the DSI and the WSF Secretariat to discuss preparations for South Africa to host the said Forum in December 2022 in Cape Town. During the meeting, a theme proposed by South Africa was endorsed, namely: “Science for Social Justice”. It was agreed that the Forum will be hybrid to allow for maximum participation and the reiteration from participants that its plenary sessions address topics such as science diplomacy, open science and artificial intelligence, science publication, global collaboration and co-creation in practising science, science for all, the sustainable development goals, and ownership of intellectual property generated from foreign-funded research.

In September the DSI participated in a series of engagements, with experts from across the continent, aimed at identifying the key elements which will form part and parcel of an EU-AU Innovation Agenda. The engagements have been coordinated by AUDAU-NEPAD (supported by the African Union) and the European Commission. One of the key tenets agreed to is the need for the innovation agenda to be premised on innovation as a driver of economic competitiveness and to leverage existing research and innovation programmes both in Africa and Europe. The experts agreed to the primary elements of focus to include:

- community networks, capacity building and business creation and provision of support to incubators and accelerators connecting high-quality technology hubs from Africa and Europe;
- Intellectual Property as means of boosting the innovation agenda, including the protection and promotion of the utilization of traditional knowledge;
- Clearly defined priorities from both Africa and Europe as avenues of cooperation within the Innovation Agenda. This will require both regions to have their respective consultations to determine priorities relevant to their context. In this regard, it was proposed that a mid-term evaluation of priorities that consider current realities and emerging impact;
- Institutional strengthening of organizations that have been promoting and contributing to STI in the two regions (particularly Africa) to ensure sustainability and ownership while reducing fragmentation. At the level of the AUC, this will

also include the new structure which has been incorporated into an Innovation Division aimed at ensuring that partnerships are realized

The Africa-Europe Innovation Agenda will be presented to Ministers of Foreign Affairs and other heads of government during the AU-EU Summit to take place in March 2022.

### **Innovation in support of a capable and developmental state**

The Minister received an invitation from Minister Messa, responsible for the University and Research in Italy, to attend and participate in the first G20 Research Ministerial meeting in Trieste, Italy. The G20 Ministerial took cognisance of the global digital transformation with the growing role of artificial intelligence, data science, cybersecurity and overall convergence of technologies, the threat of global pandemics and climate change. The core issue was how universities can use education, research, and innovation to promote social cohesion, sustainable economy, development of skills and talents, and equal opportunities for the cultural growth of societies.

Minister Nzimande presented a statement on behalf of South Africa which highlighted the need for collaborative partnerships in dealing with global challenges. The statement also addressed the need to support the capacitation of research endeavours in developing countries, while also ensuring that in skills development the relevance to jobs of today and the future is considered. The meeting adopted a “Joint Declaration on Leveraging Research, Higher Education and Digitisation for a Strong, Sustainable, Resilient, and Inclusive Recovery” with minor suggestions by members.

**TABLE 3: PROGRAMME 3 – INTERNATIONAL COOPERATION AND RESOURCES**

<b>Outcome: A transformed, inclusive, responsive and coherent NSI</b>						
<b>Annual target: 43 dedicated international resource-leveraging engagements undertaken 31 March 2022 (<i>Non-cumulative target</i>)</b>						
<b>Performance indicator: Number of international resource-leveraging engagements undertaken by the Department</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
5 international resource leveraging engagements	11 international resource leveraging engagements	6 international resource leveraging engagements	11 international resource leveraging engagements	<b>Achieved</b>	More opportunities became available due to online platforms through which virtual meetings are facilitated.	None
<b>Outcome: Human capabilities and skills for the economy and for development</b>						
<b>Annual target: 326 new South African students participating in international training programmes as part of cooperation initiatives facilitated by DSI by 31 March 2022 (<i>Non-cumulative target</i>)</b>						
<b>Performance indicator: Number of South African students participating in international training programmes</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
10 South African students participating in international training programmes	27 South African students participating in international training programmes	50 South African students participating in international training programmes	50 South African students participating in international training programmes	<b>Achieved</b>	None	None
<b>Annual target: 32 capacity-building initiatives for international cooperation specifically targeting historically disadvantaged institutions and individuals by 31 March 2022 (<i>Non-cumulative target</i>)</b>						
<b>Performance indicator: Number of capacity-building initiatives for international cooperation specifically targeting historically disadvantaged institutions and individuals</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>

2 capacity-building initiatives for international cooperation	7 capacity-building initiatives for international cooperation	6 capacity-building initiatives for international cooperation	3 capacity-building initiatives for international cooperation	<b>Not Achieved</b>	Limited global movement are affecting efforts in supporting HDIs, due to insufficient IT infrastructure to support such institutions and individuals	Continuous engagement with international partners to ensure the achievement of the annual target
<b>Annual target: 34 international policy dialogues and technical exchanges the policy intents of the White Paper on STI by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of international policy dialogues and technical exchanges to support the policy intents of the White Paper on STI</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
8 international policy dialogues and technical exchanges to support the policy intents of the White Paper on STI	24 international policy dialogues and technical exchanges to support the policy intents of the White Paper on STI	4 international policy dialogues and technical exchanges to support the policy intents of the White Paper on STI	10 international policy dialogues and technical exchanges to support the policy intents of the White Paper on STI	<b>Achieved</b>	More opportunities became available due to online platforms improving frequent access to partners.	None
<b>Outcome: Knowledge utilisation for economic development in (a) revitalising existing (traditional) industries and (b) stimulating R&amp;D-led industrial development</b>						
<b>Annual target: 15 new STI initiatives targeting objectives of Agenda 2063 supported by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of STI initiatives targeting objectives of Agenda 2063 supported</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
No target	No target due	1 STI initiatives supporting Agenda 2063	2 STI initiatives supporting Agenda 2063	<b>Achieved</b>	More opportunities became available due to online platforms improving frequent access to partners.	None

<b>Annual target: 17 new STI initiatives targeting the objectives of the SADC RISDP supported by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of STI initiatives targeting the objectives of the SADC RISDP supported</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
2 STI initiatives supporting the SADC RISDP	4 STI initiatives supporting the SADC RISDP	4 STI initiatives supporting the SADC RISDP	4 STI initiatives supporting the SADC RISDP	<b>Achieved</b>	None	None
<b>Annual target: 6 STI plans of action implemented with bilateral African partners by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of STI plans of action implemented with bilateral African partners</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
No target	No target due	1 STI plan of action implemented with bilateral African partners	2 STI plan of action implemented with bilateral African partners	<b>Achieved</b>	More opportunities became available due to online platforms through which virtual meetings are facilitated.	None
<b>Outcome: Innovation in support of a capable and developmental state</b>						
<b>Annual target: 12 engagements with global science leaders to advance national priorities in multilateral forums by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of engagements with global science leaders to advance national priorities in multilateral forums</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
1 engagement with a global science leader	1 engagement with a global science leader	3 engagement with a global science leader	3 engagement with a global science leader	<b>Achieved</b>	None	None
<b>Annual target: 8 new international STI initiatives focused on SDGs supported by South Africa by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of international STI initiatives focused on SDGs supported by South Africa</b>						



1 <sup>st</sup> Quarter target as per APP	1 <sup>st</sup> Quarter actual output	2 <sup>nd</sup> Quarter target as per APP	2 <sup>nd</sup> Quarter actual output	Status	Reason for variance	Actions taken
1 international STI initiatives focused on SDGs supported by South Africa	0 international STI initiatives focused on SDGs supported by South Africa	No target	No target due	No target due	None	None

## PROGRAMME 4: RESEARCH DEVELOPMENT AND SUPPORT

The Purpose of the Programme is to provide an enabling environment for research and knowledge production that promotes strategic development of basic sciences and priority science areas, through science promotion, human capital development, the provision of research infrastructure and relevant research support, in pursuit of South Africa's transition to a knowledge economy. The Programme has four chief directorates.

- **The Human Capital and Science Promotion** focuses on developing and renewing science, engineering and technology human capital to promote knowledge generation, protection and exploitation, and to develop science platforms that exploit South Africa's geographical advantages. The Chief **Directorate** also promotes science, technology, engineering, mathematics and innovation literacy and awareness. Funding is provided to the NRF for programmes to develop research and human capital.
- **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 Chief **Directorate** also promotes development and strengthening of basic or foundational sciences, such as physics, chemistry, biological and life sciences, geographic and geological sciences, and the human and social sciences.
- **Science Missions** promotes the development of research, the production of scientific knowledge, and human capital development within 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, palaeosciences, and indigenous knowledge systems.
- **Astronomy** This chief directorate supports the development of astronomical sciences around the new Multiwavelength Astronomy Strategy. The strategy highlights the current status of astronomy in South Africa, its importance to the South African socio-economic landscape, the astronomy heritage in South Africa and how this could be further strengthened, and a strategic approach for continued investments in astronomy in South Africa. The strategy sets out

strategic objectives and a strategic agenda defined by the key priority areas for astronomy, also outlining relevant cross-cutting support programmes needed to give effect to the shared vision. The chief directorate has two directorates managing thematic priorities aligned to the focus areas of the Astronomy namely: Multiwavelength Astronomy, and the Astronomy Management Authority.

## **HIGHLIGHTS OF THE QUARTER**

### **A transformed, inclusive, responsive and coherent NSI**

National Institute for Theoretical and Computational Sciences (NITheCS): The inaugural meeting of the NITheCS interim Steering Committee took place on 12 August 2021. Since the formal announcement of the establishment of NITheCS, Roadshows have been held at different Universities (including HDIs) and Research Institutions in South Africa. The associate network is also growing across all eight themes (i.e. theoretical physics, mathematics, statistics, bioinformatics and quantitative biology, astrophysics, climate modelling, data sciences and quantitative finance) that NITheCS represents. NITheCS has signed a Letter of Understanding (LoU) with the Abdus Salam International Centre for Theoretical Physics (ICTP), which has been a driving force behind global efforts to advance scientific expertise in the developing world.

### **Human capabilities and skills for the economy and for development**

A total of 4 920 pipelines (2 066 Honours and 2 854 Master's) postgraduate students were supported by 30 September 2021, against a Q2 target of 4 700, overachieving the target by 4,7%. The Q2 target was overachieved by 58,2 % with 2 373 PhD students supported against a target of 1 500. In August and September, the unit hosted it's first two (of the four) monthly South African Women in Science Awards (SAWiSA) Webinars in lieu of the SAWISA Gala Dinner. The theme for the two Webinars was "Women and the Changing Nature of Work" and "Women and their Role in Debunking the Myths of Covid 19 Vaccine", respectively.

Greenlight given for construction of world's largest radio telescope arrays: At a historic meeting of its Council on 29 June 2021, the recently formed SKA Observatory (SKAO) saw its Member States approve the start of construction of the SKA telescopes in Australia and South Africa. The two telescopes, currently designated SKA-Low and SKA-Mid, names which describe the radio frequency range they each cover, will be the two largest and most complex networks of radio telescopes ever built. The decision to approve construction follows the creation of the SKAO as an intergovernmental organisation earlier this year, and the publication of two key documents, the Observatory's Construction Proposal and Observatory Establishment and Delivery Plan, last year.

In addition to delivering exciting and revolutionary science, the construction of the SKA telescopes will produce tangible societal and economic benefits for countries involved in the project through direct and indirect economic returns from innovation and technological spin-offs, new high-tech jobs and boosted industrial capacity, among others. The well-documented impact prospect of the SKA Project (detailed in the Construction Proposal), outlining the multiple benefits already flowing to the Member States and their communities thanks to their involvement in SKA-related activities over the last few years, was a key part of the case for the project.

The cost of constructing the two telescopes and the associated operations and business-enabling functions will be €2billion over the period 2021 – 2030. The procurement of major contracts for the SKA telescopes will start immediately, with some market surveys having already been conducted in the past few weeks. Over the coming months, some 70 contracts will be placed by the SKAO within its Member States, with competitive bidding taking place within each country. The first significant activity on site is due to happen early next year, with the construction of the telescopes lasting until 2028. Early science opportunities will start in the next few years, taking advantage of the nature of radio telescope arrays, also known as interferometers, which allow observations with only a subset of the full array. The telescopes are planned to have a productive scientific lifetime of 50 years or more.

MeerKAT discovers a large gas-rich galaxy group hiding in plain sight: A group of 20 galaxies has been discovered with South Africa's MeerKAT telescope. This large galaxy group is likely the most neutral hydrogen gas-rich group ever discovered, and it is the first time this group has been identified, despite residing in a very well-studied area of the sky. The majority of galaxies in the Universe reside in groups. However, it is rare to detect a group with such a large number of group members with so much neutral hydrogen. This suggests that the group is still in the process of assembly, as it has not undergone evolutionary processes that would remove this gas from the galaxies. The paper was led by Shilpa Ranchod, an MSc student supervised by Prof. Roger Deane at the University of Pretoria. The distribution of neutral hydrogen gas in these galaxies has revealed interesting, disturbing morphologies suggesting that these galaxies are group members, and are being influenced by their cosmic neighbours in the group. This discovery has been published in the Monthly Notice of the Royal Astronomical Society, and its pre-print version is available on this link <https://arxiv.org/abs/2107.01237>

### **Increase knowledge generation and innovation outputs**

Implementation of the South African Research Infrastructure Roadmap: Funding for the implementation of the South African Polar Research Infrastructure (SAPRI) as the 10th research infrastructure of the South African Research Infrastructure Roadmap was approved during the reporting period. NICIS Governance structures: The NICIS Steering Committee (SC) has been approved by the Director-General. The primary aim of the NICIS SC as a key component of the overall governance structure is to maximise the effectiveness and efficiency of the implementation of the NICIS as a national facility housed and implemented by the Council for Scientific and Industrial Research (CSIR).

The SC will advise the Department of Science and Innovation (DSI) and the CSIR on the strategy and implementation of NICIS through the NICIS strategic and operational plans.

### ***Implementation Plan for Quantum Technologies Initiative for South Africa:***

The Implementation Plan for Quantum Technologies Initiative for South Africa and the requested funding were approved during quarter two.

Social Unrest Rapid Response Synthesis Report: The South African National Security Secretariat (SANSS) and the National Joint Operations and Intelligence Structure (NATJOINTS) commissioned the National Intelligence Coordinating Committee (NICOC) to conduct a post-mortem including scenarios on the unprecedented events in KwaZulu-Natal (KZN) and Gauteng (GP) in the last week. A Social Unrest Rapid Response Synthesis Report based on data from the HSRC, CSIR Data Centre, NPDO, NIHSS, and SAPRIN was produced for the NICOC, and the findings were presented at meetings of the SANSS and the National Security Council.

The secondary data presented in the Report suggests, in sum, that the unrest has occurred in an environment of growing democratic discontent as well as intensifying socio-economic duress. Intergroup tension (especially on the basis of race and nationality) is also evident, and in all provinces, there is a widespread public perception that foreigners and racial others are threatening and hostile. The briefing report also engaged with an initial review of the South African scenarios planning literature as a foundational step towards predicting the future impact of social unrest on key national scenarios. It is recognised that NICOC requires scenarios that will inform decision-making and planning aimed at preventing future social unrest. In responding to this need for future scenarios, a rapid evidence-based approach is proposed, which will draw on past national scenarios research, as well as primary and secondary data sources.

***Indigenous Knowledge Systems Expo on Indigenous Astronomy:*** The Department of Science and Innovation (DSI) in partnership with the North-West University (NWU) hosted the National Indigenous Knowledge Systems (IKS) Expo on 17 August 2021 at Fire and Ice Hotel, Menlyn, Pretoria. Due to COVID 19 Pandemic regulations, in view of this event being hybrid, few delegates attended the live event at the Fire and Ice Hotel and the rest joined virtually. The programme directors for the IKS EXPO was Dr Motheo Koitsiwe from NWU and Mr Tom Suchanandan. The IKS EXPO focused on Rooibos, community-based research and products, as well as astronomy, one of the 16 IKS disciplines identified by the DSI.

The EXPO was attended by various stakeholders, including dignitaries from the DSI, the NWU, the Khoi community, and indigenous astronomy experts, holders from both South Africa and Botswana. Otsile Maditsi, Kgothatso Mafiri and Mandy Rasehlomi represented the IKS Centre, NWU at the IKS EXPO. The event consisted of physical and virtual exhibitions and included a presentation by Annique Health and Beauty, a well-known South African business that develops skincare and health and lifestyle products as well as cosmetics and fragrances from the Rooibos plant.

Other activities included panel discussions on Batswana, AmaXhosa and VhaVenda indigenous astronomy, the AmaZulu African calendar, Khoisan astrology and cosmology, the origin of Basotho astronomy and cosmology; and Credo Mutwa's\* legacy on astronomy and cosmology. The Expo was held in partnership with the DSI's Communication Unit who engaged an external service provider to host the virtual Platform. A total of 145 participants attended the event virtually. Field trip to Mpumalanga on Indigenous Astronomy: The DSI in partnership with the NWU hosted the African New Year Celebration "Inzalo Ye Langa", from 22 - 23 September 2021, in, *Inzalo Ye Langa* (birthplace of the sun) in Mpumalanga.

The event started on 22 September 2021, to celebrate the African New Year according to the African Calendar. The late Credo Mutwa indicated that *Inzalo Ye Langa* is the most sacred place for African people on the continent and is supposed to be the Mecca for all Africans. This means that it is tied to our African indigenous spirituality so it can never be commercialised or privatised. That is why all efforts are made towards its revival, reclaiming, and restoration of *Inzalo Ye Langa* so that it retains its sacredness. The DSI in collaboration with NWU and UNIVEN will be hosting a regional EXPO in 2022, at this spiritual site. Ministerial approval for widespread consultation on the regulations: In August 2021, the Minister approved the IK Act, Regulations for widespread consultation. This is against the backdrop that Exco earlier approved the Regulations for public consultations.

In order to expedite the process given the COVID challenges, the DSI through its Legal Unit solicited legal opinion from the Office of the Chief State Law Adviser (OCSLA) in order to give legal certainty to the regulations. The comments from OCSLA have been considered and integrated into the regulations.

The DSI has procured the date in November 2021, whereby the DG will present the Regulations to EISIED. Interdepartmental consultations on the regulations: On 30 August 2021, the Directorate submitted the IK Act Regulations, to national government departments having an interest in the regulations. The departments were given 30 days to review and comment on the regulations. The Department further, indicated to these national Departments that should they want to engage the DSI on the regulations they are more than willing to do so. The DFFE and CIPC requested an extension to submit their responses, the request to these Departments was granted.

SADC workshop on indigenous knowledge systems policy development: The DSI participated in a SADC Workshop on IKS Policy development. A total number of 10-member states attended. South indicated that the document presented at the meeting was outdated and that current events surpassed the contents of the document. It was agreed, that the SADC Desk will circulate the document to member states for comment. To date, such documents have not been received from the Desk. A particular objection raised in South Africa was the fact that an external entity was tasked to develop a policy for government departments.

Support for Cochoqua Economic Affairs Group and the University of the Western Cape: The Department of Science and Innovation (DSI) was recently approached by Dr Jeremy Klaasen from the University of Western Cape as the implementing entity and Mr Charl Damon: Interim Leader of the Cochoqua Khoi-San Community Council to provide a letter of endorsement for the above-mentioned project. The overall project objective is building capacity and piloting a model for indigenous peoples to develop and benefit directly from the South African biodiversity economy through an educational trust, and supporting indigenous entrepreneurs and innovations. The DG approved the letter of endorsement.

Third global thematic dialogue for indigenous peoples and local communities on the Post-2020 Global Biodiversity Framework: Both the DSI and DFFE attended this thematic dialogue that took place virtually on 2-3 and 5-6 August 2021 from 8:00 a.m. to 11:00. This Third Global Thematic Dialogue for Indigenous Peoples and Local Communities on the Post-2020 Global Biodiversity Framework provided an opportunity for indigenous peoples and local communities and Parties to exchange



views on the First Draft of the Post-2020 Global Biodiversity Framework, in advance of the third meeting of the Open-ended Working Group on the Post-2020 Global Biodiversity Framework, which took place from 23 August to 3 September 2021 as indicated above. The meeting also considered the results of the first meeting of the open-ended Working Group on the Post 2020 Global Biodiversity Framework and the regional consultations. The outcome of the Dialogue provided recommendations concerning the potential role of indigenous knowledge, customary sustainable use and the contribution of the collective actions of indigenous peoples and local communities to the post-2020 global biodiversity framework, in support of Working Group on Article 8(j) and related provisions and the Post 2020 process. Forty-First Session of the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore: The Directorate attended virtually, the 41st session of the WIPO/ IGC from 30 August – 3 September 2021.

The objective of the session was to continue the work in finalising a legally binding instrument, or instruments, that provide effective protection of Genetic Resources, Traditional Knowledge, and Traditional Cultural Expressions. To this end, South Africa begrudgingly supported the proposed terms of the mandate and work program for 2022-2023. Prior to the 41st session, a number of meetings were held with the African Group, coordinated from Geneva, and the Like-Minded Group, facilitated by Indonesia. Save to indicate that South Africa was nominated as one of three vice-chairs. Implementation of the Global Change Research Plan and associated programmes: DG's approval was secured for an extension of the Strategic Science Missions contract to facilitate the transfer of 2021/22 funding allocation for global change research.

***SAEON GSN Meeting (Indibano):*** SAEON hosted the 13th Graduate Students Network (GSN) meeting or indibano online on 9 September 2021. The meeting was addressed by the DSI which also handed out awards to the top three presenters.

#### ***The official launch of RVSC-SPU***

Commencement of preparation for the official launch of the Risk and Vulnerability Science at the Sol Plaatje University. The launch is taking on 15 October 2021 and the DSI and NRF will be represented at the event.

### ***Functional Climate Change Research Network***

As part of maintaining a Functional Climate Change Research Network, ACCESS organised two online conversations, including a technical presentation of the recently released IPCC assessment report ((IPCC AR6).

### ***Participation in key steering and governance structures***

ESS participated and represented the DSI in strategic steering, governance and management structures as part of influencing policy decisions of other government departments and promoting and profiling the overall work of the DSI.

**TABLE 4: PROGRAMME 4 – RESEARCH DEVELOPMENT AND SUPPORT**

<b>Outcome: Human capabilities and skills for the economy and for development</b>						
<b>Annual target: 2 000 PhD students awarded bursaries annually as reflected in the reports from the NRF and other relevant entities by 31 March 2022 (Cumulative target)</b>						
<b>Performance indicator: Total number of PhD students awarded bursaries annually as reflected in the reports from the NRF and other relevant entities</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions are taken</b>
1 000 PhD students awarded an annual bursary as reflected in the reports from the NRF and other relevant entities by 30 June 2021	1 758 PhD students awarded an annual bursary as reflected in the reports from the NRF and other relevant entities by 30 June 2021. Of these, 1 248 (71%) were blacks, 1 003 (57,1%) women & 17 (1%) People with disabilities.	1 500 PhD students awarded an annual bursary as reflected in the reports from the NRF and other relevant entities by 30 September 2021	2 373 PhD students awarded an annual bursary as reflected in the reports from the NRF and other relevant entities by 30 September 2021	<b>Achieved</b>	Q2 Target over achieved by 58,2%. Quarterly targets are estimates that cannot be predicted accurately at the start of the year. More PhD bursaries are awarded in the first two quarters than in the remaining two quarters	None
<b>Annual target: 6 200 pipeline postgraduate students awarded bursaries annually as reflected in the reports from the NRF and other relevant entities by 31 March 2022 (Cumulative target)</b>						
<b>Performance indicator: Total number of pipeline postgraduate students awarded bursaries annually as reflected in the reports from the NRF and other relevant entities</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
3 200 pipeline postgraduate students awarded an annual bursary as reflected in the reports from the NRF and other	3 320 pipeline postgraduate (1150 Honours + 2 170 Master's) students awarded an annual bursary as reflected	4 700 pipeline postgraduate students awarded an annual bursary as reflected in the reports from the	4 920 pipeline (2 066 Honours and 2 854 Master's) postgraduate students awarded	<b>Achieved</b>	Q2 target over achieved by 4,7%. Quarterly targets are estimates that cannot be predicted accurately at the start of the year. More postgraduate bursaries are	None

relevant entities by 30 June 2021	in the reports from the NRF and other relevant entities by 30 June 2021. Of these, 2 778 (83,7 %) Blacks; 2 119 (63,8%) Women & 13 (0,4%) People with disabilities.	NRF and other relevant entities by 30 September 2021	an annual bursary as reflected in the reports from the NRF and other relevant entities by 30 September 2021		awarded in the first two quarters than in the remaining two quarters	
<b>Annual target: 750 graduates and students placed in DSI-funded work preparation programmes in SETI institutions by 31 March 2022 (Cumulative target)</b>						
<b>Performance indicator: Total number of graduates and students placed in DSI funded work preparation programmes in SETI institutions</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
450 graduates and students placed in DSI-funded work preparation programmes in SETI institutions	580 graduates and students placed in DSI-funded work preparation programmes in SETI institutions (NRF interns =103 and NYS = 477)	550 graduates and students placed in DSI-funded work preparation programmes in SETI institutions	619 graduates and students placed in DSI-funded work Preparation programmes in SETI institutions (NRF interns =103 and NYS = 516 (400 carry forward and 116 Q2 volunteers)	<b>Achieved</b>	The target was overachieved by 12,5%.This is as a result of low attrition rate due to slow economic growth caused by COVID-19. Interns remained in the Programme for longer as they were unable to find jobs.	None
<b>Outcome: A transformed, inclusive, responsive and coherent NSI</b>						
<b>Annual target: 25 research infrastructure grants awarded by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of research infrastructure grants awarded</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>

No target	No target due	Call for proposals on awarding of research infrastructure grants issued	A call for proposals was not issued in 2021 but in 2020 and the successful grants will be funded from the allocation/transfer made in 2021.	<b>Not Achieved</b>	Due to Treasury budget cuts over the past three MTEFs, the NEP has been allocated funds in alternate years and thereby the call for proposals had to be adjusted to align with the funding allocation - this means that the NRF issues a call in the year they will not be receiving funds from DSI. Since the call was made in 2020, there was no call for 2021. this arrangement and change will be reflected in the planning reports going forward.	None This will be considered in the next draft of the APPs.
<b>Annual target: 5 800 Gbps total available broadband capacity provided by SANReN by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Total available broadband capacity provided by SANReN per annum</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
No target	No target due	New links and upgrade plan finalised by 30 September 2021	Links and upgrade plan finalised by 30 September 2021	<b>Achieved</b>	None	None
<b>Outcome: Increased knowledge generation and innovation output</b>						
<b>Annual target: 3 000 researchers awarded research grants through NRF-managed programmes as reflected by the NRF project reports by 31 March 2022 (Cumulative target)</b>						
<b>Performance indicator: Total number of researchers awarded research grants through NRF-managed programmes as reflected in the NRF project reports</b>						

1 <sup>st</sup> Quarter target as per APP	1 <sup>st</sup> Quarter actual output	2 <sup>nd</sup> Quarter target as per APP	2 <sup>nd</sup> Quarter actual output	Status	Reason for variance	Actions taken
1 200 researchers awarded research grants through NRF-managed programmes	1628 researchers awarded research grants through NRF-managed programmes	1 700 researchers awarded research grants through NRF-managed programmes	2550 researchers awarded research grants through NRF-managed programmes	Achieved	The target was overachieved by 50%. The target could not be accurately forecasted as it is dependent on the number of applications and the sizes of grants requested and awarded. Eased lockdown regulations also made it possible for researchers to undertake their research activities, hence the significant increase in the number of researchers supported.	None
Annual target: 7 000 internationally accredited research articles from researchers awarded research grants by 31 March 2022 (Non-cumulative target)						
Performance indicator: Number of research articles published by NRF-funded researchers and cited in the Thomson Reuters Web of Science Citation Database as reflected in the NRF project reports						
1 <sup>st</sup> Quarter target as per APP	1 <sup>st</sup> Quarter actual output	2 <sup>nd</sup> Quarter target as per APP	2 <sup>nd</sup> Quarter actual output	Status	Reason for variance	Actions taken
No target	To be reported in quarter 4	No target	No target due	No target due	None	None
Annual target: Production plan for the L-band receivers for the additional 20 MeerKAT antennas approved by SKA SA Project Director 31 March 2022 (Non-cumulative target)						
Performance indicator: Number of additional receivers installed on the MeerKAT telescope to enhance the performance of the MeerKAT telescope						
1 <sup>st</sup> Quarter target as per APP	1 <sup>st</sup> Quarter actual output	2 <sup>nd</sup> Quarter target as per APP	2 <sup>nd</sup> Quarter actual output	Status	Reason for variance	Actions taken

SKA SA Project Director approved production plan by 30 June 2021	Production plan was approved by 30 June 2021	SKA SA Project approved progress report with reference to production plan provided by 30 September 2021	SKA SA Project approved progress report with reference to production plan provided by 30 September 2021. The Production Readiness Review for the L-Band Receivers was conducted on 5 August 2021, and the Panel Report has been released.	Achieved	None	None
<b>Annual target: Launch of the National Recordal System for registration and access to indigenous knowledge by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of components of the IK legal architecture implemented</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
IK data quality checked and synchronised from IKS Documentation Centres to the NRS central server by 30 June 2021	IK data quality checked at 7 IKSDCs but only 2 IKSDCs' data were synched to NRS Central server	An IK Registration Requirements Specification developed by 30 September 2021	The IK Registration Requirements Specification has been completed and issued on 30 September 2021	Achieved	None	None
<b>Annual target: 9 initiatives promoting public awareness of and engagement with science conducted, as reflected in the reports of the NRF and other implementing and collaborative partners by 31 March 2022 (Cumulative target)</b>						
<b>Performance indicator: Number of initiatives conducted to promote public awareness of and engagement with science throughout the country, as reflected in the reports of the NRF and other implementing and collaborative partners.</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>

(1) Cofimvaba Science Centre launched by 30 June 2021	Cofimvaba Science Centre launch could not happen as planned.	(2) National Science Week conducted by 30 September 2021 (3) STEMI Olympiads and Competitions Community of Practice Conference conducted by 30 September 2021	(1) STEMI Olympiads & Competitions Community of Practice conference held from 20-22 July 2021; and (2) National Science Week conducted from 2-7 August 2021	<b>Achieved</b>	None	None
<b>Annual target: Data collection instruments for the First South African public relationship with science survey produced by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: First South African public relationship with science survey report published</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
No target	No target due	No target	No target due	<b>No target due</b>	None	None
<b>Annual target: 12 strategic and technical engagements between NRF, SACNASP and ASSAf to alignment with national priorities by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of strategic and technical engagements with NRF, SACNASP and ASSAf to ensure alignment with national priorities</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
3 bilateral engagement report	2 bilateral engagement took place (ASSAf and NRF). SACNASP Q1 meeting was	3 bilateral engagement reports	2 bilateral meetings were held (NRF and ASSAf). The SACNASP meeting for Q2 did not take place	<b>Not Achieved</b>	The planned meeting between the DSI and SACNASP coincided with the untimely loss of a staff member. It was then deferred.	A catch-up meeting will be held in early October.



	postponed to 2 July 2021					
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## PROGRAMME 5: SOCIO-ECONOMIC INNOVATION PARTNERSHIPS

This Programme enhances 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. This programme has the following four Chief Directorates:

- **Technology Localisation Beneficiation and Advanced Manufacturing** advance strategic medium and long-term sustainable economic growth and sector development priorities as well as government service delivery.
- **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 science and technology capacity to support a transition to a green economy.
- **Innovation for Inclusive Development** supports the experimentation of S&T-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.
- **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.

### Highlights of the Quarter

#### Human capabilities and skills for the economy and for development

BLOCKCHAIN/ SANBA: The South African National Blockchain Alliance (SANBA) is making great strides towards supporting a “Team South Africa” drive towards implementing blockchain solutions in South Africa. Since Covid, there has been a realisation by government and private organisations that digital transformation is inevitable and that it solves many more problems than are created. Although there is still a lot of confusion about what blockchain is, particularly beyond bitcoin and cryptocurrencies, there is a willingness to learn and to experiment.

The fact that blockchain can be seen as the “trust foundation” upon which many other emerging technologies can build, is starting to be taken seriously. Blockchain, although still an emerging technology, is being implemented in large scale, commercial systems. This is very encouraging and the fact that DSI is seeding SANBA to show what is possible is starting to make an impact.

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

IOT (Internet of Things): The main objective of IoT-Factory program is to ensure a truly collaborative National System of Innovation amongst a joint network of universities and research institutes. Currently, ten institutes are involved in this program; CSIR, 2 PDIs (UniZulu and NWU (Mafikeng campus)), 2 Technikons (TUT and CUT), UP, Wits, UJ, UCT, and UKZN. IoT-Factory program enables CSIR to establish and maintain a critical mass of local researchers and faculty members in the area of IoT and related emerging technologies. This year (2021) there are three Postdocs and fifteen postgraduate students who are currently funded by this program. Furthermore, more than 30 postgraduate students funded by other sources (IBS) are also involved in this program. The team conducted state-of-the-art and world-class research and was able to produce 23 peer-reviewed papers in 2021 so far (15 journal papers, 7 conference papers and one book chapter) in addition to many other papers that are currently under review/ revision.

### **Innovation in support of a capable and developmental state**

DAPSS (Data Analytics for the Post-School (Education) System): The data provided by the DHET thus far has been and continues to be, used to perform advanced analytics and Artificial Intelligence (AI). There is quite a wide range of questions and use-cases: Firstly, those that were provided by the DHET, Secondly the secondary questions and refinements to those initial questions, and thirdly, the ones arising as we continue to draw unseen patterns from the data as we go iterate through our methodology. More comprehensive and congruent data is required for our AI techniques to provide substantially valuable answers and further insights. Preliminary results are promising and already providing satisfactory value.

**TABLE 5: PROGRAMME 5 – SOCIO-ECONOMIC INNOVATION PARTNERSHIPS**

<b>Outcome: Innovation in support of a capable and developmental state</b>						
<b>Annual target : 4 knowledge products on innovation for inclusive development published by 31 March 2022 (<i>Cumulative target</i>)</b>						
<b>Performance indicator: Number of knowledge products on innovation for inclusive development published</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
1 knowledge product on innovation for inclusive development published	1 knowledge product on innovation for inclusive development published	2 knowledge products on innovation for inclusive development published	2 knowledge products on innovation for inclusive development published	<b>Achieved</b>	None	None
<b>Outcome: Knowledge utilisation for inclusive development</b>						
<b>Annual target : 6 decision-support systems introduced, maintained and improved by 31 March 2022 (<i>Cumulative target</i>)</b>						
<b>Performance indicator: Number of decision support systems introduced, maintained and improved</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
Annual work plan approved for 2 decision-support systems	Annual work plan approved for 2 decision-support systems	Annual work plan approved for 4 decision-support systems	Annual work plan approved for 4 decision-support systems	<b>Achieved</b>	None	None
<b>Annual target: 3 learning interventions (seminars/policy round tables) hosted by 31 March 2022 (<i>Cumulative target</i>)</b>						
<b>Performance indicator: Number of learning interventions (seminars/ policy round tables discussions) hosted</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
1 learning intervention hosted	2 learning intervention hosted	2 learning interventions hosted	2 learning intervention hosted (in Q1)	<b>Achieved</b>	None	None

<b>Outcome: Human capabilities and skills for the economy and for development</b>						
<b>Annual target: 392 high-level research students (of which 57 at PhD level) fully funded or co-funded in designated niche areas (advanced manufacturing, aerospace, chemicals, mining, advanced metals, ICTs, the Industry Innovation Programme – incl. SIF, and green economy) by 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Number of high-level research students (honours, master's and doctoral students) fully funded or co-funded in designated niche areas (advanced manufacturing, aerospace, chemicals, mining, advanced metals, ICTs, the Industry Innovation Programme – incl. SIF and the green economy)</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
86 high-level research students (of which 12 at PhD level) fully funded or co-funded in designated niche areas (advanced manufacturing, aerospace, chemicals, mining, advanced metals, ICTs, the Industry Innovation Programme – incl. SIF, and green economy)	157 high-level research students (of which 37 at PhD level) fully funded or co-funded in designated niche areas (advanced manufacturing, aerospace, chemicals, mining, advanced metals, ICTs, the Industry Innovation Programme – incl. SIF, and green economy)	No target	No target due	<b>No target due</b>	None	None
<b>Outcome: Increased knowledge generation and innovation output</b>						
<b>Annual target: 60 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 March 2022 (Cumulative target)</b>						
<b>Performance indicator: Number of knowledge and innovation products added to the industrial development and green economy IP portfolios through fully funded or cofounded research initiatives</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>

3 industrially relevant knowledge or innovation products added to the industrial development IP portfolio	0 industrially relevant knowledge or innovation products added to the industrial development IP portfolio	11 industrially relevant knowledge or innovation product added to the industrial development IP portfolio	0 industrially relevant knowledge or innovation product added to the industrial development IP portfolio	<b>Not Achieved</b>	Inputs from the key implementing entities on this KPI were not received in time	Entities will again be sensitised on this KPI and will be requested to report earlier. P5 will meet internally to strategise on most optimal way forward
<b>Annual target: 5 instruments funded in support of increased localisation, competitiveness and R&amp;D-led industry development in aerospace, advanced manufacturing, chemicals, mining, advanced metals, and ICTs, Industry Innovation Programme and the sector innovation fund by 31 March 2022 (Cumulative target)</b>						
<b>Performance indicator: Number of instruments funded in support of increased localisation, competitiveness and R&amp;D led industry development in aerospace, advanced manufacturing, chemicals, mining, advanced metals, and ICTs, Industry Innovation Programme and the sector innovation fund</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
Annual workplans or contract approved for 3 support instruments of increased localisation, competitiveness and R&D led industry development	Annual workplans or contract approved for 6 support instruments of increased localisation, competitiveness and R&D led industry development	No target	No target due	<b>No target due</b>	None	None
<b>Strategic statement: Knowledge utilisation for inclusive development</b>						
<b>Annual target: 14 innovation-support interventions funded or co-funded that strengthen provincial or rural innovation systems between 01 April 2020 and 31 March 2022 (Cumulative target)</b>						
<b>Performance indicator: Number of innovation support interventions funded or co-funded that strengthen provincial or rural innovation systems</b>						

1 <sup>st</sup> Quarter target as per APP	1 <sup>st</sup> Quarter actual output	2 <sup>nd</sup> Quarter target as per APP	2 <sup>nd</sup> Quarter actual output	Status	Reason for variance	Actions taken
No target	No target due	Annual workplans for 10 innovation support interventions that strengthen provincial or rural innovation systems	Annual work-plans for 22 innovation support interventions that strengthen provincial or rural innovation systems	Achieved	The reason for the overachievement is that a number of the RISP interventions experienced delays as a result of COVID and had to be extended to allow them to complete.	None
<b>Outcome: Innovation in support of a capable and developmental state</b>						
<b>Annual target: 6 statistical reports or policy briefs approved by Exco for publication and/or submitted to Cabinet and/ or disseminated to policy audience by 31 March 2022 (Cumulative target)</b>						
<b>Performance indicator: Number of statistical reports and policy briefs approved by Exco for publication and/ or submitted to Cabinet and/or disseminated to policy audience</b>						
1 <sup>st</sup> Quarter target as per APP	1 <sup>st</sup> Quarter actual output	2 <sup>nd</sup> Quarter target as per APP	2 <sup>nd</sup> Quarter actual output	Status	Reason for variance	Actions taken
No target	No target due	No target	No target due	No target due	None	None
<b>Outcome: Knowledge utilisation for economic development in (a) revitalising existing (traditional) industries and (b) stimulating R&amp;D-led industrial development</b>						
<b>Annual target: Preapproval decisions provided within 90 days from date of receipt for 80% of applications for the R&amp;D tax incentive received between 1 January 2020 and 31 March 2022 (Non-cumulative target)</b>						
<b>Performance indicator: Turnaround time for providing preapproval decisions on applications for the R&amp;D tax incentive</b>						
1 <sup>st</sup> Quarter target as per APP	1 <sup>st</sup> Quarter actual output	2 <sup>nd</sup> Quarter target as per APP	2 <sup>nd</sup> Quarter actual output	Status	Reason for variance	Actions taken
Preapproval decisions provided within 90 days on 80% of applications received	Preapproval decisions provided within 90 days on 42% of applications, (i.e., 13 of 31	Preapproval decisions provided within 90 days on 80% of applications received between 01	Preapproval decisions provided within 90 days on 48.6% of applications, (i.e., 17 of 35 applications)	Not Achieved	Although target has still not been reached, there is a steady improvement. The quality of information received from	A new online system is in development. Continued efforts are improving the monitoring of processing of

between 01 January 2021 and 31 March 2021	applications) received between 01 January 2021 and 31 March 2021	April 2021 and 30 June 2021	received between 1 April 2021 and 30 June 2021		applicants is at times lacking. Lack of automation and staff shortages have an effect on monitoring and processing of applications.	applications, with a new excel spreadsheet that has been developed.
<b>Outcome: Innovation in support of a capable and developmental state</b>						
<b>Annual target: 8 strategic and technical engagements with CSIR and HSRC to ensure alignment with national priorities by 31 March 2022 (Cumulative target)</b>						
<b>Performance indicator: Number of strategic and technical engagements with CSIR and HRSC to ensure alignment with national priorities</b>						
<b>1<sup>st</sup> Quarter target as per APP</b>	<b>1<sup>st</sup> Quarter actual output</b>	<b>2<sup>nd</sup> Quarter target as per APP</b>	<b>2<sup>nd</sup> Quarter actual output</b>	<b>Status</b>	<b>Reason for variance</b>	<b>Actions taken</b>
Two strategic and technical engagements	Four Strategic and technical engagements (HSRC TEB, CSIR TEB, HSRC SEB, and CSIR SEB	Four strategic and technical engagements	Six strategic and technical engagements	<b>Achieved</b>	List of issues requiring engagement and resolution between CSIR and DSI extensive and thus requiring a greater number of technical executive bilaterals.	None



## APPROVAL

This is to confirm that the Director General (DG) of the Department of Science and Innovation has considered the Department's performance report for the second quarter of the 2021/22 financial year and made inputs on the contents of the report which reflects the DSI's performance for the period covered in the report.



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PHIL MJWARA

DIRECTOR-GENERAL

DATE: 28 OCTOBER 2021