

# 2015/16 Annual Report Presentation



**Dr Phil Mjwara**  
**Date: 19 October 2016**  
**Portfolio Committee on**  
**Science and Technology**



**science  
& technology**

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



# Presentation outline

- ❑ **Purpose**
- ❑ **DST Vision and Mission**
- ❑ **Alignment to National Priorities**
- ❑ **DST overall performance**
- ❑ **Financial Performance**
- ❑ **Conclusion**



# Purpose

- ❑ To present the DST's Annual Performance Report for the 2015-16 financial year.



# DST vision and mission

## Vision

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

## Mission

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

# Alignment of the DST work to national priorities

**The Department contributes to the following government outcomes of the MTSF:**



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



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



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

# Alignment of the DST work to national priorities

The Department contributes to the following government outcomes of the MTSF:



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



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

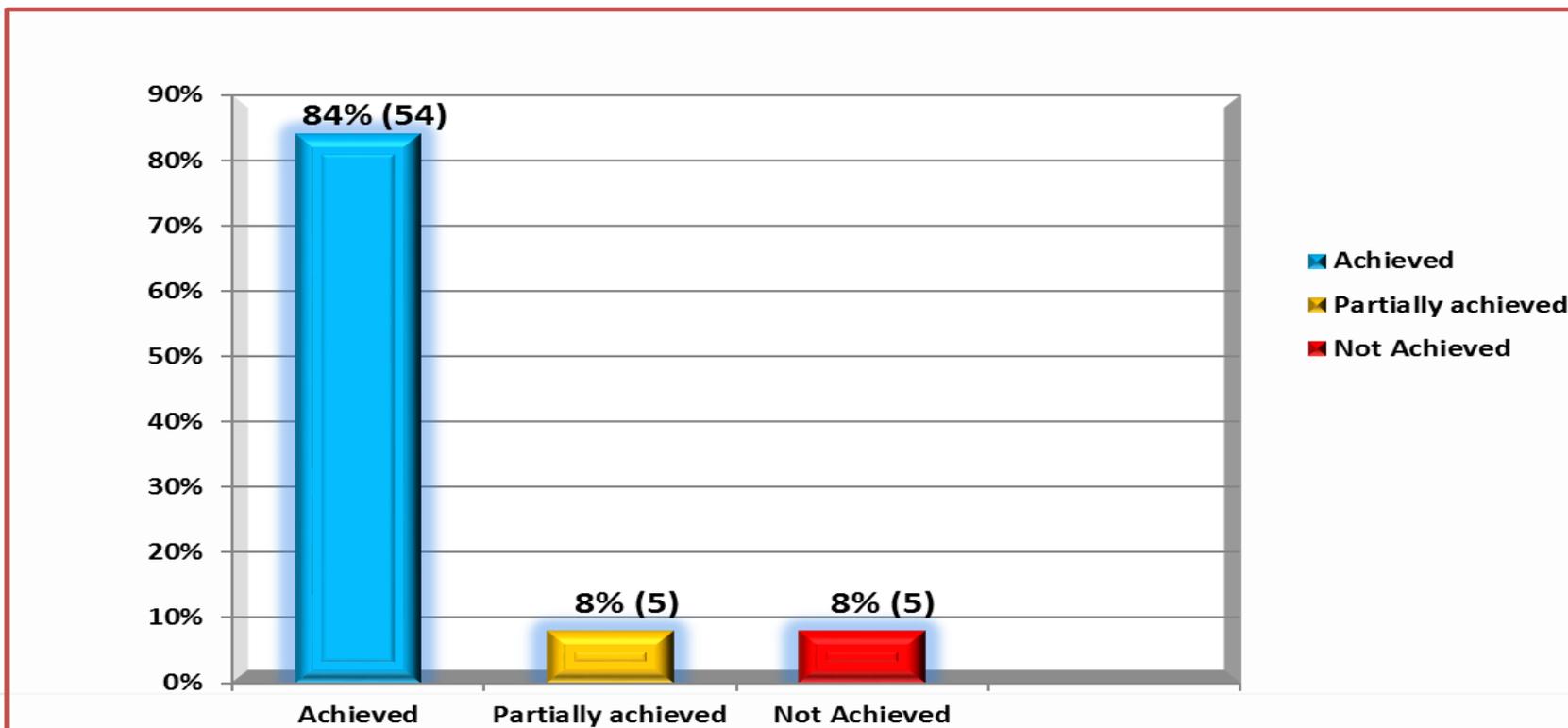


*Outcome 10:* Environmental assets and natural resources that are well protected and continually enhanced.

# 2015/16 DST overall performance

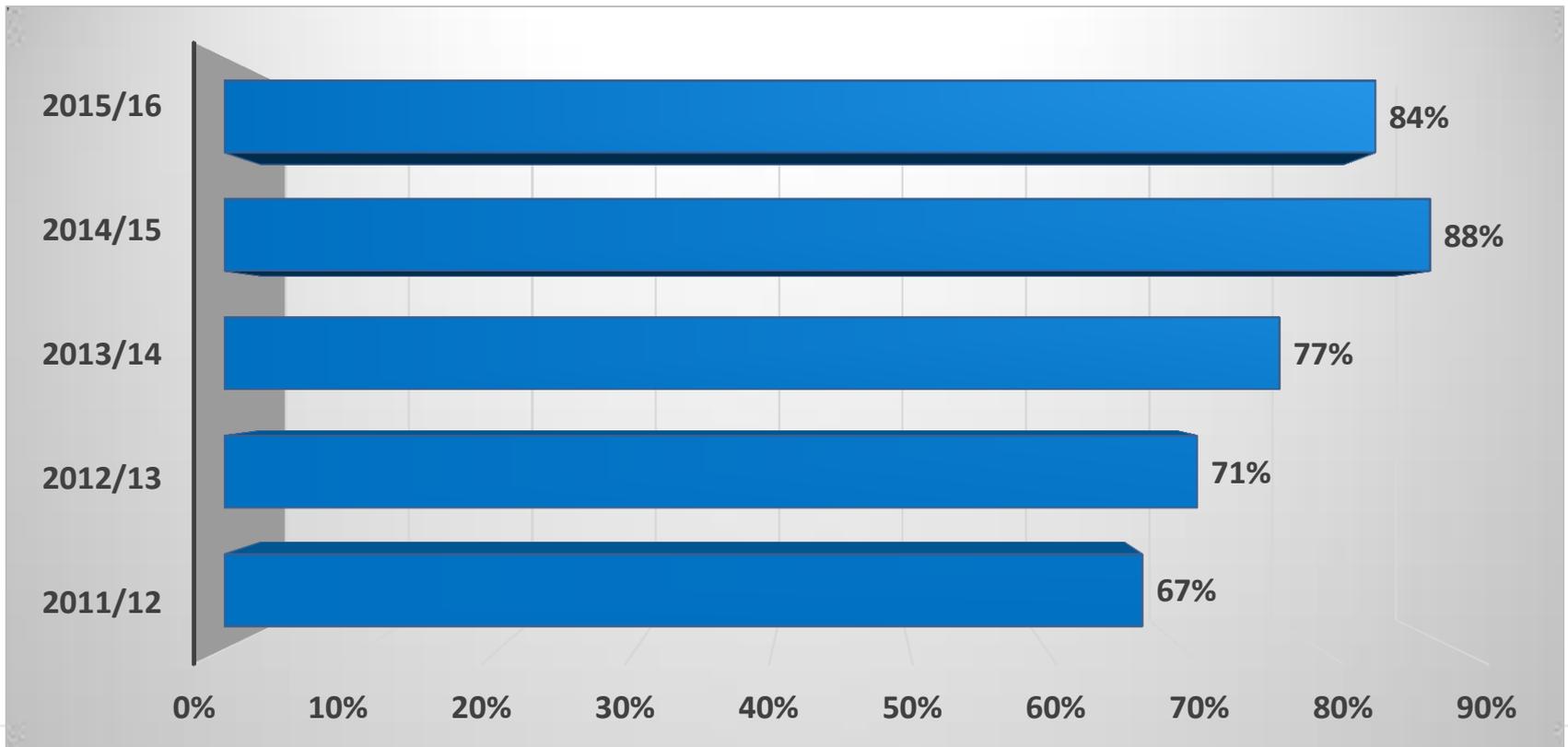
- Based on the approved 2015/16 Annual Performance Plan (APP) output targets (total number of output targets  $n=64$ ), the Department achieved a total of 54 (84%), with 5 (8%) partially achieved and 5 (8%) not achieved (Figure 1).

Figure 1: 2015/16 DST's overall performance



# DST overall performance

- The DST performance trends against predetermined objectives has improved over the last four years and slightly decreased in the reporting period as illustrated in figure 2 below. This was attributed to targets formulation deficiencies.



# DST Strategic Goal 1

## A responsive, coordinated and efficient NSI





# DST Strategic Goal 1

## A responsive, coordinated and efficient NSI

- ❑ During the 2015/16 financial year, the Minister appointed a panel to review the current STI institutional landscape.
- ❑ Similarly, the Minister commissioned NACI to review the 1996 White Paper.
- ❑ The DST approved a framework for science and technology (S&T) cooperation with other government departments.
  - ✓ The purpose of the framework is to guide the prioritisation of the DST's S&T cooperation with other departments in line with its 2014-2019 Strategic Plan.
- ❑ During the reporting period, the joint government-industry task team established in November 2015 completed its work on the R&D tax incentive.
  - ✓ The task team was set up in order to formulate recommendations about measures to improve the design and administration of the R&D tax incentive.
  - ✓ The task team recommendations, include amongst others, simplification of processes and measures to shorten turnaround times in providing decisions.



# DST Strategic Goal 1

## **A responsive, coordinated and efficient NSI (continued)**

### **Collaboration with other government department's**

- ❑ The DST contributes towards this global competitiveness by facilitating close collaboration with DHET in research development and support.
  - ❑ The DST also collaborates on various joint projects with the Department of Basic Education and provincial education departments. One of these is the planned building of a science centre in Cofimvaba
  - ❑ DHET uses the NRF, a DST entity, for the provision of bursaries to postgraduate students, amounting to R197 million in 2015.
  - ❑ In addition, a better alignment has been sought between the DHET's Staffing South Africa's Universities Framework and the DST/NRF HCD offerings and
- 
- ❑ Furthermore, it has been decided that DHET will fund salaries while the DST will fund research-related costs.

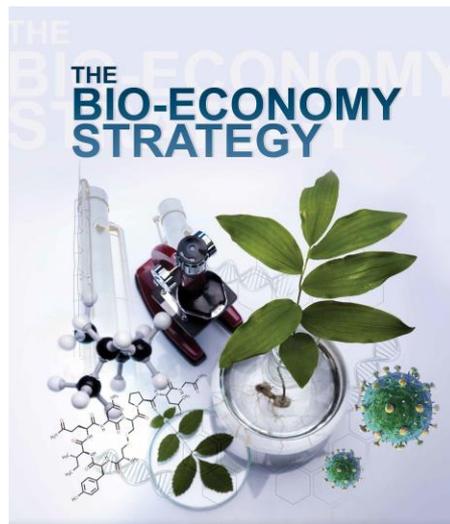
## **A responsive, coordinated and efficient NSI (continued)**

- ❑ The Eastern Cape Department of Education secured a building site provided by the Intsika Yethu Municipality, and agreed to provide long-term support to sustain the science centre in teacher and curriculum development programmes,
- ❑ This entails amongst other things incorporating science centre staff into the provincial education department staff establishment.

## Increased knowledge generation



PC on S&T visit to HySA



Bioeconomy Strategy



Fuel cell forklift



# DST Strategic Goal 2

## Increased knowledge generation (*Publications*)

- ❑ In the year under review, in respect of established researchers, the Minister awarded 42 women-only research chairs under the South African Research Chairs Initiative, bringing the proportion of women chair-holders close to 40% of established researchers.
- ❑ Two SA-UK bilateral research chairs were awarded for research in food security (to Nelson Mandela Metropolitan University, University of the Western Cape and University of Pretoria), and a third one on political theory to the University of the Witwatersrand.
- ❑ Two peer-reviewed research articles were published on Moringa R&D by the University of the Witwatersrand in 2015/16.



# DST Strategic Goal 2

## **Increased knowledge generation (*Publications continued*).**

- ❑ In the period under review, 7 158 ISI- accredited researcher articles were published in the reporting year to support , promote research and develop new knowledge.
- ❑ Regarding science promotion, the overall number of participants in DST-led science engagement activities exceeded 2 million in 2015/16 as compared to 1 million in the 2014/15 financial year.



# DST Strategic Goal 2

## Increased knowledge generation (*Infrastructure*)

- ❑ Good progress was made during the 2015/16 financial year in finalising the South African Research Infrastructure Roadmap (SARIR).
- ❑ Funds have been earmarked to begin implementing SARIR in 2016/17, and approval will be sought to begin with at least four of the selected infrastructures.
- ❑ The completion of SARIR to steer and direct the roll-out of national research infrastructures will be a major achievement for the country.
- ❑ The number of research infrastructure grants awarded increased from 69 in 2014 to 79 in the 2015/6 financial year.



# DST Strategic Goal 2

## Increased knowledge generation (*Infrastructure continued*)

- These awards will make it possible for 420 researchers and about 4 200 students to access world-class research infrastructures and equipment.
- With regard to the provision of research equipment and infrastructure to universities, science councils, national facilities and museums, 84 research infrastructures were awarded across the entire science system and in line with the requirements across the innovation value chain



## DST Strategic Goal 2

### **Increased knowledge generation (*Collaborative research efforts* )**

- ❑ The African partnership portfolio has been especially active, with 61 research and innovation projects jointly supported by the DST and African partner governments during the financial year.
- ❑ A diverse portfolio of bilateral and multilateral programmes coordinated by the DST during the financial year afforded South African researchers opportunities to collaborate in joint knowledge-generation activities, with 585 international partner organisations.
- ❑ This collaboration saw an investment of more than R2 billion by the DST's international partners in support of collaboration with South Africa.
- ❑ These relationships and investments were invaluable in expanding and enriching South Africa's knowledge-generation outputs.

## Human capital development



Postgraduate student support



NSW attendees



SALT



# DST Strategic Goal 3

## Human capital development

- ❑ The number of supported postgraduate students through the DST initiatives increased from 11 335 in 2014 to 13 307 in the 2015/16 financial year.
- ❑ A total of 1 044 graduates were placed in SETI institutions as part of the DST contribution to the development of a representative and high level human development pipeline.
- ❑ While the number of researchers supported with grants increased from 4 064 in 2014/15 to 4 315 in 2015/16 financial year.
- ❑ During the reporting the Department completed a document which models financials implications for the DST HCD to the meet relevant NDP target (5000 PhD graduates per annum).

## Human capital development

- ❑ The SKA SA HCD programme recently celebrated its 10th anniversary. Since inception, it has funded more than 730 university academics, postdoctoral researchers, postgraduates and undergraduate students, as well as artisan trainees.
- ❑ Of these, 52 doctoral students have graduated in the standard period for the degree (85% graduation rate vs a national average of 12%), 116 master's students have graduated (94% graduation rate vs a national average of 20%).
- ❑ The DST also completed and commissioned several high-level investigations of issues related to the transformation of the postgraduate and researcher cohorts in (mainly) the higher education sector.
- ❑ These studies provide insight into some of the challenges faced in driving the demographic transformation of these cohorts in a quest for sustainability and growth in the research system.

## Using knowledge for economic development



Fluorochemical plant facility



Titanium Casting



BIDC manufacturing



# DST Strategic Goal 4

## Using knowledge for economic development

### ❑ *The Biomanufacturing Industry Development Centre (BIDC)*

- ✓ During the 2015/16 financial year, the DST opened the Biomanufacturing Industry Development Centre (BIDC), a hub for innovation in the biomanufacturing sector, at the Council for Scientific and Industrial Research (CSIR).
- ✓ The BIDC is the first of its kind in South Africa, and aims to support small and medium enterprises (SMME's) involved in biomanufacturing to meet their customers' needs comparatively quickly and to exploit market opportunities.
- ✓ The BIDC's support for SMME's is through the development of bio-based manufacturing processes and products.
- ✓ Companies that are incubated at the BIDC have access to ready-to-use biomanufacturing facilities, support in R&D laboratories, and access to experts in the fields of agroprocessing and bioprocessing product development and scale-up.

## Using knowledge for economic development (*continued*)

### ❑ *Fluorochemicals Expansion Initiative*

- ✓ The country currently supplies around 10% of the global fluorochemical industry's fluoride requirements (worth about US\$16 billion a year). However, South Africa captures less than 0,5% of this revenue owing to the low level of local beneficiation.
- ✓ The Fluorochemicals Expansion Initiative (FEI) is a DST initiative to reduce the negative balance of payments in the chemical industry by supporting focused R&D aimed at new process and product development, some of which may help to create new industries.
- ✓ It is necessary for South Africa to enhance and broaden local beneficiation efforts to increase the country's share of the global fluorochemicals industry revenue. South Africa has competitive advantages in mineral resources.
- ✓ For example, it has the world's largest reserves of fluorspar, estimated at about 41 million tons. In addition, there are niche skills and processes for developing and working with fluorine at the Nuclear Energy Corporation of South Africa (Necsa) and at Pelchem SOC Ltd.



# DST Strategic Goal 4

## Using knowledge for economic development (*continued*)

### ❑ *Project-to-business transition support*

- ✓ The DST engaged the Department of Trade and Industry-affiliated SA Essential Oils Business Incubator to assist Hi Hanyile using its incubation services, essential oil production know-how, quality assurance skills and services, and market linkages.
- ✓ Scientists and traditional healers are collaborating in studies on indigenous plants which have led to the development of mosquito-repellent candles.
- ✓ During the reporting period, *Lippia javanica* (an indigenous plant that is traditionally used to repel mosquitoes) was introduced to the Rose Geranium project as an additional product.
- ✓ The project has been creating jobs and skills, especially for the local youth. There are, for example, young people that have been working on the project as boilermakers for two years, never having had formal employment before.



# DST Strategic Goal 4

## Using knowledge for economic development (*continued*)

### ❑ *Technology Localisation*

- ✓ The Technology Localisation Programme continues to deliver excellent impact on the 147 firms who received technology assistance packages.
- ✓ The programme supported 14 new product development projects, the development of export capability for 20 companies, and 32 projects where import substitution has been achieved.
- ✓ Five hundred direct jobs were created through the programme, and 7 000 were retained owing to interventions implemented through the programme.

## Using knowledge for economic development

### ❑ *Beneficiation and Advanced Manufacturing*

- ✓ The DST helps to advance strategic medium and long-term sustainable economic growth and sector development priorities, as well as government service delivery.
- ✓ This entails funding technology maturation in projects that will develop new processes, markets and/or products/services, so-called "R&D-led industry development".
- ✓ As part of the beneficiation strategy, Necsa is working on the beneficiation of South Africa's vast zircon resources through the development of a range of processes along the zirconium metal value chain, with nuclear-grade zirconium metal as final product.
- ✓ This is part of the Advanced Metals Initiative's Nuclear Materials Development Network (NMDN). A novel process for the manufacturing of nuclear-grade zirconium metal powder has been developed. Nuclear-grade zirconium metal powder can now be continuously manufactured on laboratory scale (1 kg/h) by means of a new plasma route.

# DST Strategic Goal 5

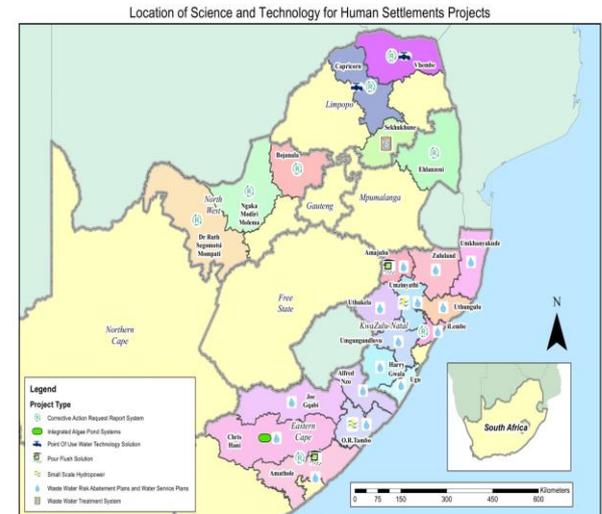
## Knowledge utilisation for inclusive development



Hi Hanyile candle making settlement



KwaNobuhle Essential oils



Location of human



# DST Strategic Goal 5

## Knowledge utilisation for inclusive development

- ❑ ***Decision support that helps transform government services and functions***
    - ✓ StepSA (Spatial and Temporal Evidence for Planning in South Africa) is collaborative initiative between the DST, CSIR and HSRC. Cities supported include Joburg, Cape Town, Ethekwini, Ekurhuleni, Tshwane. Towns include Rustenburg.
    - ✓ The outputs and findings of this collaborative initiative are disseminated to support high-impact and transformative investment decisions affecting South Africa's cities, towns and settlements.
    - ✓ The tool enable the town planners to profile, identify, calculate and analyse development information and trends related to urbanisation.
    - ✓ The main aim is to strengthen strategic regional, inter-regional and intergovernmental planning, resource allocation and monitoring and evaluation in South Africa so as to address the growth in demand for services and economic opportunities in cities, towns and settlements.
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# StepSA: Monitoring Housing Development project



Rustenburg Seraleng  
Anglo-Platinum Flisp



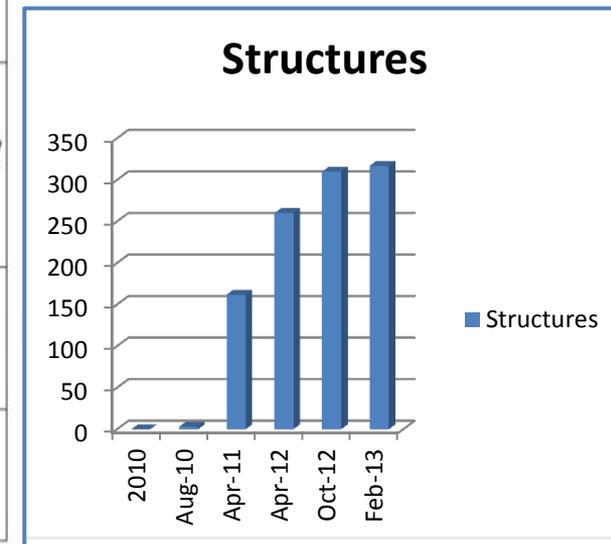
Legend

 Seraleng Anglo-Platinum Flisp  
Boundary



Date: 06 October 2012

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# DST Strategic Goal 5

## Knowledge utilisation for inclusive development

- ❑ *Decision support that helps transform government services and functions (continued)*
  - ✓ The DST has also pioneered several evidence-based knowledge products that support local governments across the country to make decisions to improve the provision of public services in sectors such as water, sanitation, energy and housing.
  - ✓ These include the Bioenergy Atlas and development of a Sanitation Technology Evaluation and Assessment Database and Tool.
  - ✓ The DST's continues to work collaboratively with the Department of Cooperative Government and Traditional Affairs, as consequence, the two Departments introduced the innovation for Local Economic Development (LED) agenda.
  - ✓ The collaboration between COGTA and DST signifies a shift towards fostering innovation-led LED that is linked to specific areas as opposed to the historical approach of small, isolated, government-dependent projects that were not linked to the local economy.
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# DST Strategic Goal 5

## Knowledge utilisation for inclusive development

### □ *Preclinical Research*

- ✓ As part of the DST's health-related work, a web-based application for processing drug resistance data was developed. It has been shown that the app, Seq2Res™, vastly reduces the costs and time involved in analysing data on viral DNA compared to conventional methods.
- ✓ The application will enable researchers and clinicians to process their drug resistance testing data routinely and easily, without needing expert bioinformatics assistance.
- ✓ Further development is being undertaken in collaboration with partners at the National Health Laboratory Service (NHLS) genotyping units in Tygerberg, the NHLS/University of the Witwatersrand Medical School, and the National Institute for Communicable Diseases.
- ✓ When completed, the University of the Western Cape will present **Seq2Res™** for clinical, research and surveillance use, enabling the establishment of routine HIV drug resistance testing in Southern Africa.

**Seq2Res™** is a computational tool that facilitate cost-effective, high-throughput HIV resistance testing.



# DST Strategic Goal 5

## Knowledge utilisation for inclusive development

### ❑ *Innovation towards a decent standard of living*

- ✓ The DST-funded tuberculosis diagnostic from North West University was validated and is ready for commercialisation.
- ✓ With this rapid diagnostic tool kit a health worker is able to test a person for tuberculosis in any location and the results are available almost immediately.

### ❑ *Sector Innovation and Green Economy*

- ✓ The Water Technologies Demonstration Programme (WADER) released an open accelerator call focusing on innovative water and sanitation technologies and solutions contributing to the objectives of the research, development and deployment programme of the Water RDI Roadmap.



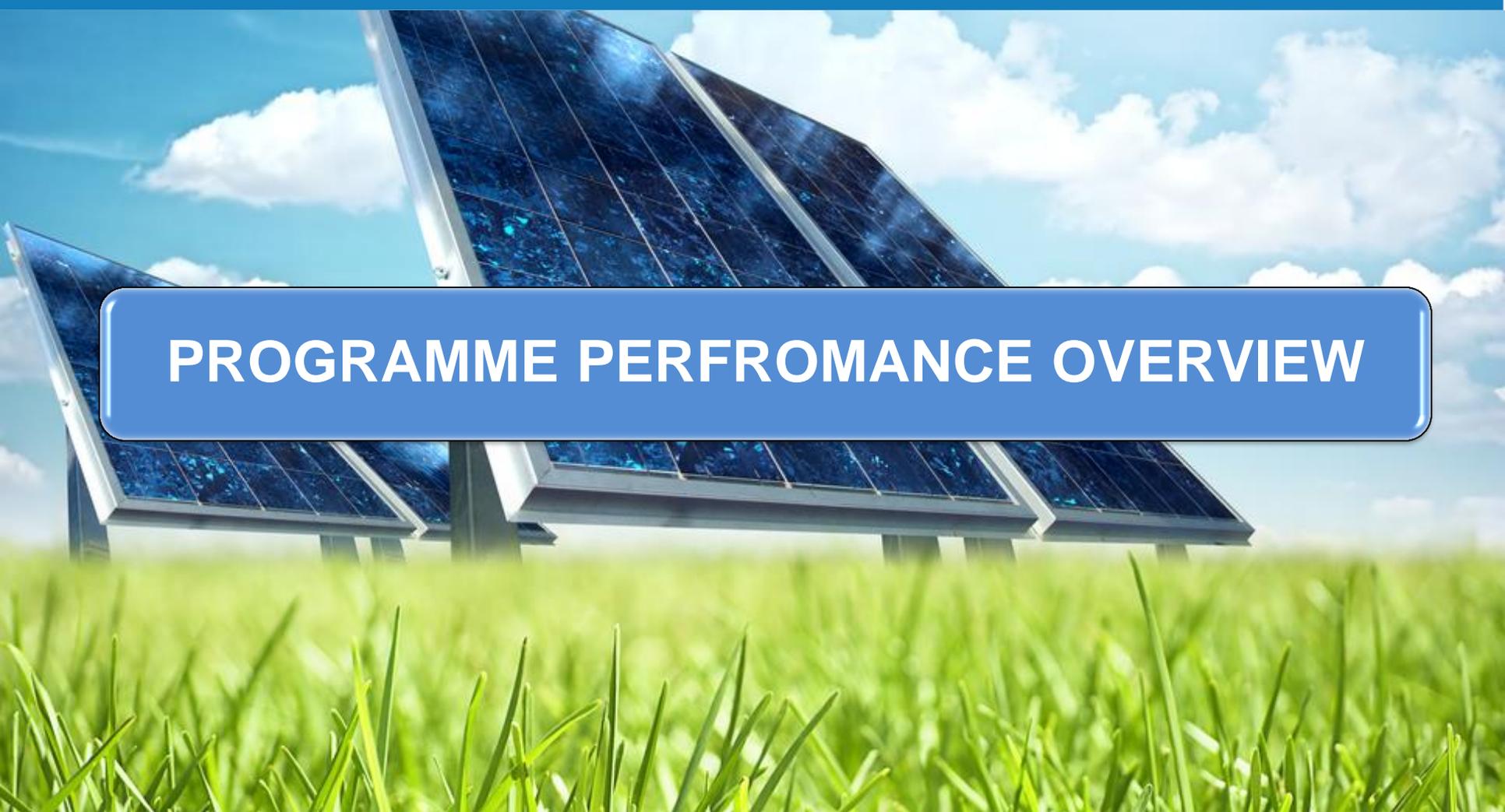
# DST Strategic Goal 5

## Knowledge utilisation for inclusive development

- ***Innovation towards decent standard of living (continued)***
- ✓ A vaccine facilitated by the DST through a partnership between Pfizer and Biovac is credited in South Africa for the prevention of invasive pneumococcal disease, pneumonia and acute otitis media caused by *Streptococcus pneumoniae* in infants and young children from six weeks to five years of age.
- ✓ The DST also supported the development of a mobile application on primary health care standard treatment guidelines and essential medicines list for use in primary health care settings. It was developed in partnership with the Strategic Health Innovation Partnerships (SHIP).

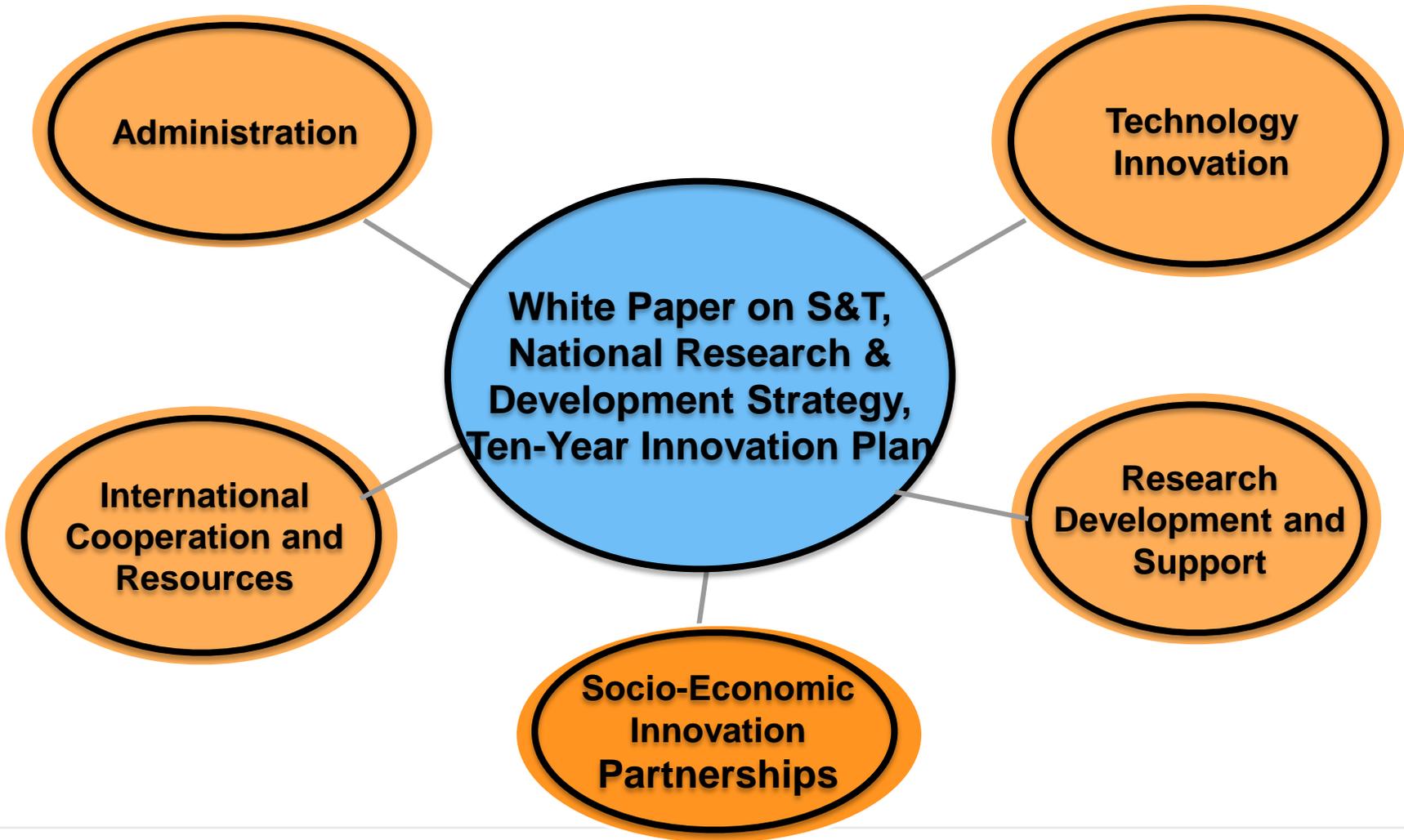


# OVERVIEW OF PERFORMANCE PER PROGRAMME



## PROGRAMME PERFORMANCE OVERVIEW

# DST's Programmes



# Annual DST's Performance per Programme

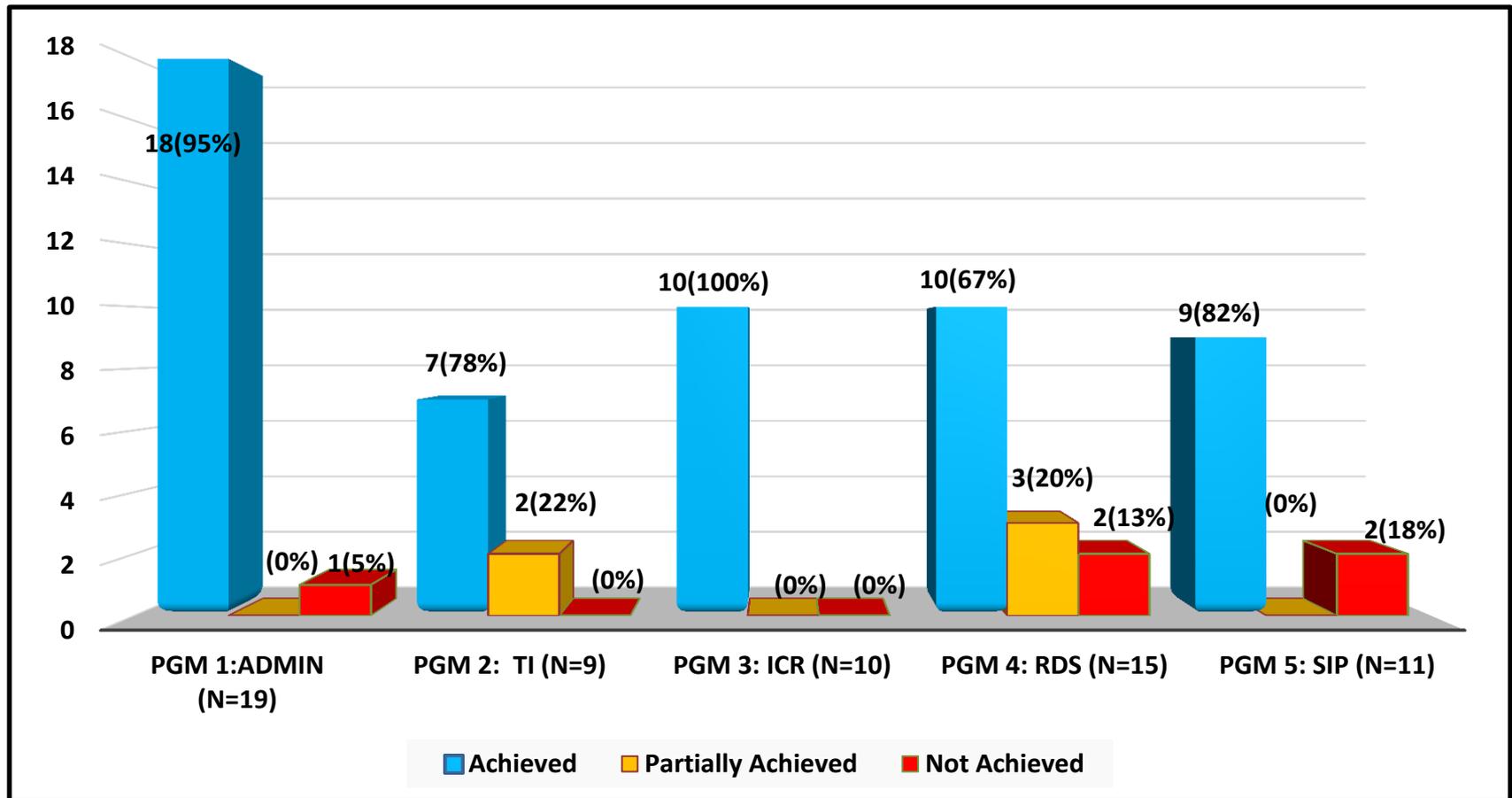
Figure 2 below illustrates the annual performance of the Department per Programme.

- ❑ Programme 1 achieved 95% of its targets and 15% of the targets were not achieved.
- ❑ Programme 2 achieved 78% of its targets , and 22% of its targets were partially achieved. There were no unachieved targets.
- ❑ Programme 3 achieved 100% of its targets and there were no unachieved targets.
- ❑ Programme 4 achieved 67% of its targets and 20% of the planned targets were partially achieved. In addition 13% of the targets were not achieved.
- ❑ Programme 5 achieved 82% of its targets and 18% of the planned targets were not achieved.

***N.B For the purpose of the presentation, the annual Programme's performance achievements were sampled in the tables below. The detailed information thereof is juxtaposed in the approved Annual Report.***

# Annual DST's Performance per Programme (2)

Figure 2 : The DST's performance per Programme



# DST Programmes

## Purpose of the Programme (1)

### ❑ Programme 1: Administration

To conduct the overall management and administration of the Department.





# Sampled Programme 1 Performance

## 2015/16 annual achievements - Programme 1 : Administration

Annual Target	Actual Achievement	Status
Eight DST public entities' 2014/15 annual reports (CSIR, SANSA, TIA, ASSAf, NRF, HSRC, SACNASP and NACI) submitted to Parliament by 30 September 2015.	Eight DST public entities' 2014/15 annual reports (CSIR, SANSA, TIA, ASSAf, NRF, HSRC, SACNASP and NACI) submitted to Parliament by 30 September 2015.	<b>Achieved</b>
10 public participation programmes held by 31 March 2016.	16 public participation programmes held by 31 March 2016.	<b>Achieved</b>
90 days to fill vacancy after date of advertisement by 31 March 2016.	The Department took 85 days to fill vacancy after date of advertisement.	<b>Achieved</b>



# Sampled Programme 1 Performance

## 2015/16 annual achievements - Programme 1 : Administration

Annual Target	Actual Achievement	Status
Vacancy rate reduced to 6% by 31 March 2016.	The vacancy rate was reduced by 5.47%.	<b>Achieved</b>
Minimum 92% DST personnel submitting performance contracts and reviews on time by 31 March 2015.	Minimum of 97% of DST personnel submitting annual reviews for previous financial year and probation reports as planned.	<b>Achieved</b>
Two enterprise architecture development lifecycle steps developed and implemented by 31 March 2016.	Two enterprise architecture development lifecycle steps developed and implemented by 31 March 2016.	<b>Achieved</b>
Three IT governance framework components implemented by 31 March 2016.	Three IT governance framework components implemented 31 March 2016.	<b>Achieved</b>

# DST Programmes

## Purpose of the Programme (2)

### ❑ Programme 2: Technology Innovation

To enable research and development in strategic and emerging focus areas to promote the realisation of commercial products, processes and services from R&D outputs; through the implementation of enabling policy instruments.



Research on TB vaccine exhibition



Mabu Casing Soils



# Sampled Programme 2 Performance

## 2015/16 annual achievements - Programme 2 : Technology Innovation

Annual Target	Actual Achievement	Status
118 knowledge products generated by 31 March 2016.	156 knowledge products were produced.	<b>Achieved</b>
275 new disclosures reported by publicly funded institutions by 31 March 2016.	The total number of new disclosures received during the 2015/16 financial year is 279.	<b>Achieved</b>
Nine evaluation and assessment reports developed and approved by Exco by 31 March 2016.	10 evaluation and assessment reports developed and approved by Exco by 31 March 2016.	<b>Achieved</b>



# Sampled Programme 2 Performance

## 2015/16 annual achievements - Programme 2 : Technology Innovation

Annual Target	Actual Achievement	Status
180 trainees supported in the strategic and emerging research areas by 31 March 2016.	257 trainees were supported in the strategic and emerging research areas by 31 March 2016.	<b>Achieved</b>
382 postgraduate students (master's and doctoral) supported through DST funded R&D initiatives by 31 March 2016.	402 postgraduate students (master's and doctoral) supported through DST-funded R&D initiatives by 31 March 2016.	<b>Achieved</b>
Six new technology innovation products developed / supported in key strategic areas.	Eight new technology products, processes and/or services developed by 31 March 2016.	<b>Achieved</b>

# DST Programme

## Purpose of the Programme (3)

### □ Programme 3: International Cooperation and Resources

This Programme aims 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.



Minister of Science and Technology, Naledi Pandor, and AU Chair, Nkosazana Dlamini-Zuma



The first Science Forum South Africa

# Sampled Programme 3 Performance

## 2015/16 annual achievements - Programme 3: International Cooperation and Resources

Annual Target	Actual Achievement	Status
<p>R380m in international funds directly invested in research, innovation and STI HCD programmes as well as research infrastructure investments in South Africa accounted for as part of cooperation initiatives implemented by the DST by 31 March 2016.</p>	<p>R619m in international funds directly invested in research, innovation and STI HCD programmes as well as research infrastructure investments in South Africa accounted for as part of cooperation initiatives implemented by the DST by 31 March 2016.</p>	<p><b>Achieved</b></p>
<p>Seven AU or SADC STI initiatives, including programmes, projects or governance frameworks, endorsed at AU or SADC ministerial level supported (financially or in kind) by DST by 31 March 2016.</p>	<p>13 AU or SADC STI initiatives, including programmes, projects or governance frameworks, endorsed at AU or SADC ministerial level supported (financially or in kind) by DST by 31 March 2016.</p>	<p><b>Achieved</b></p>

# Sampled Programme 3 Performance

## 2015/16 annual achievements - Programme 3: International Cooperation and Resources

Annual Target	Actual Achievement	Status
<p>Four formally recorded decisions made in intergovernmental STI forums, such as multilateral organisations, with a direct bearing on resource allocation to support priorities of government's Programme of Action following specific DST intervention by 31 March 2016.</p>	<p>Six formally recorded decisions made in intergovernmental STI forums, such as multilateral organisations, with a direct bearing on resource allocation to support priorities of government's Programme of Action following specific DST intervention by 31 March 2016.</p>	<p><b>Achieved</b></p>
<p>Two leadership positions occupied by South Africa in international STI governance structures relevant to influencing resource allocation to support priorities of government's Programme of Action following specific DST intervention by 31 March 2016.</p>	<p>Five leadership positions occupied by South Africa in international STI governance structures relevant to influencing resource allocation to support priorities of government's Programme of Action following specific DST.</p>	<p><b>Achieved</b></p>

## Purpose of the Programme (4)

### □ Programme 4: Research Development and Support

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.



Science Awareness



Research Infrastructure



# Sampled Programme 4 Performance

## 2015/16 annual achievements - Programme 4: Research Development and Support

Annual Target	Actual Achievement	Status
900 graduates and students placed in DST-funded work preparation programmes in SETI institutions by 31 March 2016.	1 044 graduates and students (728 interns and 316 volunteers) were placed in SETI institutions as of 31 March 2016.	<b>Achieved</b>
One implementation plan for the Multiwavelength Astronomy Strategy approved by Exco by 31 March 2016.	One implementation plan for the Multiwavelength Astronomy Strategy approved by Exco by 31 March 2016.	<b>Achieved</b>
60 research infrastructure grants awarded as per award letters by 31 March 2016.	79 research infrastructure grants were awarded as per award letters by 31 March 2016.	<b>Achieved</b>



# Sampled Programme 4 Performance

## 2015/16 annual achievements - Programme 4: Research Development and Support

Annual Target	Actual Achievement	Status
3 500 Mbps average bandwidth available per SANReN site by 31 March 2016.	3 497 Mbps average bandwidth available per SANReN site by 31 March 2016.	<b>Achieved</b>
7 000 ISI-accredited research articles published by NRF-funded researchers as reflected in the NRF project reports by 31 March 2016.	7 158 ISI-accredited research articles published by NRF-funded researchers as reflected in the NRF project reports by 31 March 2016.	<b>Achieved</b>
One Basic Sciences Development and Support Framework approved by Exco by 31 March 2016.	One Basic Sciences Development and Support Framework approved by Exco by 31 March 2016.	<b>Achieved</b>

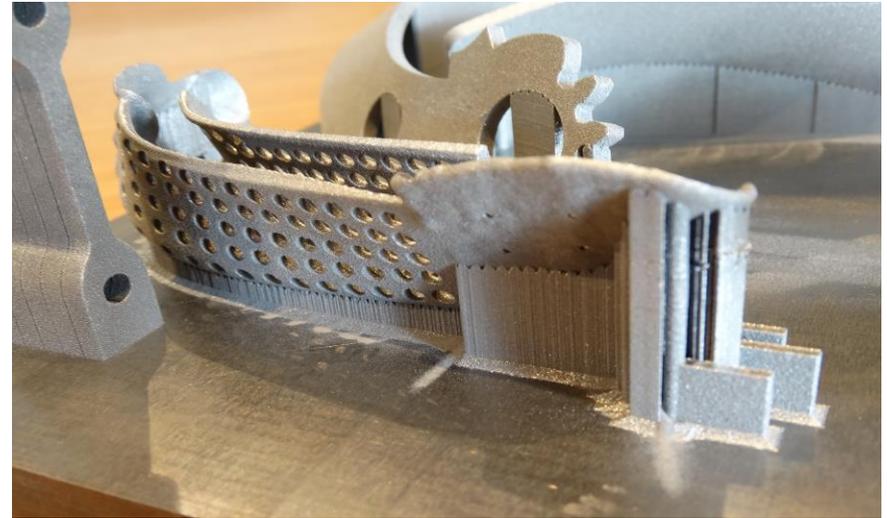
## Purpose of the Programme (5)

### □ 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



TECH4RED in Cofimvaba



Additive Manufacturing



# Sampled Programme 5 Performance

## 2015/16 annual achievements - Programme 5: Socio-Economic Innovation Partnership

Annual Target	Actual Achievement	Status
Four knowledge products on innovation for inclusive development published by 31 March 2016.	Five knowledge products on innovation for inclusive development published by 31 March 2016.	<b>Achieved</b>
Five decision-support interventions maintained and improved by 31 March 2016.	Six decision-support interventions maintained and improved by 31 March 2016.	<b>Achieved</b>
50 master's and doctoral students fully funded or co-funded in designated niche areas that support the green economy and sustainable development by 31 March 2016.	50 master's and doctoral students fully funded or co-funded in designated niche areas that support the green economy and sustainable development by 31 March 2016.	<b>Achieved</b>



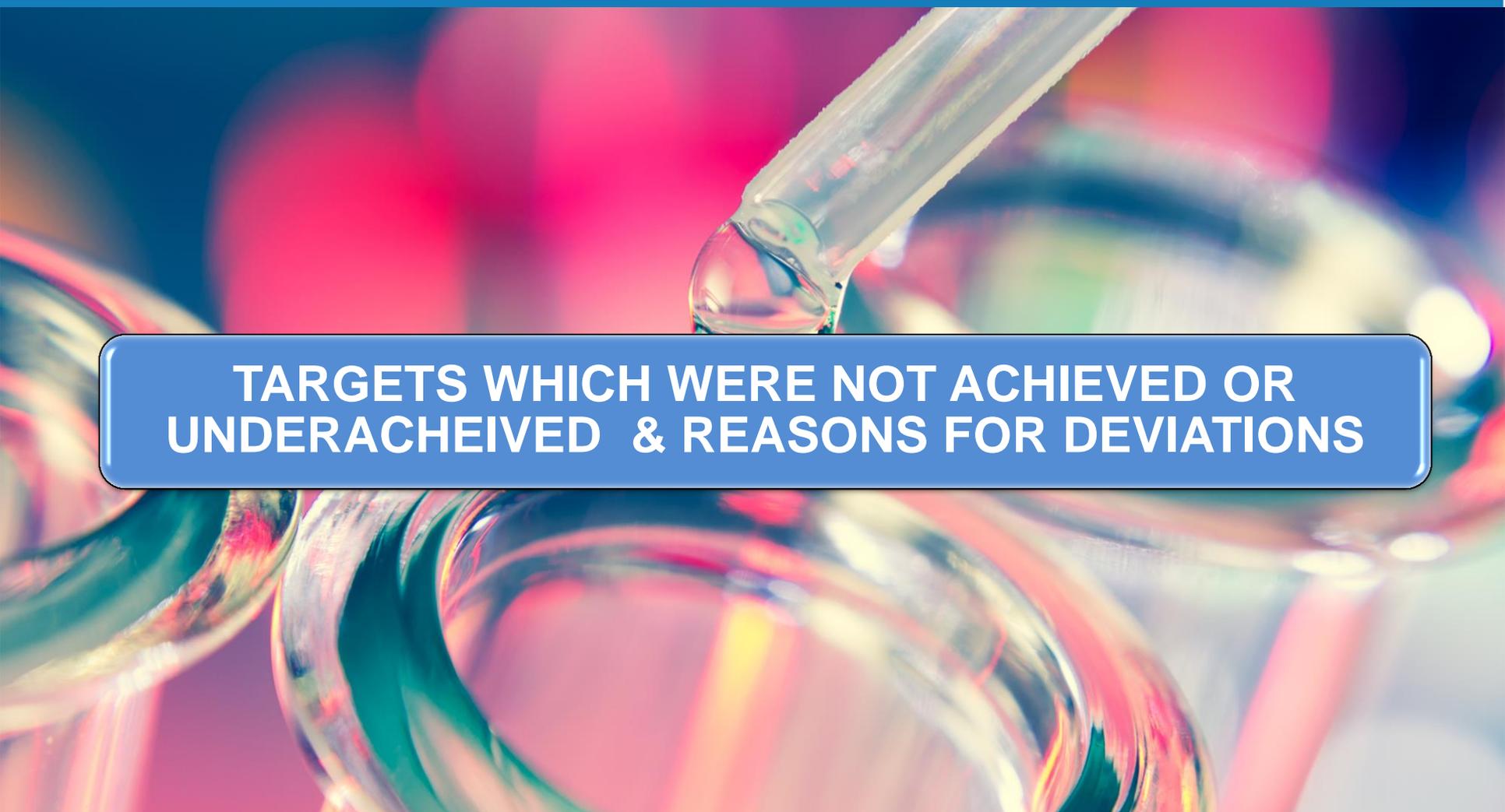
# Sampled Programme 5 Performance

## 2015/16 annual achievements - Programme 5: Socio-Economic Innovation Partnership

Annual Target	Actual Achievement	Status
273 master's and doctoral students fully funded or co-funded in designated niche areas (advanced manufacturing, aerospace, chemicals, mining, advanced metals and ICTs) by 31 March 2016.	338 master's and doctoral students fully funded or co-funded in designated niche areas (advanced manufacturing, aerospace, chemicals, mining, advanced metals and ICTs) by 31 March 2016.	<b>Achieved</b>
25 knowledge and innovation product (patents, prototypes, technology demonstrators or technology transfer packages) added to the IP portfolio through fully funded or co-funded research initiatives by 31 March 2016.	38 knowledge and innovation products (patents, prototypes, technology demonstrators or technology transfer packages) added to the IP portfolio through fully funded or co-funded research initiatives by 31 March 2016.	<b>Achieved</b>



# PERFORMANCE OVERVIEW



**TARGETS WHICH WERE NOT ACHIEVED OR  
UNDERACHIEVED & REASONS FOR DEVIATIONS**



# Classification of reasons for variances due to non / under achievement

- ❑ **Target formulation deficiencies** – refers to under/non-achievement due to variables which were not foreseen during the target formulation phase.
  - ✓ These gaps are being addressed during the strategic planning processes of the current financial year as part of the lessons learnt. The DST is also implementing recommendation by the the DPME and Auditor-General in this regard.
  
- ❑ **Process delays** – refers to under/non-achievement due to factors which are not within the control of the DST and therefore the achievement of such targets is mainly dependent on outside stakeholders.
  - ✓ Such targets require the department to better manage the inter-dependent nature of the deliverables which, in turn, affect the DST deliverables.
  
- ❑ **Administrative delays** – refers to under/non-achievement due to delays with regard to internal process within the DST. This is usually within the control of the DST.

# Unachieved Targets

## 2015/16 annual targets which were not achieved

Annual Target	Actual Achievement	Reasons for non-achievement	Status	Variance Classification
DST public entities' 2016/17 strategic and annual performance plans approved by the Minister and shareholder compacts signed by the Minister and chairpersons of the boards by 31 March 2016.	DST public entities' 2016/17 strategic and annual performance plans approved by the Minister, but not all shareholder compacts were signed by the Minister as planned.	In terms of the PFMA, the CSIR is the only entity which is required in terms of legislation to sign shareholder compact as it is a 3B entity. The signing of shareholder compacts for other entities falls outside the reporting period of the DST in terms of the financial year.	<b>Not Achieved</b>	<b>Target formulation deficiencies</b>
Regulations on the protection of IKS approved by the Minister for widespread public consultation by 31 March 2016.	Integration of public comments into the Bill finalised. The Bill was approved by Cabinet by 31 March 2016.	Submission of the Bill to Cabinet was delayed by the unexpected introduction of the new Social Economic Impact Assessment requirement, which needed to be finalised.	<b>Not Achieved</b>	<b>Admin delays</b>
One plan for compiling the first biennial report on the state of climate change in South Africa for Cabinet approval by 31 March 2016.	A plan for the development of the biennial report was approved by the Deputy Director-General: Research Development and Support.	This target was ambiguously formulated. The intention was to complete the plan (for compiling a report for Cabinet approval) by 31 March 2016, and this was achieved. However, the target could also be read as stating that the plan itself was subject to Cabinet approval by 31 March 2016, although this is counter intuitive.	<b>Not Achieved</b>	<b>Target formulation deficiencies</b>

# Unachieved Targets

## 2015/16 Targets which were not achieved

Annual Target	Actual Achievement	Reasons for non-achievement	Status	Variance Classification
<p>Five reports and policy briefings on the innovation system and innovation policy approved by Exco/published by 31 March 2015.</p>	<p>Two reports/policy briefings approved by Exco/published by 31 March 2015 i.e.</p> <ul style="list-style-type: none"> <li>2014/15 Report on Government-Funded Scientific and Technological Activities</li> <li>2013/14 National Survey on Research and Experimental Development released/published; cabinet memorandum tabled to brief Cabinet about the results.</li> </ul>	<ul style="list-style-type: none"> <li>The Report on the Survey of Intellectual Property and Technology Transfer of Publicly Funded Research was delayed in the early stages of production.</li> <li>Project timelines also had to be extended for additional validation and iterations of draft reports, and for the sourcing of international benchmarking data.</li> <li>The report on a new approach to innovation measurement was delayed because time was needed to clarify the scope and focus of the project.</li> </ul>	<p><b>Not Achieved</b></p>	<p><b>Process delays</b></p>
<p>Preapproval decisions provided within 90 days of date of receipt of application for the R&amp;D tax incentive by 31 March 2015.</p>	<p>By 31 March 2016, 255 applications were still to be finalised. Of these, 16 were received before January 2014; 90 were received in 2014; 108 were received in 2015, and 41 were received in 2016.</p>	<p>Progress has been made but is still slow owing to lack of capacity, with particular bottlenecks at the finalisation of evaluation reports for adjudication and the processing of recommendations for final decision by the Minister.</p>	<p><b>Not Achieved</b></p>	<p><b>Admin delays</b></p>

# Partially Achieved Targets

## 2015/16 Targets which were partially achieved

Annual Target	Actual Achievement	Reasons for underachievement	Status	Variance Classification
Seven innovation-enabling programmes implemented by 31 March 2016.	Six innovation-enabling programmes implemented by 31 March 2016.	There was an administration delayed on the payment to one OTT institution.	<b>Partially Achieved</b>	<b>Admin delays</b>
Four technology development and innovation policy directives developed and adopted by government by 31 March 2016.	Three technology development and innovation policy directives developed and adopted by government by 31 March 2016.	There were significant delays in the finalisation of terms of reference and in the procurement processes for the appointment of a service provider to conduct the landscaping exercise, which was to serve as an input in the development of the Nanotechnology Innovation Roadmap.	<b>Partially Achieved</b>	<b>Admin delays</b>
14 880 postgraduate students (5 311 BTech and honours, 5 685 master's, and 3 136 PhD students) and 748 postdoctoral fellows awarded bursaries through NRF and DST-managed programmes as reflected in the NRF and DST project reports by 31 March 2016.	13 307 postgraduate students (4 225 BTech and honours, 5 120 master's, and 3 404 PhD students) and 796 postdoctoral fellows awarded bursaries through NRF and DST-managed programmes as reflected in the NRF and DST project reports by 31 March 2016.	The instability at higher education institutions brought about by the "Fees Must Fall" campaign in the last quarter of 2015/16 resulted in the closure of many campuses. The administrative processes for the successful uptake of awards were therefore not completed as compared to the earlier quarters.	<b>Partially Achieved</b>	<b>Target formulation deficiencies</b>

# Partially Achieved Targets

## 2015/16 Targets which were partially achieved

Annual Target	Actual Achievement	Reasons for underachievement	Status	Variance Classification
4 539 researchers awarded research grants through NRF-managed programmes as reflected in the NRF project reports by 31 March 2016.	4 315 researchers were awarded research grants through NRF-managed programmes by 31 March 2016.	It is very difficult for the DST to predict or manage the target closer than a variance of about 5%, as the target depends on the pool of applicants and the quality of the proposals submitted for funding, which cannot be predicted.	<b>Partially Achieved</b>	<b>Target formulation deficiencies</b>
28 MeerKAT antennas installed.	20 antennas installed by 31 March 2016, with 21 pedestals having been erected.	The effect of the strike in the steel industry at the end of 2014 impacted negatively on dish production in early 2015/16. The process of installation was also halted while dish production methods were adapted to ensure the dishes were produced exactly according to adaptation.	<b>Partially Achieved</b>	<b>Process delays</b>

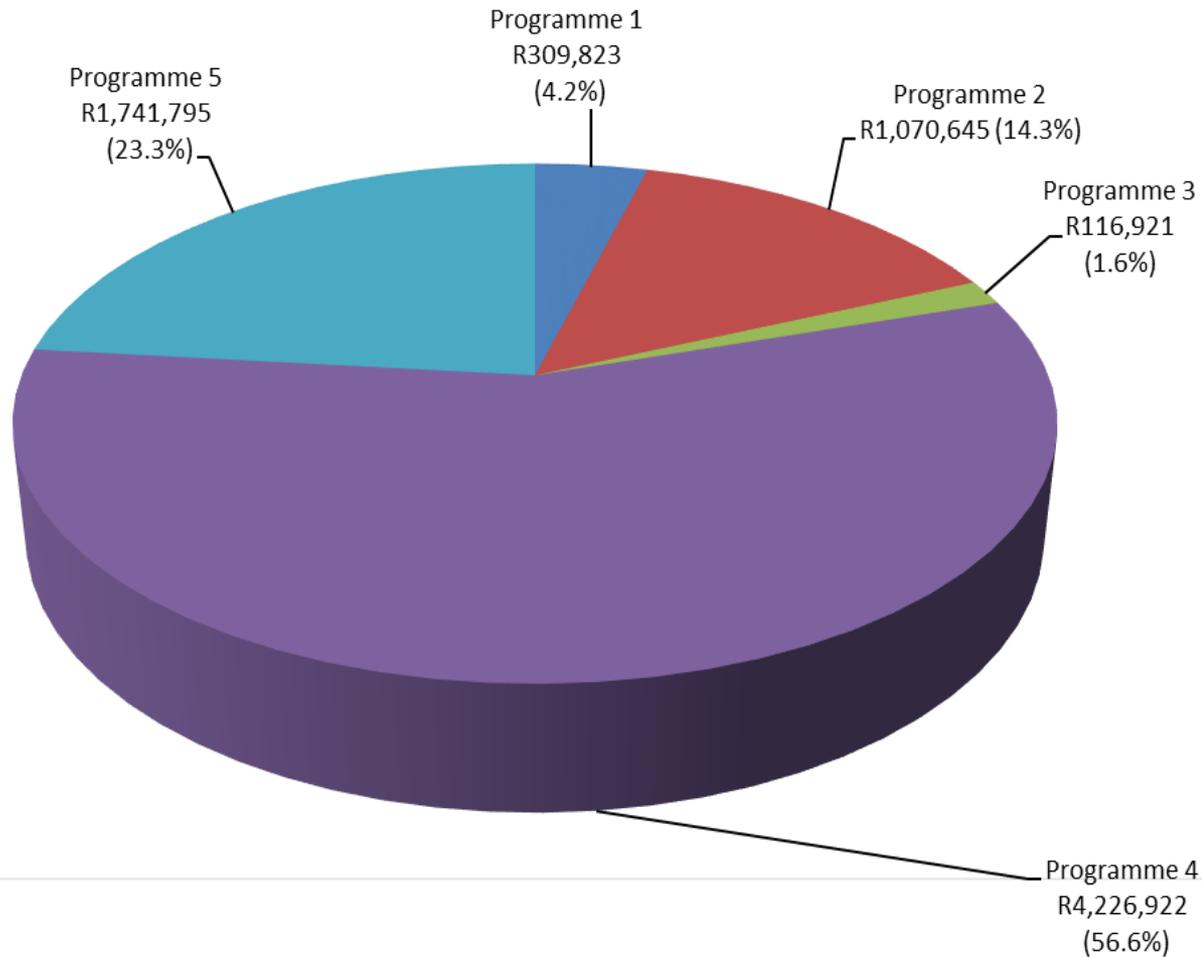


# FINANCIAL PERFORMANCE



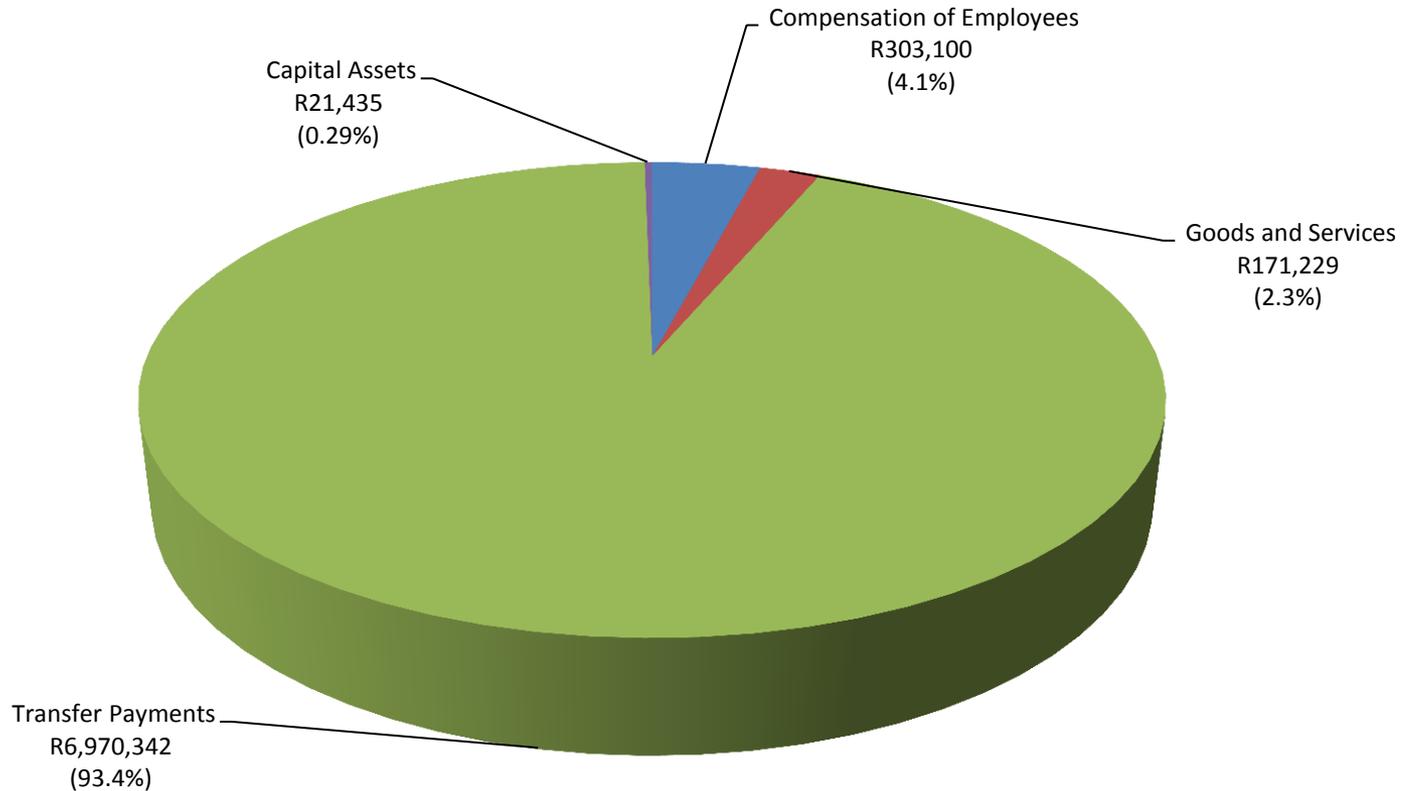
# BUDGET SPLIT – BY PROGRAMME

## BUDGET SPLIT – BY PROGRAMME



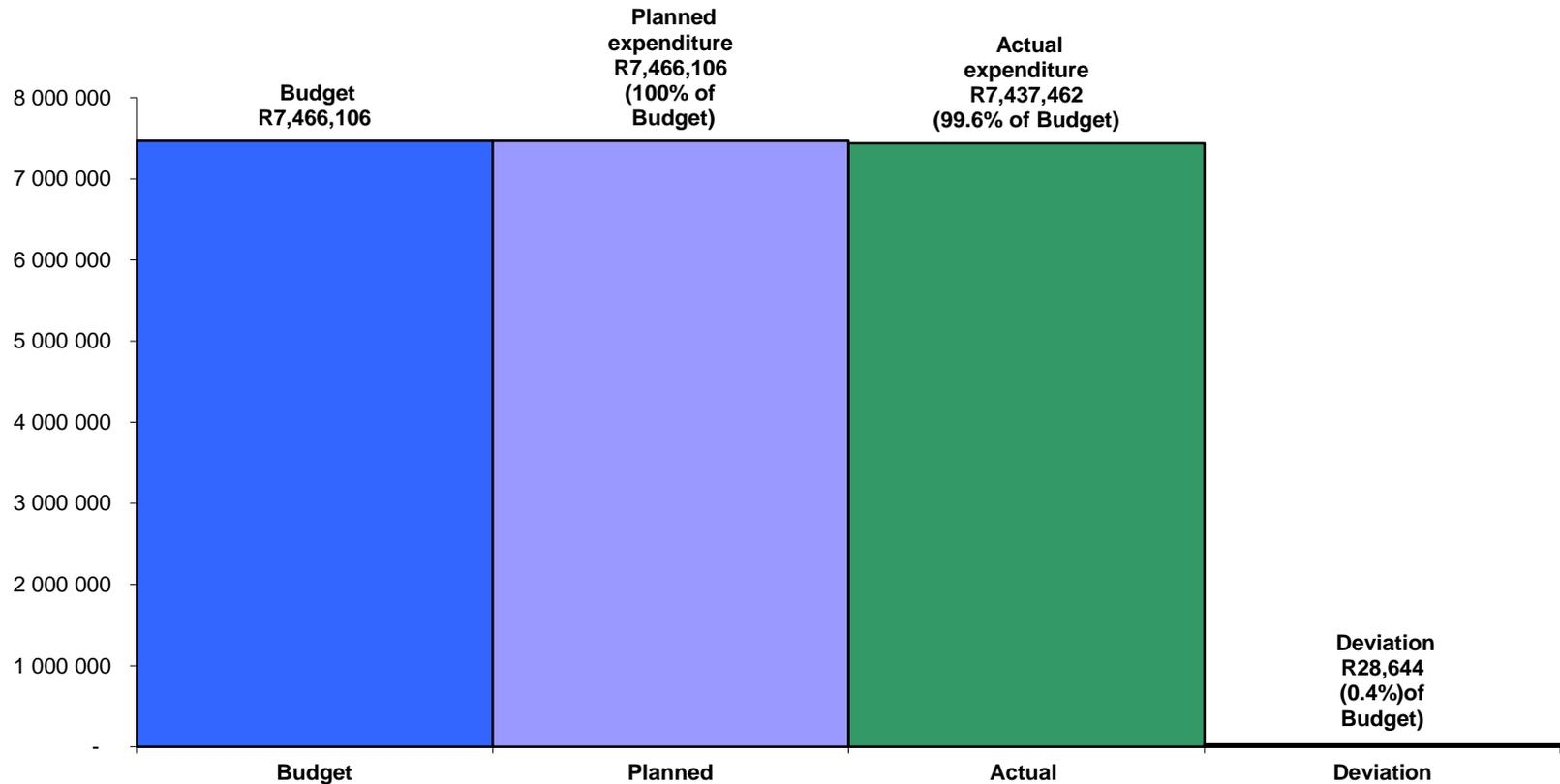
# BUDGET SPLIT BY ECONOMIC CLASSIFICATION

## BUDGET SPLIT – BY ECONOMIC CLASSIFICATION



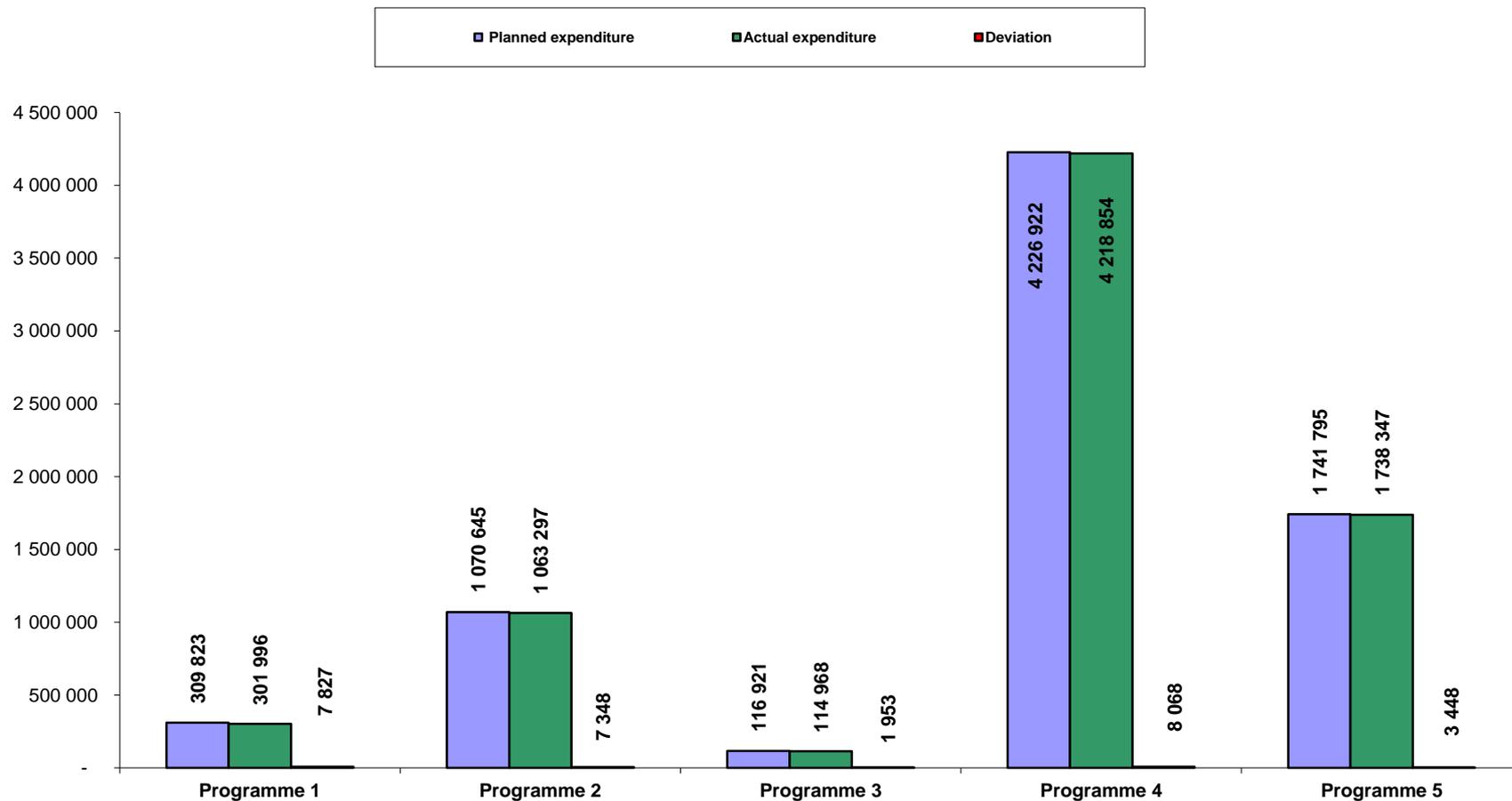
# FINANCIAL PERFORMANCE - SUMMARY

## FINANCIAL PERFORMANCE - SUMMARY

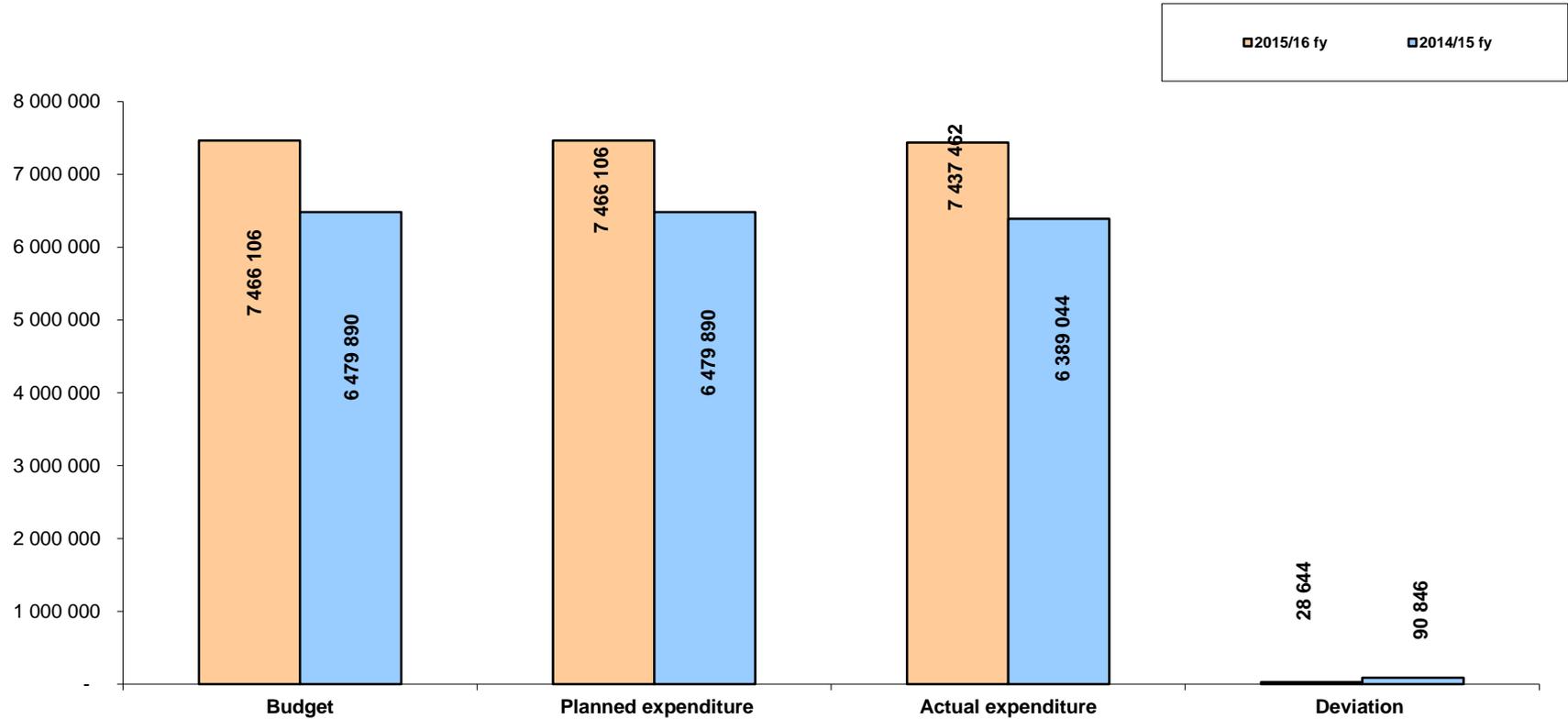


# FINANCIAL PERFORMANCE PER PROGRAMME

## EXPENDITURE BY DST PROGRAMME



# Year-on-year comparison of budget vs expenditure





# Auditor-General's Report



- ❑ The DST received an unqualified audit in both financial and non-financial performance information in the 2015/16 financial year.
  
- ❑ The AG identified the following weaknesses in the following areas: procurement, contract management and expenditure. Management is implementing the following measures:
  - ✓ A task team between Finance and Internal Audit to thoroughly look at the disclosure notes and ensure that all identified weaknesses are addressed. Amongst others awareness sessions on contract management at all levels.
  
  - ✓ The department is implementing a Supply Chain Management turnaround strategy to address all identified shortcomings.
  
  - ✓ Management will continue to implement consequence management on incidents of non-compliance with rules and regulations.



# FINANCIAL PERFORMANCE, COMMITMENTS TO ADDRESS AG FINDINGS AND CONCLUSION



# 2015/16 Auditor-General Findings

## Areas of concerns in Procurement, Contract Management, Expenditure Management and action plans

Areas of concerns	Action plan
<p>▪ <b>Delays in payment of goods and services</b></p> <p>The payment of Goods and services in excess of 30 days and delays in processing invoices for payment resulting non-compliance with PFMA requirements.</p> <p>Reasons led that led to non-payment of suppliers:</p> <ol style="list-style-type: none"> <li>1. Weaknesses in internal control regarding the recording, tracking and processing of invoices: These weaknesses are attributed to capacity constraints within the SCM unit</li> <li>2. Budget cuts, as commitments were already being made thus could not settle the relevant invoices.</li> </ol>	<ol style="list-style-type: none"> <li>1. The Chief Financial Officer (CFO) and the Director: SCM have been appointed and the SCM turnaround strategy is being implemented.</li> <li>2. All the invoices are being recorded and thus intervening on time in areas where there are possible delays. The department is also implementing the Invoice Tracking System which will enhance the current process.</li> <li>3. Due to fiscal constraints and the slow economic growth, the budget cuts will be inevitable in this MTEF cycle, therefore the department has recorded budget cuts as an emerging strategic risk and all commitment are being reviewed periodically to ensure alignment with the budget (eg. procurement plan).</li> </ol>
<p>▪ <b>Deviation above a million not reported to AGSA</b></p> <p>With to supply chain management it was determined that services for advertising space for the department in print, broadcast and online media were procured from SABC through a deviation for an amount above R1 million which was not reported to the AG and NT within the required ten days.</p>	<p>All deviations within the department have to be reported to finance immediately after approval by the Accounting Officer.</p>



# 2015/16 Auditor-General findings

## Areas of concerns on Predetermined Objectives and action plans

Areas of concerns	Action plan
<ul style="list-style-type: none"> <li>▪ <b>Concerns with validity, accuracy and completeness of total number of postgraduate students</b></li> </ul> <p>Validity, accuracy and completeness of Total number of postgraduate students (BTech, honours, master's and PhD students) and postdoctoral fellows awarded bursaries as reflected in the NRF and DST project reports.</p>	<p>Strategy and Planning has held meeting with Programme 4 with a view of addressing issues of HCD indicator roles and responsibilities clarification in the next planning phase. As part of action plan, PPGM&amp;E together with Programme 4 are addressing the matter in the development of the 2017/18 APP together with the advice from EXCO.</p>
<ul style="list-style-type: none"> <li>▪ <b>Inaccurate average amount of bandwidth per SANReN site per annum assurance</b></li> </ul> <p>Validity, accuracy and completeness of Average amount of bandwidth per SANReN site per annum assurance could not be obtained due to incorrect number reported.</p>	<p>A workshop was held with CSIR to rework the calculation of the indicator. The necessary amendments were effected on the technical indicator descriptor (TID) . A revised indicator has been included in the draft Annual Performance Plan for 2017/18.</p>
<ul style="list-style-type: none"> <li>▪ <b>The number of learners who attended science awareness week was incorrectly counted</b></li> </ul> <p>During the audit of total number of postgraduate students and postdoctoral fellows awarded, it was noted that the number of learners reached for science awareness was incorrectly computed. It was also noticed that there was inconsistencies in the recording of registers for learners who attended science awareness.</p>	<p>Ongoing solution being pursued entails increasing human resource capacity for data collection and collation and introducing a second data clearing stage for improved quality assurance. Investigations are also underway to establish an acceptable margin of error since the problem might not be completely eliminated as the head counting is done manually and depends on people's voluntary participation.</p>

# 2015/16 Auditor-General findings

## Areas of concerns on Predetermined Objectives and action plans

Areas of concerns	Action plan
<p>▪ <b>Number of technologies commercialised are not accurate</b></p> <p>Based on the audit work performed on programme two, the products, services and/or processes commercialized were not fully commercialized as indicated in the annual performance report (APR). The contract between University of the Free State (DST funded UFS for the development and research of the HIV modulator) and a manufacturer Afriplex was reported as a commercialization for an HIV immune modulator. However as per the terms of the agreement, the UFS would provide Afriplex with the samples of the plants and to propagate the plant in sufficient volumes to enable both parties to determine the operational, financial and other requirements amongst other things for the project</p>	<p>The Policy, Planning, Governance and Monitoring and Evaluation chief directorate is working with programme 2 to ensure that the classification of different types of technologies in terms of their development and commercialisation phases, is in line with the definitions in the Technical Indicator Descriptor (TID) Matrix. The alignment will be reflected in the 2017/18 APP and TID Matrix.</p>



# 2016/17 PERFORMANCE OUTLOOK



## PERFORMANCE OUTLOOK



## ***Performance Projection***

- ✓ The DST is planning on improving the current DST performance from 84% to 90% through effective budgeting, planning and monitoring and evaluation.
- ✓ Derive the lessons learnt from MPAT excellence so as to enhance overall organisational performance management.
- ✓ The DST is implementing an Audit Improvement Plan as recommended by the Auditor-General in to order to prevent recurrence of areas of concerns which were pointed out by the Auditor-General.



# Conclusion

- ❑ The DST recognises that the NSI must help improve South Africa's global competitiveness by leading the creation and application of new knowledge. If South Africa's economy is to advance along the trajectory set out in the NDP and reduce poverty, it will require a strong, coherent and effective NSI, working in a coordinated manner to achieve national priorities.
- ❑ The DST is forging closer partnerships with other government department's in the implementation of its initiatives in particular those that contribute to government priorities including the 9-Point Plan.
- ❑ The DST will continue to identify niche improvement areas and together with industry, implement new technology building blocks to increase economic competitiveness. Further the department will use knowledge and innovation to support SME's and contribute to improving the quality of life by providing access to technological advances.





**Dankie  
Enkosi  
Ha khensa  
Re a leboga  
Ro livhuwa  
Siyabonga  
Siyathokoza  
Thank you**