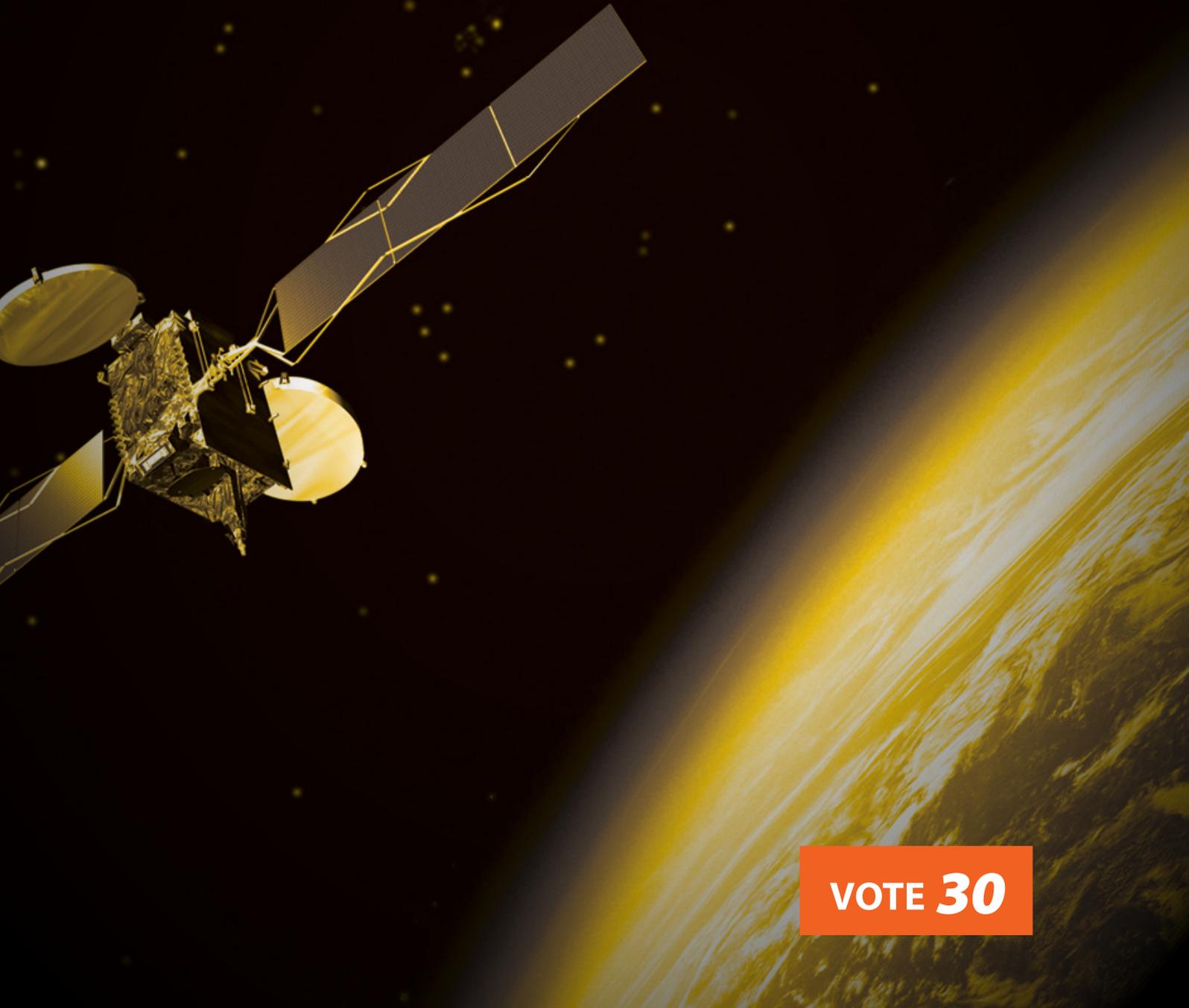


# 2016 BUDGET

ESTIMATES OF NATIONAL EXPENDITURE

SCIENCE AND TECHNOLOGY



VOTE 30



**national treasury**

Department:  
National Treasury  
REPUBLIC OF SOUTH AFRICA



# **Estimates of National Expenditure**

## **2016**

**National Treasury**

**Republic of South Africa**

24 February 2016



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**RP: 15/2016**

The 2016 Estimates of National Expenditure e-publications are compiled with the latest available information from departmental and other sources. Some of this information is unaudited or subject to revision.

The Estimates of National Expenditure e-publications for individual votes are available on [www.treasury.gov.za](http://www.treasury.gov.za).

Compared to the abridged version of the 2016 ENE, the 2016 ENE e-publications contain more comprehensive coverage of goods and services, transfers and subsidies, and programme specific personnel expenditure. Budget information is also provided for the public entities that are not shown in detail in the abridged publication. The abridged version of the ENE contains one additional table at the end of a chapter that shows expenditure on infrastructure, whereas the vote ENE e-publications' additional tables also contain information on conditional grants to provinces and municipalities, public private partnerships and donor funding. Expenditure information at the level of service delivery is also included, where appropriate.

# Foreword

The 2016 Budget is tabled at a time when both global and domestic economic conditions continue to be difficult. Government is unwavering in its commitment to stay the course of sound fiscal management in the face of this challenging environment. The approach of using the expenditure ceiling as a fiscal anchor, which was adopted in 2012, serves us well. To achieve the fiscal adjustment necessary, the expenditure level has been reduced and further revenue enhancement measures are introduced in the 2016 MTEF period.

Over the 2016 MTEF period expenditure is R3.73 trillion and will grow at an average annual rate of 7.5 per cent. Spending growth is slower than prior to 2008, but it still remains above the projected inflation rate. During consultations in the budget preparation process trade-offs in financing different policy objectives were carefully examined and culminated in recommendations on how institutional policies, practices and organisational arrangements would be adjusted in line with the national development plan and the 2014-2019 medium term strategic framework on the one hand, and in a manner consistent with fiscal consolidation, on the other hand.

For the 2016 MTEF period, budget amendments were effected through the reprioritisation of existing funding within the lowered expenditure ceiling, with movements away from areas of lower priority to key priorities. Labour-intensive departments received substantial funding for compensation of employees, owing to spending pressures related to the 2015 public sector wage agreement. In the case of departments which historically underspend on their wage bill, the budgets for compensation of employees have been reduced accordingly. A ceiling is put on compensation of employees budgets of national departments through the 2016 Appropriation Act. Resources cannot be diverted from frontline services for the wage bill.

Further reductions have been effected on goods and services budgets. In some cases departments have been asked to provide evidence of service delivery performance before funding can be appropriated to programmes under their specific votes. These provisional allocations, pending programme viability and verifiable record of good performance, total R17.8 billion in 2018/19. Given these measures, government service delivery will not be negatively affected even as spending growth is curtailed.

The financial information and key performance indicators in the institutional budget plans set out in the Estimates of National Expenditure, provide Parliament and the public with the information to hold government accountable against its 14 outcomes, set out in its medium term strategic framework.

The budget process is ably directed by the Ministers' Committee on the Budget, supported by a devoted Medium Term Expenditure Committee of Directors-General in central government departments. As the National Treasury team we are eternally grateful for their guidance and hard work. We are also indebted to the Budget Council, the Budget Forum and our national and provincial counterparts for making what is otherwise an impossible task, seem easier. The presentation of this budget is the product of all their collective efforts.



**Lungisa Fuzile**  
**Director-General: National Treasury**



# Introduction

## **The Estimates of National Expenditure publications**

The Estimates of National Expenditure (ENE) publications provide comprehensive information on how institutions have spent their budgets in previous years, and how institutions plan to spend the resources allocated to them over the upcoming three-year medium term expenditure framework (MTEF) period. Key performance indicators are included for each national government vote and entity reporting to the same executive authority, showing what institutions aim to achieve by spending their budget allocations in a particular manner. This information is based on government's 2014-2019 medium term strategic framework (MTSF), particularly as it is expressed in institutional strategic and annual performance plans, and in annual reports. Coupled with financial information, performance information provides Parliament and the public with the necessary facts to hold government accountable against the 14 outcomes set out in the 2014-2019 medium term strategic framework.

Each chapter in the abridged 2016 ENE publication relates to a specific budget vote. A separate, more detailed, e-publication is also available for each vote. These e-publications provide more detailed information than the relevant chapter in the abridged ENE, including on goods and services, transfers and subsidies, as well as on programme specific personnel expenditure. Budget information is also provided for the public entities that are not shown in detail in the abridged publication. Each chapter in the abridged ENE publication has a summary table showing expenditure on infrastructure, whereas the vote ENE e-publications' additional tables also contain summaries of expenditure on conditional grants to provinces and municipalities, departmental public private partnerships and information on donor funding. In some e-publications more detailed information at the level of site service delivery is also included.

In addition, a separate 2016 ENE Overview e-publication is also available summarising the ENE information across votes. The 2016 ENE Overview contains a narrative explanation and summary tables; a description of the budgeting approach; and it also has a write-up on how to interpret the information that is contained in each section of the publications.



# **Science and Technology**

**National Treasury  
Republic of South Africa**



# Contents

<b>Budget summary .....</b>	<b>1</b>
<b>Vote purpose.....</b>	<b>1</b>
<b>Mandate .....</b>	<b>1</b>
<b>Selected performance indicators .....</b>	<b>1</b>
<b>Expenditure analysis.....</b>	<b>2</b>
<b>Expenditure trends .....</b>	<b>4</b>
<b>Expenditure estimates .....</b>	<b>5</b>
<b>Personnel information .....</b>	<b>6</b>
<b>Departmental receipts .....</b>	<b>7</b>
<b>Programme 1: Administration .....</b>	<b>7</b>
<b>Programme 2: Technology Innovation .....</b>	<b>10</b>
<b>Programme 3: International Cooperation and Resources .....</b>	<b>15</b>
<b>Programme 4: Research, Development and Support.....</b>	<b>17</b>
<b>Programme 5: Socio-Economic Innovation Partnerships .....</b>	<b>21</b>
<b>Entities.....</b>	<b>25</b>
<b>Additional tables.....</b>	<b>46</b>

# Vote 30

## Science and Technology

### Budget summary

R million	2016/17				2017/18	2018/19
	Total	Current payments	Transfers and subsidies	Payments for capital assets	Total	Total
<b>MTEF allocation</b>						
Administration	304.0	288.8	12.9	2.3	316.4	330.9
Technology Innovation	1 007.1	64.4	942.7	–	1 084.5	1 131.5
International Cooperation and Resources	124.5	63.1	61.4	–	130.0	136.5
Research, Development and Support	4 200.6	46.7	4 153.9	–	4 419.9	4 561.4
Socio-Economic Innovation Partnerships	1 792.9	46.7	1 746.2	–	1 611.8	1 596.1
<b>Total expenditure estimates</b>	<b>7 429.0</b>	<b>509.7</b>	<b>6 917.0</b>	<b>2.3</b>	<b>7 562.5</b>	<b>7 756.4</b>

Executive authority: Minister of Science and Technology  
 Accounting officer: Director General of Science and Technology  
 Website address: [www.dst.gov.za](http://www.dst.gov.za)

The Estimates of National Expenditure e-publications for individual votes are available on [www.treasury.gov.za](http://www.treasury.gov.za). These publications provide more comprehensive coverage of vote specific information, particularly about goods and services, transfers and subsidies, personnel, entities, donor funding, public private partnerships, conditional grants to provinces and municipalities and expenditure information at the level of service delivery, where appropriate.

### Vote purpose

Realise the full potential of science and technology in social and economic development by developing human resources, research and innovation.

### Mandate

The Department of Science and Technology executes its mandate through the implementation of the 1996 White Paper on Science and Technology, the national research and development strategy and the 10-year innovation plan. The plan aims to make science and technology a driving force in enhancing productivity, economic growth and socioeconomic development.

### Selected performance indicators

Table 30.1 Performance indicators by programme and related outcome

Indicator	Programme	Outcome	Past			Current	Projections		
			2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Number of instruments (space science, energy, bio innovation, nanotechnology, robotics, photonics, indigenous knowledge systems, intellectual property management, technology transfer and technology commercialisation) funded in support of knowledge utilisation per year	Technology Innovation	Outcome 4: Decent employment through inclusive economic growth	2	2	3	7	25	30	29
Number of knowledge application products funded in designated areas (prototypes, technology demonstrators) per year	Technology Innovation		37	4 <sup>2</sup>	6	8	13	15	20
Amount of international funds per year directly invested in research and science, technology and innovation human capital development programmes, as well as research infrastructure investments in South Africa accounted for as part of cooperation initiatives implemented by the Department of Science and Technology	International Cooperation and Resources		– <sup>1</sup>	– <sup>1</sup>	– <sup>1</sup>	R380m	R400m	R420m	R440m

**Table 30.1 Performance indicators by programme and related outcome**

Indicator	Programme	Outcome	Past			Current	Projections		
			2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Number of international partner organisations (legal entities) per year collaborating with South African partners within the framework of formalised collaborative research and innovation or science, technology and innovation human capital development projects as part of cooperation initiatives facilitated by the Department of Science and Technology	International Cooperation and Resources	Outcome 4: Decent employment through inclusive economic growth	-1	-1	-1	400	450	500	550
Total number of PhD students awarded bursaries as reflected in National Research Foundation project reports	Research, Development and Support	Outcome 5: A skilled and capable workforce to support an inclusive growth path	2 031	2 265	2 845	3 136	3 136	3 136	3 136
Total number of pipeline postgraduate students (BTech and honours, and masters), awarded bursaries through programmes managed by the National Research Foundation and the Department of Science and Technology, as reflected in the foundation's and the department's project reports	Research, Development and Support		6 348	6 853	7 711	10 996	10 996	10 996	10 996
Total number of researchers awarded research grants through programmes managed by the National Research Foundation, as reflected in the foundation's project reports	Research, Development and Support		3 076	3 569	4 064	4 539	4 539	4 539	4 539
Number of knowledge and innovation products (patents, prototypes, technology demonstrators or technology transfer packages) added to the intellectual property portfolio through fully funded or co-funded research initiatives per year	Socio-Economic Innovation Partnerships	Outcome 4: Decent employment through inclusive economic growth	16	16	29	25	35	15	18

1. No historical data available as these are new indicators.

2. The decrease was due to the Technology Innovation Agency reviewing some of the initiatives that were funded by the Biotechnology Regional Innovation Centre. The review resulted in the discontinuation of funding for some projects.

## Expenditure analysis

The national development plan acknowledges that science, technology and innovation are crucial for improving South Africa's socioeconomic development. Over the medium term, the Department of Science and Technology will focus on: raising gross expenditure on research and development in relation to GDP; increasing high quality outputs produced by the national research system; promoting innovation that will contribute towards key government policy objectives; ensuring greater economic and social returns from intellectual property generated from innovation activities using public funds; creating highly skilled researchers who will contribute to innovation; and positioning bio-innovation as a mechanism for achieving government's industrial and social development goals.

These activities are aligned to the national development plan, and outcome 5 (a skilled and capable workforce to support an inclusive growth path) and outcome 6 (an efficient, competitive and responsive economic infrastructure network) of government's 2014-19 medium term strategic framework.

Cabinet has approved reductions totalling R414 million over the medium term in the *Technology Innovation* programme, the *Research, Development and Support* programme and the *Socio-Economic Innovation Partnerships* programme. These reductions are part of Cabinet's decision to lower the national aggregate expenditure ceiling. The department's compensation of employees budget has been similarly reduced by R20.9 million for 2017/18 and R32 million for 2018/19. After consultations with the Department of Public Service and Administration and National Treasury, the department will develop and implement a plan to manage its personnel expenditure within its reduced budget, including prioritising filling posts in its funded establishment of 470. The department's goods and services budget has been reduced by R4.9 million for 2016/17, R4.8 million for 2017/18 and R6.3 million for 2018/19, and the department will reduce spending on consultants and travel and subsistence.

## Research and development

Government has set the target of raising gross expenditure on research and development to 1.5 per cent of GDP by 2019 from the current level of 0.76 per cent. Modelling exercises undertaken by the department show that to reach that target additional investment of R115 billion is required. The investment should come from both the public and private sectors, and the department's contribution over the medium term will be R13.2 billion over the medium term. This is budgeted for in the *Research, Development and Support* programme, and constitutes 58 per cent of the department's total expenditure.

R2.1 billion of this, or 16 per cent, is transferred to the National Research Foundation to ensure the completion of the Square Kilometre Array demonstrator project. The Square Kilometre Array will be the world's largest and most sensitive radio telescope. Key economic benefits from this investment will be the leveraging of foreign direct investment from the Square Kilometre Array Organisation for construction costs, estimated at €650 million for phase 1 (2018 to 2023). The National Research Foundation is currently building a 64-dish demonstrator telescope, called the MeerKAT. 6 dishes have been installed and will be integrated into phase 1 of the Square Kilometre Array. Contractual delays and delays in the testing phase of the Square Kilometre Array demonstrator project have led to reductions of R89 million over the medium term. No impact on delivery is expected, as the reductions are minimal at 4.3 per cent of the total budget for the project over the period.

The department's spending on research and development is intended in general to increase high quality outputs produced by the national research system. This will allow South Africa to compete for increasingly mobile talent and coveted international research and development funding. It will also improve the country's position in global innovation value chains, which is a way to address both low growth and pressing social and environmental problems.

## Innovation

The national development plan acknowledges that economic growth is a longer term project and that the key role that innovation plays should increase incrementally. Over the medium term, the department will focus on South African innovation for energy security, poverty alleviation and health care, funded through the *Technology Innovation* programme, which is allocated R3.2 billion, 14 per cent of the department's total budget over the medium term period.

In line with the Intellectual Property Rights from Publicly Financed Research and Development Act (2008), the department will ensure greater economic and social returns from intellectual property generated from innovation activities using public funds. Through the *National Intellectual Property Management* subprogramme, the department will transfer R123.6 million over the medium term, including increased funding of R75 million over the period, to the National Intellectual Property Management Office, which ensures that publicly funded intellectual property is used to create products, processes and services that contribute to quality of life in South Africa. Since its establishment in 2012 as an implementing agency located in the department, the National Intellectual Property Management Office has contributed to the creation of 66 positions for highly skilled researchers by providing funds to higher education institutions and the science councils. Approximately 30 more such positions are projected to be created in this way over the medium term. Average annual growth in the programme is projected to be 25.8 per cent over the medium term.

The department aims to position bio-innovation as a mechanism for achieving government's industrial and social development goals, guided by the department's 2013 bioeconomy strategy. R436 million, budgeted for in the *Bio-economy* subprogramme of the *Technology Innovation* programme, is allocated over the medium term for bio-innovation in the health, agricultural and industrial biotechnology sectors. In addition, R45 million over the medium term is transferred to the South African National AIDS Council for HIV initiatives.

## Expenditure trends

**Table 30.2 Vote expenditure trends by programme and economic classification**

<b>Programmes</b>														
1. Administration														
2. Technology Innovation														
3. International Cooperation and Resources														
4. Research, Development and Support														
5. Socio-Economic Innovation Partnerships														
<b>Programme</b>	<b>Annual budget</b>	<b>Adjusted appropriation</b>	<b>Audited outcome</b>	<b>Annual budget</b>	<b>Adjusted appropriation</b>	<b>Audited outcome</b>	<b>Annual budget</b>	<b>Adjusted appropriation</b>	<b>Audited outcome</b>	<b>Annual budget</b>	<b>Adjusted appropriation</b>	<b>Revised estimate</b>	<b>Outcome/Annual budget Average (%)</b>	<b>Outcome/Adjusted appropriation Average (%)</b>
R million	<b>2012/13</b>			<b>2013/14</b>			<b>2014/15</b>			<b>2015/16</b>			<b>2012/13 - 2015/16</b>	
Programme 1	202.7	229.4	225.3	268.2	245.7	257.5	291.0	291.9	278.4	299.8	300.5	297.1	99.7%	99.1%
Programme 2	1 156.4	1 142.8	1 156.8	1 627.1	1 653.6	1 669.7	991.6	1 008.9	974.0	1 008.8	1 008.5	1 008.0	100.5%	99.9%
Programme 3	141.2	139.3	136.5	148.4	145.4	139.8	119.7	119.3	107.6	122.0	121.4	120.9	95.0%	96.1%
Programme 4	2 035.9	2 064.7	2 039.0	2 476.8	2 475.8	2 462.7	3 503.8	3 496.9	3 489.8	4 247.1	4 238.8	4 238.5	99.7%	99.6%
Programme 5	1 419.8	1 423.4	1 415.7	1 677.6	1 677.6	1 639.8	1 564.1	1 562.8	1 539.2	1 804.5	1 796.9	1 796.7	98.8%	98.9%
<b>Total</b>	<b>4 955.9</b>	<b>4 999.6</b>	<b>4 973.3</b>	<b>6 198.2</b>	<b>6 198.2</b>	<b>6 169.5</b>	<b>6 470.2</b>	<b>6 479.9</b>	<b>6 389.0</b>	<b>7 482.1</b>	<b>7 466.1</b>	<b>7 461.1</b>	<b>99.5%</b>	<b>99.4%</b>
Change to 2015 Budget estimate											(16.0)			
<b>Economic classification</b>														
<b>Current payments</b>	<b>393.5</b>	<b>409.3</b>	<b>386.8</b>	<b>454.1</b>	<b>414.1</b>	<b>402.6</b>	<b>486.7</b>	<b>494.5</b>	<b>445.9</b>	<b>496.4</b>	<b>495.0</b>	<b>490.0</b>	<b>94.2%</b>	<b>95.2%</b>
Compensation of employees	242.3	247.6	221.8	260.7	251.4	241.6	283.8	284.9	276.0	291.3	295.3	295.3	96.0%	95.9%
Goods and services	151.2	161.7	164.6	193.3	162.7	161.0	202.9	209.6	169.8	205.1	199.7	194.7	91.7%	94.1%
of which:														
Administrative fees	5.0	10.5	6.6	5.3	3.8	2.8	5.7	6.2	3.8	6.1	6.1	6.1	87.6%	72.6%
Advertising	3.2	4.2	15.0	13.6	3.9	3.9	15.0	16.5	23.2	17.2	17.2	17.2	121.0%	141.9%
Minor assets	0.6	0.7	0.2	0.9	0.9	0.9	0.5	0.6	0.6	0.6	0.6	0.6	86.1%	84.7%
Audit costs: External	1.9	5.4	3.3	5.8	5.8	5.8	6.0	6.0	4.8	6.4	6.4	6.4	100.9%	85.9%
Bursaries: Employees	2.0	2.0	1.2	2.4	2.4	2.4	2.4	2.4	1.3	2.5	2.5	2.5	79.7%	79.9%
Catering: Departmental activities	2.3	2.3	3.2	2.6	2.7	2.7	2.6	3.0	3.2	2.8	2.9	2.9	117.1%	110.3%
Communication	8.7	8.3	4.5	9.2	9.2	9.2	9.8	9.8	5.1	9.7	9.7	9.7	75.9%	77.0%
Computer services	5.4	6.9	7.8	7.5	7.4	7.4	7.8	7.7	12.7	8.1	8.1	8.1	125.6%	119.6%
Consultants: Business and advisory services	17.6	14.8	3.8	16.0	16.1	16.1	18.0	22.6	5.6	14.5	15.0	13.9	59.7%	57.5%
Legal services	-	-	-	1.2	1.2	1.2	1.3	1.4	2.8	0.9	0.9	0.9	144.2%	140.1%
Science and technological services	1.1	1.1	0.2	-	-	-	-	-	-	-	-	-	21.8%	21.8%
Contractors	7.2	7.1	5.0	11.6	9.1	8.4	11.6	11.4	6.8	11.0	11.0	11.0	75.3%	80.6%
Agency and support/outsourced services	18.4	14.9	22.0	16.6	11.7	11.7	17.7	14.4	8.1	16.9	14.5	14.5	80.8%	101.3%
Entertainment	6.8	4.4	0.9	6.6	3.1	3.1	6.1	3.0	0.7	5.9	5.9	5.9	41.8%	65.0%
Fleet services (including government motor transport)	-	-	-	-	-	-	-	0.0	1.0	-	-	-	-	8 890.9%
Inventory: Clothing material and accessories	-	-	-	-	-	-	-	-	1.0	-	-	-	-	-
Inventory: Fuel, oil and gas	0.1	0.1	-	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	53.7%	53.7%
Inventory: Materials and supplies	-	-	0.4	-	-	-	-	-	0.3	-	-	-	-	-
Inventory: Other supplies	-	2.9	2.8	1.6	1.6	1.6	1.1	1.0	-	1.2	1.2	1.2	145.6%	83.1%
Consumable supplies	1.0	0.0	-	-	-	-	-	0.0	1.9	-	-	-	201.2%	6 258.1%

Table 30.2 Vote expenditure trends by programme and economic classification

Economic classification	2012/13			2013/14			2014/15			2015/16			Outcome/Annual budget Average (%)	Outcome/Adjusted appropriation Average (%)
	Annual budget	Adjusted appropriation	Audited outcome	Annual budget	Adjusted appropriation	Audited outcome	Annual budget	Adjusted appropriation	Audited outcome	Annual budget	Adjusted appropriation	Revised estimate		
R million														
Consumables: Stationery, printing and office supplies	5.3	5.1	8.0	7.4	7.4	7.4	3.7	3.8	3.2	5.0	5.0	5.0	110.9%	110.9%
Operating leases	3.7	4.7	4.4	4.4	4.4	4.4	3.5	3.5	5.5	3.7	3.7	3.7	117.0%	109.9%
Rental and hiring	5.0	5.0	2.6	5.9	5.9	5.9	-	0.3	1.2	-	-	-	89.5%	86.9%
Property payments	-	0.0	0.1	-	-	-	6.2	6.2	8.4	7.2	7.2	7.2	116.8%	116.9%
Transport provided: Departmental activity	40.9	40.4	39.5	45.0	36.1	36.1	-	-	-	-	-	-	88.0%	98.9%
Travel and subsistence	4.7	4.3	6.1	5.2	5.2	5.2	48.3	47.4	41.6	47.9	42.0	38.8	86.4%	92.6%
Training and development	5.0	7.0	7.1	6.5	6.4	6.4	5.0	5.0	3.4	5.3	7.5	7.5	111.7%	94.2%
Operating payments	5.4	9.7	18.0	17.8	18.1	18.1	7.0	6.8	11.4	7.3	7.3	7.3	146.5%	130.8%
Venues and facilities	-	-	1.9	-	-	-	23.5	30.4	12.1	25.0	25.0	24.4	79.2%	69.4%
Interest and rent on land	-	-	0.4	-	-	-	-	-	-	-	-	-	-	-
<b>Transfers and subsidies</b>	<b>4 559.0</b>	<b>4 587.7</b>	<b>4 580.0</b>	<b>5 741.9</b>	<b>5 754.4</b>	<b>5 703.9</b>	<b>5 981.2</b>	<b>5 983.1</b>	<b>5 936.9</b>	<b>6 983.4</b>	<b>6 968.8</b>	<b>6 968.8</b>	<b>99.7%</b>	<b>99.6%</b>
Departmental agencies and accounts	2 823.8	2 811.0	3 042.6	4 174.9	4 179.4	3 762.9	4 409.3	4 393.7	4 011.0	5 466.0	5 457.1	5 433.9	96.3%	96.5%
Higher education institutions	33.6	33.6	124.2	-	-	156.2	21.4	38.9	228.0	114.6	114.6	114.6	367.4%	333.0%
Foreign governments and international organisations	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-
Public corporations and private enterprises	972.6	1 015.7	1 329.0	1 034.2	1 034.2	1 698.0	1 140.8	1 145.5	1 573.1	1 253.3	1 249.8	1 249.8	132.9%	131.6%
Non-profit institutions	728.9	727.3	83.6	532.8	540.8	84.7	409.7	405.0	120.3	149.6	147.3	170.5	25.2%	25.2%
Households	-	-	0.6	-	-	1.7	-	-	4.4	-	-	-	-	-
<b>Payments for capital assets</b>	<b>3.4</b>	<b>2.6</b>	<b>6.5</b>	<b>2.2</b>	<b>29.7</b>	<b>63.0</b>	<b>2.3</b>	<b>2.3</b>	<b>6.2</b>	<b>2.3</b>	<b>2.3</b>	<b>2.3</b>	<b>764.1%</b>	<b>211.7%</b>
Machinery and equipment	3.4	2.6	6.5	2.2	2.2	8.2	2.3	2.3	6.2	2.3	2.3	2.3	227.0%	247.4%
Software and other intangible assets	-	-	-	-	27.5	54.9	-	-	-	-	-	-	-	199.5%
<b>Payments for financial assets</b>	<b>-</b>	<b>-</b>	<b>0.0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>0.1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Total</b>	<b>4 955.9</b>	<b>4 999.6</b>	<b>4 973.3</b>	<b>6 198.2</b>	<b>6 198.2</b>	<b>6 169.5</b>	<b>6 470.2</b>	<b>6 479.9</b>	<b>6 389.0</b>	<b>7 482.1</b>	<b>7 466.1</b>	<b>7 461.1</b>	<b>99.5%</b>	<b>99.4%</b>

## Expenditure estimates

Table 30.3 Vote expenditure estimates by programme and economic classification

Programmes									
1. Administration									
2. Technology Innovation									
3. International Cooperation and Resources									
4. Research, Development and Support									
5. Socio-Economic Innovation Partnerships									
Programme	Revised estimate	Average growth rate (%)	Expenditure/ Total: Average (%)	Medium-term expenditure estimate			Average growth rate (%)	Expenditure/ Total: Average (%)	
R million	2015/16	2012/13 - 2015/16		2016/17	2017/18	2018/19	2015/16 - 2018/19		
Programme 1	297.1	9.0%	4.2%	304.0	316.4	330.9	3.7%	4.1%	
Programme 2	1 008.0	-4.1%	19.2%	1 007.1	1 084.5	1 131.5	3.9%	14.0%	
Programme 3	120.9	-4.6%	2.0%	124.5	130.0	136.5	4.1%	1.7%	
Programme 4	4 238.5	27.1%	48.9%	4 200.6	4 419.9	4 561.4	2.5%	57.7%	
Programme 5	1 796.7	8.1%	25.6%	1 792.9	1 611.8	1 596.1	-3.9%	22.5%	
<b>Total</b>	<b>7 461.1</b>	<b>14.3%</b>	<b>100.0%</b>	<b>7 429.0</b>	<b>7 562.5</b>	<b>7 756.4</b>	<b>1.3%</b>	<b>100.0%</b>	
Change to 2015 Budget estimate				(133.2)	(46.1)	(65.9)			

**Table 30.3 Vote expenditure estimates by programme and economic classification**

Economic classification	Revised estimate	Average growth rate (%)	Expenditure/ Total: Average (%)	Medium-term expenditure estimate			Average growth rate (%)	Expenditure/ Total: Average (%)
				2016/17	2017/18	2018/19		
R million	2015/16	2012/13 - 2015/16		2016/17	2017/18	2018/19	2015/16 - 2018/19	
<b>Current payments</b>	<b>490.0</b>	<b>6.2%</b>	<b>6.9%</b>	<b>509.7</b>	<b>529.3</b>	<b>552.6</b>	<b>4.1%</b>	<b>6.9%</b>
Compensation of employees	295.3	6.0%	4.1%	309.2	319.0	331.4	3.9%	4.2%
Goods and services	194.7	6.4%	2.8%	200.5	210.3	221.2	4.3%	2.7%
of which:								
Administrative fees	6.1	-16.8%	0.1%	5.9	6.3	6.6	2.8%	0.1%
Advertising	17.2	60.3%	0.2%	17.7	18.7	19.8	4.9%	0.2%
Minor assets	0.6	-4.7%	0.0%	0.6	0.6	0.6	3.8%	0.0%
Audit costs: External	6.4	5.6%	0.1%	6.4	6.7	7.1	3.7%	0.1%
Bursaries: Employees	2.5	7.2%	0.0%	2.5	2.6	2.8	3.7%	0.0%
Catering: Departmental activities	2.9	8.5%	0.0%	2.8	3.1	3.2	3.4%	0.0%
Communication	9.7	5.3%	0.1%	9.6	10.3	10.9	4.2%	0.1%
Computer services	8.1	5.3%	0.1%	8.2	8.6	9.1	3.7%	0.1%
Consultants: Business and advisory services	13.9	-2.1%	0.2%	13.2	13.7	14.4	1.4%	0.2%
Legal services	0.9	-	0.0%	0.9	1.0	1.1	3.9%	0.0%
Contractors	11.0	15.4%	0.1%	8.6	9.1	9.1	-6.2%	0.1%
Agency and support/outourced services	14.5	-0.9%	0.2%	16.2	16.9	17.8	7.0%	0.2%
Entertainment	5.9	10.7%	0.0%	5.1	5.3	5.6	-1.7%	0.1%
Inventory: Fuel, oil and gas	0.1	6.5%	0.0%	0.1	0.1	0.1	4.0%	0.0%
Inventory: Other supplies	1.2	-26.3%	0.0%	1.2	1.3	1.3	4.7%	0.0%
Consumables: Stationery, printing and office supplies	5.0	-0.9%	0.1%	5.0	5.3	5.6	3.7%	0.1%
Operating leases	3.7	-7.4%	0.1%	3.7	3.9	4.2	3.7%	0.1%
Property payments	7.2	1 027.6%	0.1%	7.0	7.3	7.7	2.5%	0.1%
Travel and subsistence	38.8	107.5%	0.4%	47.4	49.1	51.5	9.9%	0.6%
Training and development	7.5	2.6%	0.1%	5.3	5.6	5.9	-7.8%	0.1%
Operating payments	7.3	-9.0%	0.2%	7.3	7.7	8.1	3.7%	0.1%
Venues and facilities	24.4	-	0.2%	25.7	27.1	28.7	5.5%	0.4%
<b>Transfers and subsidies</b>	<b>6 968.8</b>	<b>15.0%</b>	<b>92.8%</b>	<b>6 917.0</b>	<b>7 030.8</b>	<b>7 201.2</b>	<b>1.1%</b>	<b>93.1%</b>
Departmental agencies and accounts	5 433.9	24.6%	65.0%	5 344.7	5 341.1	5 397.1	-0.2%	71.2%
Higher education institutions	114.6	50.5%	2.5%	115.2	141.1	150.2	9.4%	1.7%
Public corporations and private enterprises	1 249.8	7.2%	23.4%	1 307.4	1 376.3	1 457.5	5.3%	17.8%
Non-profit institutions	170.5	-38.3%	1.8%	149.8	172.3	196.4	4.8%	2.3%
<b>Payments for capital assets</b>	<b>2.3</b>	<b>-3.6%</b>	<b>0.3%</b>	<b>2.3</b>	<b>2.4</b>	<b>2.6</b>	<b>3.5%</b>	<b>0.0%</b>
Machinery and equipment	2.3	-3.6%	0.1%	2.3	2.4	2.6	3.5%	0.0%
<b>Total</b>	<b>7 461.1</b>	<b>14.3%</b>	<b>100.0%</b>	<b>7 429.0</b>	<b>7 562.5</b>	<b>7 756.4</b>	<b>1.3%</b>	<b>100.0%</b>

## Personnel information

**Table 30.4 Vote personnel numbers and cost by salary level and programme<sup>1</sup> prior to Cabinet approved reduction, effective from 2017/18<sup>2</sup>; budget reductions and aggregate baseline total**

Programmes																			
1. Administration																			
2. Technology Innovation																			
3. International Cooperation and Resources																			
4. Research, Development and Support																			
5. Socio-Economic Innovation Partnerships																			
Science and Technology	Number of posts estimated for 31 March 2016	Number of posts additional to the establishment	Number and cost <sup>3</sup> of personnel posts filled / planned for on funded establishment											Number					
			Actual			Revised estimate			Medium-term expenditure estimate					Average growth rate (%)	Salary level/Total: Average (%)				
Number	Cost	Unit Cost	Number	Cost	Unit Cost	2016/17		2017/18		2018/19		2015/16 - 2018/19							
Salary level	481	-	481	276.0	0.6	461	295.3	0.6	470	309.2	0.7	470	339.9	0.7	470	363.4	0.8	0.6%	100.0%
1 - 6	66	-	66	11.9	0.2	63	11.9	0.2	65	12.5	0.2	65	13.7	0.2	65	14.7	0.2	1.0%	13.8%
7 - 10	139	-	139	53.7	0.4	138	58.0	0.4	142	60.5	0.4	142	66.8	0.5	142	71.4	0.5	1.0%	30.1%
11 - 12	154	-	154	89.2	0.6	147	97.5	0.7	149	107.5	0.7	149	118.0	0.8	149	126.1	0.8	0.5%	31.7%
13 - 16	122	-	122	121.2	1.0	113	127.9	1.1	114	128.6	1.1	114	141.4	1.2	114	151.2	1.3	0.3%	24.3%

**Table 30.4 Vote personnel numbers and cost by salary level and programme<sup>1</sup> prior to Cabinet approved reduction, effective from 2017/18<sup>2</sup>; budget reductions and aggregate baseline total**

Programme	Number of posts estimated for 31 March 2016		Number and cost <sup>3</sup> of personnel posts filled / planned for on funded establishment									Number							
	Number of funded posts	Number of posts additional to the establishment	Actual 2014/15			Revised estimate 2015/16			Medium-term expenditure estimate						Average growth rate (%)	Salary level/Total: Average (%)			
			2016/17		2017/18		2018/19		2015/16 - 2018/19										
481	–	481	276.0	0.6	461	295.3	0.6	470	309.2	0.7	470	339.9	0.7	470	363.4	0.8	0.6%	100.0%	
Programme 1	255	–	255	140.1	0.5	255	143.9	0.6	264	149.8	0.6	264	164.5	0.6	264	175.9	0.7	1.2%	56.0%
Programme 2	56	–	56	35.6	0.6	50	42.0	0.8	50	43.5	0.9	50	47.9	1.0	50	51.2	1.0	–	10.7%
Programme 3	63	–	63	36.8	0.6	57	44.3	0.8	57	46.2	0.8	57	51.0	0.9	57	54.5	1.0	–	12.2%
Programme 4	50	–	50	29.4	0.6	45	30.5	0.7	45	31.8	0.7	45	34.9	0.8	45	37.4	0.8	–	9.6%
Programme 5	57	–	57	34.2	0.6	54	34.6	0.6	54	37.8	0.7	54	41.6	0.8	54	44.5	0.8	–	11.5%
Reduction	–	–	–	–	–	–	–	–	–	–	–	–	(20.9)	–	–	(32.0)	–	–	–
<b>Total</b>	<b>481</b>	<b>–</b>	<b>481</b>	<b>276.0</b>	<b>0.6</b>	<b>461</b>	<b>295.3</b>	<b>0.6</b>	<b>470</b>	<b>309.2</b>	<b>0.7</b>	<b>–</b>	<b>319.0</b>	<b>–</b>	<b>–</b>	<b>331.4</b>	<b>–</b>	<b>–</b>	<b>–</b>

1. Data has been provided by the department and may not necessarily reconcile with official government personnel data.

2. The department's compensation of employees budget has been reduced by R52.9 million for 2017/18 and 2018/19. After consultation with the Department of Public Service and Administration and National Treasury, the department will finalise, develop and implement a plan to manage its personnel expenditure within this reduced expenditure ceiling.

3. Rand million.

## Departmental receipts

**Table 30.5 Departmental receipts by economic classification**

R thousand	Audited outcome			Adjusted estimate	Revised estimate	Average growth rate (%)	Receipt item/ Total: Average (%)	Medium-term receipts estimate			Average growth rate (%)	Receipt item/ Total: Average (%)
	2012/13	2013/14	2014/15					2015/16	2016/17	2017/18		
	2012/13 - 2015/16		2016/17 - 2018/19									
<b>Departmental receipts</b>	<b>1 219</b>	<b>1 658</b>	<b>1 602</b>	<b>357</b>	<b>239</b>	<b>-41.9%</b>	<b>100.0%</b>	<b>121</b>	<b>121</b>	<b>121</b>	<b>-20.3%</b>	<b>100.0%</b>
<b>Sales of goods and services produced by department</b>	<b>64</b>	<b>47</b>	<b>50</b>	<b>29</b>	<b>25</b>	<b>-26.9%</b>	<b>3.9%</b>	<b>29</b>	<b>29</b>	<b>29</b>	<b>5.1%</b>	<b>18.6%</b>
Other sales	64	47	50	29	25	-26.9%	3.9%	29	29	29	5.1%	18.6%
<i>of which:</i>												
Services rendered: Commission on insurance.	64	47	50	28	24	-27.9%	3.9%	28	28	28	5.3%	17.9%
Replacement of security cards	–	–	–	1	1	–	–	1	1	1	–	0.7%
<b>Interest, dividends and rent on land</b>	<b>81</b>	<b>8</b>	<b>3</b>	<b>8</b>	<b>3</b>	<b>-66.7%</b>	<b>2.0%</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>38.7%</b>	<b>4.5%</b>
Interest	81	8	3	8	3	-66.7%	2.0%	8	8	8	38.7%	4.5%
<b>Sales of capital assets</b>	<b>577</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>-100.0%</b>	<b>12.2%</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>
Transactions in financial assets and liabilities	497	1 603	1 549	320	211	-24.8%	81.8%	84	84	84	-26.4%	76.9%
<b>Total</b>	<b>1 219</b>	<b>1 658</b>	<b>1 602</b>	<b>357</b>	<b>239</b>	<b>-41.9%</b>	<b>100.0%</b>	<b>121</b>	<b>121</b>	<b>121</b>	<b>-20.3%</b>	<b>100.0%</b>

## Programme 1: Administration

### Programme purpose

Provide strategic leadership, management and support services to the department.

## Expenditure trends and estimates

**Table 30.6 Administration expenditure trends and estimates by subprogramme and economic classification**

Subprogramme	Audited outcome			Adjusted appropriation	Average growth rate (%)		Medium-term expenditure estimate			Average growth rate (%)	Expenditure/Total: Average (%)
	2012/13	2013/14	2014/15		2015/16	2012/13	2015/16	2016/17	2017/18		
R thousand											
Ministry	2 790	3 403	3 972	4 252	15.1%	1.4%	4 369	4 510	4 687	3.3%	1.4%
Management	65 852	78 510	81 736	101 608	15.6%	30.9%	105 426	109 593	114 545	4.1%	34.4%
Corporate Services	146 897	164 571	183 897	181 009	7.2%	63.7%	180 325	187 798	196 515	2.8%	59.6%
Governance	6 594	7 828	7 550	8 952	10.7%	2.9%	9 307	9 670	10 090	4.1%	3%
Office Accommodation	3 137	3 160	1 257	4 716	14.6%	1.2%	4 561	4 784	5 033	2.2%	1.5%
<b>Total</b>	<b>225 270</b>	<b>257 472</b>	<b>278 412</b>	<b>300 537</b>	<b>10.1%</b>	<b>100%</b>	<b>303 988</b>	<b>316 355</b>	<b>330 870</b>	<b>3.3%</b>	<b>100%</b>
Change to 2015				761			(148)	(4 461)	(8 551)		
Budget estimate											
<b>Economic classification</b>											
<b>Current payments</b>	<b>219 803</b>	<b>235 147</b>	<b>262 193</b>	<b>285 432</b>	<b>9.1%</b>	<b>94.4%</b>	<b>288 819</b>	<b>300 434</b>	<b>314 026</b>	<b>3.2%</b>	<b>95%</b>
Compensation of employees	111 328	122 972	140 072	143 922	8.9%	48.8%	149 820	154 426	160 413	3.7%	48.6%
Goods and services	108 232	112 175	122 121	141 510	9.3%	45.6%	138 999	146 008	153 613	2.8%	46.3%
of which:											
Administrative fees	4 557	4 881	1 750	5 180	4.4%	1.5%	5 027	5 273	5 547	2.3%	1.7%
Advertising	13 754	15 573	23 075	16 319	5.9%	6.5%	16 857	17 635	18 658	4.6%	5.5%
Minor assets	103	275	627	576	77.5%	0.1%	579	608	644	3.8%	0.2%
Audit costs: External	3 316	4 518	4 761	6 351	24.2%	1.8%	6 383	6 702	7 091	3.7%	2.1%
Bursaries: Employees	1 248	1 201	1 256	2 459	25.4%	0.6%	2 471	2 595	2 746	3.7%	0.8%
Catering: Departmental activities	2 430	1 697	2 453	1 459	-15.6%	0.8%	1 466	1 539	1 628	3.7%	0.5%
Communication	2 374	3 089	3 511	6 130	37.2%	1.4%	6 161	6 469	6 844	3.7%	2%
Computer services	7 603	7 384	12 300	7 744	0.6%	3.3%	7 783	8 172	8 646	3.7%	2.6%
Consultants: Business and advisory services	1 940	3 952	3 312	7 177	54.7%	1.5%	6 547	6 875	7 256	0.4%	2.2%
Legal services	100	894	-	774	97.8%	0.2%	778	817	864	3.7%	0.3%
Science and technological services	-	-	2 452	-	-	0.2%	-	-	-	-	-
Contractors	2 813	4 267	6 762	10 975	57.4%	2.3%	8 558	9 149	9 053	-6.2%	3%
Agency and support/outsourced services	13 197	10 367	3 207	7 913	-15.7%	3.3%	8 204	8 614	9 113	4.8%	2.7%
Entertainment	429	471	478	525	7%	0.2%	532	559	592	4.1%	0.2%
Fleet services (including government motor transport)	-	541	978	-	-	0.1%	-	-	-	-	-
Inventory: Clothing material and accessories	-	286	1 028	-	-	0.1%	-	-	-	-	-
Inventory: Fuel, oil and gas	-	-	9	128	-	-	129	136	144	4.0%	-
Inventory: Learner and teacher support material	5	-	-	-	-100%	-	-	-	-	-	-
Inventory: Materials and supplies	341	31	319	-	-100%	0.1%	-	-	-	-	-
Inventory: Other supplies	2 819	-	-	874	-32.3%	0.3%	878	922	976	3.7%	0.3%
Consumable supplies	-	2 647	1 937	-	-	0.4%	-	-	-	-	-
Consumables: Stationery, printing and office supplies	6 278	4 276	3 243	4 990	-7.4%	1.8%	5 015	5 266	5 572	3.7%	1.7%
Operating leases	2 129	4 092	4 965	3 731	20.6%	1.4%	3 749	3 936	4 164	3.7%	1.2%
Rental and hiring	1 903	961	8 169	-	-100%	1%	-	-	-	-	-
Property payments	2 503	2 508	-	6 165	35%	1.1%	6 196	6 506	6 884	3.7%	2.1%
Transport provided: Departmental activity	-	-	19 393	-	-	1.8%	-	-	-	-	-
Travel and subsistence	17 863	17 169	3 350	21 966	7.1%	5.7%	23 457	24 595	25 832	5.6%	7.7%
Training and development	5 940	6 073	7 564	7 511	8.1%	2.6%	5 303	5 568	5 891	-7.8%	1.9%

**Table 30.6 Administration expenditure trends and estimates by subprogramme and economic classification**

Economic classification	Audited outcome			Adjusted appropriation	Average growth rate (%)	Expenditure/ Total: Average (%)	Medium-term expenditure estimate			Average growth rate (%)	Expenditure/ Total: Average (%)
	2012/13	2013/14	2014/15				2015/16	2016/17	2017/18		
R thousand											
<i>Operating payments</i>	4 676	7 363	4 341	5 463	5.3%	2.1%	5 490	5 764	6 098	3.7%	1.8%
<i>Venues and facilities</i>	9 911	7 659	881	17 100	19.9%	3.3%	17 436	18 308	19 370	4.2%	5.8%
Interest and rent on land	243	-	-	-	-100%	-	-	-	-	-	-
<b>Transfers and subsidies</b>	<b>930</b>	<b>14 287</b>	<b>10 222</b>	<b>12 796</b>	<b>139.6%</b>	<b>3.6%</b>	<b>12 860</b>	<b>13 503</b>	<b>14 286</b>	<b>3.7%</b>	<b>4.3%</b>
Departmental agencies and accounts	-	11 231	3 500	-	-	1.4%	-	-	-	-	-
Higher education institutions	-	1 324	410	-	-	0.2%	-	-	-	-	-
Foreign governments and international organisations	-	452	-	-	-	-	-	-	-	-	-
Public corporations and private enterprises	500	300	1 425	-	-100%	0.2%	-	-	-	-	-
Non-profit institutions	329	228	4 356	12 796	238.8%	1.7%	12 860	13 503	14 286	3.7%	4.3%
Households	101	752	531	-	-100%	0.1%	-	-	-	-	-
<b>Payments for capital assets</b>	<b>4 526</b>	<b>8 038</b>	<b>5 964</b>	<b>2 309</b>	<b>-20.1%</b>	<b>2%</b>	<b>2 309</b>	<b>2 418</b>	<b>2 558</b>	<b>3.5%</b>	<b>0.8%</b>
Machinery and equipment	4 526	8 038	5 964	2 309	-20.1%	2%	2 309	2 418	2 558	3.5%	0.8%
<b>Payments for financial assets</b>	<b>11</b>	<b>-</b>	<b>33</b>	<b>-</b>	<b>-100%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Total</b>	<b>225 270</b>	<b>257 472</b>	<b>278 412</b>	<b>300 537</b>	<b>10.1%</b>	<b>100%</b>	<b>303 988</b>	<b>316 355</b>	<b>330 870</b>	<b>3.3%</b>	<b>100%</b>
<b>Proportion of total programme expenditure to vote expenditure</b>	<b>4.5%</b>	<b>4.2%</b>	<b>4.4%</b>	<b>4%</b>	<b>-</b>	<b>-</b>	<b>4.1%</b>	<b>4.2%</b>	<b>4.3%</b>	<b>-</b>	<b>-</b>

**Details of transfers and subsidies**

<b>Households</b>											
<b>Other transfers to households</b>											
<b>Current</b>	-	400	-	-	-	-	-	-	-	-	-
Households	-	400	-	-	-	-	-	-	-	-	-
<b>Departmental agencies and accounts</b>											
<b>Departmental agencies (non-business entities)</b>											
<b>Current</b>	-	11 231	3 500	-	-	1.4%	-	-	-	-	-
Various institutions: Institutional and programme support research	-	11 231	3 500	-	-	1.4%	-	-	-	-	-
<b>Households</b>											
<b>Social benefits</b>											
<b>Current</b>	101	352	531	-	-100.0%	0.1%	-	-	-	-	-
Households	101	352	531	-	-100.0%	0.1%	-	-	-	-	-
<b>Public corporations and private enterprises</b>											
<b>Public corporations</b>											
<b>Other transfers to public corporations</b>											
<b>Current</b>	500	300	1 425	-	-100.0%	0.2%	-	-	-	-	-
Various institutions: Institutional and programme support research	500	300	1 425	-	-100.0%	0.2%	-	-	-	-	-
<b>Foreign governments and international organisations</b>											
<b>Current</b>	-	452	-	-	-	-	-	-	-	-	-
Various institutions: Institutional and programme support research	-	452	-	-	-	-	-	-	-	-	-
<b>Non-profit institutions</b>											
<b>Current</b>	329	228	4 356	12 796	238.8%	1.7%	12 860	13 503	14 286	3.7%	4.3%
Various institutions: Institutional and programme support research	329	228	4 356	12 796	238.8%	1.7%	12 860	13 503	14 286	3.7%	4.3%
<b>Higher education institutions</b>											
<b>Current</b>	-	1 324	410	-	-	0.2%	-	-	-	-	-
Various institutions: Institutional and programme support research	-	1 324	410	-	-	0.2%	-	-	-	-	-

## Personnel information

**Table 30.7 Administration personnel numbers and cost by salary level<sup>1</sup> prior to Cabinet approved reduction, effective from 2017/18<sup>2</sup>; budget reductions and aggregate baseline total**

Number of posts estimated for 31 March 2016		Number and cost <sup>3</sup> of personnel posts filled / planned for on funded establishment															Number		
Number of funded posts	Number of posts additional to the establishment	Actual			Revised estimate			Medium-term expenditure estimate									Average growth rate (%)	Salary level/Total: Average (%)	
		2014/15			2015/16			2016/17			2017/18			2018/19					2015/16 - 2018/19
		Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost			
<b>Administration</b>																			
<b>Salary level</b>	255	–	255	140.1	0.5	255	143.9	0.6	264	149.8	0.6	264	164.5	0.6	264	175.9	0.7	1.2%	100.0%
1 – 6	46	–	46	8.6	0.2	46	8.8	0.2	48	9.1	0.2	48	10.0	0.2	48	10.7	0.2	1.4%	18.1%
7 – 10	90	–	90	35.2	0.4	90	37.0	0.4	94	38.5	0.4	94	42.2	0.4	94	45.2	0.5	1.5%	35.5%
11 – 12	63	–	63	38.0	0.6	63	38.4	0.6	65	39.9	0.6	65	43.9	0.7	65	46.9	0.7	1.0%	24.6%
13 – 16	56	–	56	58.3	1.0	56	59.8	1.1	57	62.3	1.1	57	68.4	1.2	57	73.2	1.3	0.6%	21.7%
<b>Reduction</b>	–	–	–	–	–	–	–	–	–	–	–	–	(10.1)	–	–	(15.5)	–	–	–
<b>Total</b>	<b>255</b>	<b>–</b>	<b>255</b>	<b>140.1</b>	<b>0.5</b>	<b>255</b>	<b>143.9</b>	<b>0.6</b>	<b>264</b>	<b>149.8</b>	<b>0.6</b>	<b>–</b>	<b>154.4</b>	<b>–</b>	<b>–</b>	<b>160.4</b>	<b>–</b>	<b>–</b>	<b>–</b>

1. Data has been provided by the department and may not necessarily reconcile with official government personnel data.

2. This programme's compensation of employees budget has been reduced by R25.6 million for 2017/18 and 2018/19. After consultation with the Department of Public Service and Administration and National Treasury, the department will finalise, develop and implement a plan to manage its personnel expenditure within this reduced expenditure ceiling.

3. Rand million.

## Programme 2: Technology Innovation

### Programme purpose

Enable research and development in space science and technology, energy security and the bioeconomy, and in the emerging and converging areas of nanotechnology, robotics, photonics and indigenous knowledge systems, to promote the realisation of commercial products, processes and services. Promote the protection and utilisation of intellectual property, technology transfer and technology commercialisation through the implementation of enabling policies and interventions along the entire innovation value chain.

### Objectives

- Facilitate and provide resource investments in space science and technology, energy, the bioeconomy, nanotechnology, robotics, photonics, indigenous knowledge systems, intellectual property management, technology transfer and technology commercialisation by funding 84 instruments to support knowledge utilisation and generating 324 publications and intellectual property rights by 31 March 2019.
- Monitor and regulate key policy instruments, including institutional arrangements and support interventions by 31 March 2019, by:
  - developing 41 evaluation and assessment reports in the area of strategic and emerging science and technology
  - overseeing 900 new disclosures reported by publicly funded institutions
  - developing and approving 17 technology and innovation policy directives to enhance understanding and analyses that support the implementation of the relevant interventions
  - developing 6 decision support interventions to improve the delivery of government services or functions.
- Coordinate and support research and high end skills development by supporting 1 183 postgraduate students (masters and doctorate) and 960 trainees through department funded research and development initiatives by 31 March 2019.
- Facilitate the translation of scientific research into commercial products and services that will contribute to economic growth and a better quality of life by 31 March 2019, by:
  - supporting 48 prototypes, technology demonstrators and pilots
  - supporting 22 commercial outputs including licences, assignments, options, new companies, products, processes and services.

## Subprogrammes

- *Space Science* supports the creation of an environment conducive for the implementation of the national space strategy and South African earth observation strategy that addresses the development of innovative applications and human capital to respond to national priorities, and for socioeconomic growth.
- *Hydrogen and Energy* provides policy leadership in the research, development and innovation initiatives in the energy sector. It plays a key role in developing a sustainable and globally competitive South African energy knowledge base and industry.
- *Bioeconomy* leads the implementation of the national bioeconomy strategy approved by Cabinet in 2013.
- *Innovation Priorities and Instruments* supports and strengthens the innovation policy package aimed at creating and sustaining an enabling environment for innovation, technology development, and the commercialisation of publicly funded research and development initiatives.
- *National Intellectual Property Management Office* is the implementing agency established to provide for more effective utilisation of intellectual property emanating from publicly financed research and development.

## Expenditure trends and estimates

**Table 30.8 Technology Innovation expenditure trends and estimates by subprogramme and economic classification**

Subprogramme	Audited outcome			Adjusted appropriation	Average growth rate		Medium-term expenditure estimate			Average growth rate		
	2012/13	2013/14	2014/15		2015/16	2012/13 - 2015/16 (%)	Average Expenditure/ Total: (%)	2016/17	2017/18	2018/19	2015/16 - 2018/19 (%)	Average Expenditure/ Total: (%)
R thousand												
Space Science	170 269	230 621	168 464	167 125	-0.6%	17.7%	166 916	173 515	152 831	-2.9%	15.6%	
Hydrogen and Energy	131 881	139 861	143 848	152 245	4.9%	13.6%	152 611	160 047	169 162	3.6%	15%	
Bioeconomy	125 728	139 439	150 109	137 677	3.1%	13.3%	138 151	159 726	182 838	9.9%	14.6%	
Innovation Priorities and Instruments	574 128	608 776	447 412	526 143	-2.9%	51.8%	523 079	544 288	576 290	3.1%	51.3%	
National Intellectual Property Management Office	31 180	31 699	64 207	25 324	-6.7%	3.7%	26 316	46 919	50 372	25.8%	3.5%	
<b>Total</b>	<b>1 033 186</b>	<b>1 150 396</b>	<b>974 040</b>	<b>1 008 514</b>	<b>-0.8%</b>	<b>100%</b>	<b>1 007 073</b>	<b>1 084 495</b>	<b>1 131 493</b>	<b>3.9%</b>	<b>100%</b>	
Change to 2015				(303)			(4 563)	40 181	26 608			
Budget estimate												
<b>Economic classification</b>	<b>49 129</b>	<b>45 274</b>	<b>51 754</b>	<b>61 433</b>	<b>7.7%</b>	<b>5%</b>	<b>64 384</b>	<b>66 526</b>	<b>69 394</b>	<b>4.1%</b>	<b>6.2%</b>	
<b>Current payments</b>												
Compensation of employees	30 086	30 940	35 571	41 995	11.8%	3.3%	43 543	44 937	46 681	3.6%	4.2%	
Goods and services	19 013	14 334	16 183	19 438	0.7%	1.7%	20 841	21 589	22 713	5.3%	2%	
of which:												
Administrative fees	391	376	673	131	-30.5%	-	131	179	190	13.2%	-	
Advertising	24	168	4	226	111.2%	-	226	446	472	27.8%	-	
Minor assets	34	18	-	-	-100%	-	-	-	-	-	-	
Bursaries: Employees	-	-	-	24	-	-	24	25	26	2.7%	-	
Catering: Departmental activities	192	176	141	166	-4.7%	-	173	308	326	25.2%	-	
Communication	820	788	427	680	-6%	0.1%	692	862	912	10.3%	0.1%	
Computer services	156	14	-	-	-100%	-	-	-	-	-	-	
Consultants: Business and advisory services	1 012	1 543	1 257	2 474	34.7%	0.2%	1 643	1 638	1 733	-11.2%	0.2%	
Legal services	-	1 710	-	-	-	-	-	-	-	-	-	
Science and technological services	-	-	234	-	-	-	-	-	-	-	-	
Contractors	2 169	1	9	-	-100%	0.1%	-	-	-	-	-	
Agency and support/outsourced services	4 492	889	1 885	4 975	3.5%	0.3%	6 392	6 539	6 880	11.4%	0.6%	

Table 30.8 Technology Innovation expenditure trends and estimates by subprogramme and economic classification

Economic classification	Audited outcome			Adjusted appropriation	Average growth rate (%)	Expenditure/ Total: Average (%)	Medium-term expenditure estimate			Average growth rate (%)	Expenditure/ Total: Average (%)
	2012/13	2013/14	2014/15				2015/16	2016/17	2017/18		
R thousand											
<i>Entertainment</i>	39	24	15	4 347	381.3%	0.1%	3 587	3 692	3 873	-3.8%	0.4%
<i>Inventory: Other supplies</i>	6	–	–	69	125.7%	–	70	108	114	18.2%	–
<i>Consumable supplies</i>	–	5	–	–	–	–	–	–	–	–	–
<i>Consumables: Stationery, printing and office supplies</i>	751	45	–	–	-100%	–	–	–	–	–	–
<i>Operating leases</i>	1 357	647	523	–	-100%	0.1%	–	–	–	–	–
<i>Rental and hiring</i>	4	–	199	–	-100%	–	–	–	–	–	–
<i>Property payments</i>	91	150	–	530	79.9%	–	345	300	317	-15.7%	–
<i>Transport provided: Departmental activity</i>	91	–	6 329	–	-100%	0.2%	–	–	–	–	–
<i>Travel and subsistence</i>	4 728	5 541	–	4 004	-5.4%	0.3%	5 479	5 172	5 416	10.6%	0.5%
<i>Training and development</i>	106	2	1 869	–	-100%	–	–	–	–	–	–
<i>Operating payments</i>	1 152	721	2 618	309	-35.5%	0.1%	310	325	344	3.6%	–
<i>Venues and facilities</i>	1 398	1 516	–	1 503	2.4%	0.1%	1 769	1 995	2 110	12%	0.2%
<i>Interest and rent on land</i>	30	–	–	–	-100%	–	–	–	–	–	–
<b>Transfers and subsidies</b>	<b>983 489</b>	<b>1 050 141</b>	<b>922 205</b>	<b>947 081</b>	<b>-1.2%</b>	<b>93.7%</b>	<b>942 689</b>	<b>1 017 969</b>	<b>1 062 099</b>	<b>3.9%</b>	<b>93.8%</b>
Departmental agencies and accounts	741 922	770 585	623 688	650 550	-4.3%	66.9%	642 329	667 419	676 175	1.3%	62.3%
Higher education institutions	83 216	102 397	147 095	114 580	11.3%	10.7%	115 153	141 082	150 177	9.4%	12.3%
Public corporations and private enterprises	139 149	140 769	100 267	95 011	-11.9%	11.4%	96 045	100 848	106 697	3.9%	9.4%
Non-profit institutions	19 110	36 250	50 995	86 940	65.7%	4.6%	89 162	108 620	129 050	14.1%	9.8%
Households	92	140	160	–	-100%	–	–	–	–	–	–
<b>Payments for capital assets</b>	<b>568</b>	<b>54 981</b>	<b>81</b>	<b>–</b>	<b>-100%</b>	<b>1.3%</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>
Machinery and equipment	568	118	81	–	-100%	–	–	–	–	–	–
Software and other intangible assets	–	54 863	–	–	–	1.3%	–	–	–	–	–
<b>Total</b>	<b>1 033 186</b>	<b>1 150 396</b>	<b>974 040</b>	<b>1 008 514</b>	<b>-0.8%</b>	<b>100%</b>	<b>1 007 073</b>	<b>1 084 495</b>	<b>1 131 493</b>	<b>3.9%</b>	<b>100%</b>
<b>Proportion of total programme expenditure to vote expenditure</b>	<b>20.8%</b>	<b>18.6%</b>	<b>15.2%</b>	<b>13.5%</b>	<b>–</b>	<b>–</b>	<b>13.6%</b>	<b>14.3%</b>	<b>14.6%</b>	<b>–</b>	<b>–</b>
<b>Details of transfers and subsidies</b>											
<b>Departmental agencies and accounts</b>											
<b>Departmental agencies (non-business entities)</b>											
<b>Current</b>	<b>725 861</b>	<b>765 928</b>	<b>621 188</b>	<b>650 550</b>	<b>-3.6%</b>	<b>66.3%</b>	<b>642 329</b>	<b>667 419</b>	<b>676 175</b>	<b>1.3%</b>	<b>62.3%</b>
Various institutions: Biofuels	–	–	6 000	–	–	0.1%	–	–	–	–	–
Various institutions: Implementation of biotechnology strategy	24 020	11 613	13 290	–	-100%	1.2%	–	–	–	–	–
Various institutions: Energy Grand Challenge research	32 010	32 500	24 396	35 240	3.3%	3%	34 904	36 649	38 775	3.2%	3.4%
Various institutions: Health innovation research	28 915	36 909	36 000	–	-100%	2.4%	–	–	–	–	–
South African Medical Research Council	3 963	1 817	22 596	23 635	81.3%	1.2%	23 753	24 941	26 388	3.7%	2.3%
Various institutions: Hydrogen strategy research	15 000	16 800	16 005	–	-100%	1.1%	–	–	–	–	–
Various institutions: Innovation projects research	–	–	1 122	29 957	–	0.7%	30 107	31 612	33 445	3.7%	3%
International Centre for Genetic Engineering and Biotechnology	–	–	–	12 125	–	0.3%	12 186	12 795	13 537	3.7%	1.2%
Various institutions: Space science research	19 620	30 500	40 000	31 386	17%	2.9%	29 653	28 860	–	-100%	2.1%
National Research Foundation: Indigenous knowledge systems	–	10 000	–	–	–	0.2%	–	–	–	–	–
Technology Innovation Agency	456 325	481 081	338 386	385 188	-5.5%	39.9%	382 364	396 732	420 322	3%	37.4%
South African National Space Agency	126 008	123 708	118 298	124 355	-0.4%	11.8%	124 977	131 226	138 837	3.7%	12.3%
Various institutions: Emerging research areas	20 000	21 000	–	–	-100%	1%	–	–	–	–	–
National Research Foundation	–	–	2 896	8 664	–	0.3%	4 385	4 604	4 871	-17.5%	0.5%

Table 30.8 Technology Innovation expenditure trends and estimates by subprogramme and economic classification

Details of transfers and subsidies	Audited outcome			Adjusted appropriation 2015/16	Average growth rate (%) 2012/13 - 2015/16	Expenditure/ Total: Average (%) 2015/16	Medium-term expenditure estimate			Average growth rate (%) 2015/16 - 2018/19	Expenditure/ Total: Average (%) 2015/16 - 2018/19
	2012/13	2013/14	2014/15				2016/17	2017/18	2018/19		
R thousand											
Various institutions: Technology transfer offices for support of research units	-	-	2 199	-	-	0.1%	-	-	-	-	-
<b>Capital</b>	<b>16 061</b>	<b>4 657</b>	<b>2 500</b>	-	<b>-100%</b>	<b>0.6%</b>	-	-	-	-	-
Various institutions: National nanotechnology research	-	-	2 500	-	-	0.1%	-	-	-	-	-
Various institutions: Technology transfer offices for support of research units	16 061	4 657	-	-	-100%	0.5%	-	-	-	-	-
<b>Households</b>											
<b>Social benefits</b>											
<b>Current</b>	<b>92</b>	<b>140</b>	<b>160</b>	-	<b>-100%</b>	-	-	-	-	-	-
Households	92	140	160	-	-100%	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>											
<b>Public corporations</b>											
<b>Other transfers to public corporations</b>											
<b>Current</b>	<b>91 642</b>	<b>84 516</b>	<b>64 699</b>	<b>44 582</b>	<b>-21.4%</b>	<b>6.9%</b>	<b>45 364</b>	<b>37 344</b>	<b>39 510</b>	<b>-3.9%</b>	<b>3.9%</b>
Various institutions: Implementation of biotechnology strategy	9 800	10 378	7 822	-	-100%	0.7%	-	-	-	-	-
Various institutions: Energy Grand Challenge research	3 540	2 179	1 500	-	-100%	0.2%	-	-	-	-	-
Various institutions: Health innovation research	6 088	4 750	5 000	-	-100%	0.4%	-	-	-	-	-
South African Medical Research Council	16 300	19 500	-	-	-100%	0.9%	-	-	-	-	-
Various institutions: Hydrogen strategy research	354	800	1 500	-	-100%	0.1%	-	-	-	-	-
Various institutions: Indigenous knowledge systems	-	-	1 000	-	-	-	-	-	-	-	-
Various institutions: Innovation projects research	6 001	-	100	-	-100%	0.1%	-	-	-	-	-
Various institutions: Space science research	16 380	12 824	-	-	-100%	0.7%	-	-	-	-	-
National Research Foundation: Indigenous knowledge systems	-	2 000	-	-	-	-	-	-	-	-	-
Various institutions: Emerging research areas	33 179	25 600	33 130	44 582	10.3%	3.3%	45 364	37 344	39 510	-3.9%	3.9%
Various institutions: Technology transfer offices for support of research units	-	6 485	14 647	-	-	0.5%	-	-	-	-	-
<b>Capital</b>	<b>44 500</b>	<b>45 835</b>	<b>32 215</b>	<b>50 429</b>	<b>4.3%</b>	<b>4.2%</b>	<b>50 681</b>	<b>63 504</b>	<b>67 187</b>	<b>10.0%</b>	<b>5.5%</b>
Various institutions: National nanotechnology research	44 500	45 835	32 215	50 429	4.3%	4.2%	50 681	63 504	67 187	10.0%	5.5%
<b>Non-profit institutions</b>											
<b>Current</b>	<b>14 999</b>	<b>36 217</b>	<b>50 995</b>	<b>86 940</b>	<b>79.6%</b>	<b>4.5%</b>	<b>89 162</b>	<b>108 620</b>	<b>129 050</b>	<b>14.1%</b>	<b>9.8%</b>
Various institutions: Biofuels	-	-	-	6 490	-	0.2%	6 522	6 848	7 245	3.7%	0.6%
Various institutions: Implementation of biotechnology strategy	3 504	6 805	3 810	35 618	116.6%	1.2%	35 505	37 280	39 442	3.5%	3.5%
Various institutions: Energy Grand Challenge research	1 000	3 720	2 350	-	-100%	0.2%	-	-	-	-	-
Various institutions: Health innovation research	100	200	-	41 325	644.9%	1.0%	43 610	45 791	48 447	5.4%	4.2%
Various institutions: Innovation projects research	-	8 380	2 755	-	-	0.3%	-	-	-	-	-
International Centre for Genetic Engineering and Biotechnology	10 395	10 936	36 280	-	-100.0%	1.4%	-	-	-	-	-
Various institutions: Space science research	-	1 676	-	-	-	-	-	-	-	-	-
South African Association of Science and Technology Centre	-	-	-	3 507	-	0.1%	3 525	3 701	3 916	3.7%	0.3%
Various institutions: Emerging research areas	-	4 500	5 800	-	-	0.2%	-	-	-	-	-
South African National AIDS Council	-	-	-	-	-	-	-	15 000	30 000	-	1.1%

**Table 30.8 Technology Innovation expenditure trends and estimates by subprogramme and economic classification**

Details of transfers and subsidies			Adjusted appropriation	Average growth rate (%)	Expenditure/Total: Average (%)	Medium-term expenditure estimate			Average growth rate (%)	Expenditure/Total: Average (%)
Audited outcome						2015/16	2012/13 - 2015/16	2016/17		
R thousand	2012/13	2013/14	2014/15	2015/16	2012/13 - 2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19	2015/16 - 2018/19
<b>Capital</b>	<b>4 111</b>	<b>33</b>	<b>-</b>	<b>-</b>	<b>-100%</b>	<b>0.1%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Various institutions: Technology transfer offices for support of research units	4 111	33	-	-	-100%	0.1%	-	-	-	-
<b>Higher education institutions</b>										
<b>Current</b>	<b>28 718</b>	<b>45 065</b>	<b>86 323</b>	<b>51 012</b>	<b>21.1%</b>	<b>5.1%</b>	<b>51 267</b>	<b>74 002</b>	<b>79 206</b>	<b>15.8%</b>
Various institutions: Implementation of biotechnology strategy	3 200	7 524	8 006	-	-100%	0.4%	-	-	-	-
Various institutions: Energy Grand Challenge research	2 415	3 100	5 550	-	-100%	0.3%	-	-	-	-
Various institutions: Health innovation research	2 785	1 865	700	-	-100%	0.1%	-	-	-	-
Various institutions: Hydrogen strategy research	15 318	14 839	15 923	36 012	33%	2.0%	36 192	38 002	40 206	3.7%
Various institutions: Indigenous knowledge systems	-	-	894	-	-	-	-	-	-	-
Various institutions: Innovation projects research	-	-	5 884	-	-	0.1%	-	-	-	-
National Research Foundation: Indigenous knowledge systems	-	1 932	-	-	-	-	-	-	-	-
Various institutions: Emerging research areas	5 000	5 604	12 806	-	-100%	0.6%	-	-	-	-
Various institutions: Technology transfer offices for support of research units	-	10 201	36 560	15 000	-	1.5%	15 075	36 000	39 000	37.5%
<b>Capital</b>	<b>54 498</b>	<b>57 332</b>	<b>60 772</b>	<b>63 568</b>	<b>5.3%</b>	<b>5.7%</b>	<b>63 886</b>	<b>67 080</b>	<b>70 971</b>	<b>3.7%</b>
Various institutions: Hydrogen strategy research	54 498	-	-	-	-100%	1.3%	-	-	-	-
Various institutions: Hydrogen strategy research - capital	-	57 332	60 772	63 568	-	4.4%	63 886	67 080	70 971	3.7%
<b>Public corporations and private enterprises</b>										
<b>Private enterprises</b>										
<b>Other transfers to private enterprises</b>										
<b>Current</b>	<b>3 007</b>	<b>10 418</b>	<b>3 353</b>	<b>-</b>	<b>-100%</b>	<b>0.4%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Various institutions: Innovation projects research	-	7 000	-	-	-	0.2%	-	-	-	-
South African Association of Science and Technology Centre	3 007	3 163	3 353	-	-100%	0.2%	-	-	-	-
Various institutions: Technology transfer offices for support of research units	-	255	-	-	-	-	-	-	-	-

## Personnel information

**Table 30.9 Technology Innovation personnel numbers and cost by salary level<sup>1</sup> prior to Cabinet approved reduction, effective from 2017/18<sup>2</sup>; budget reductions and aggregate baseline total**

Number of posts estimated for 31 March 2016		Number and cost <sup>3</sup> of personnel posts filled / planned for on funded establishment															Number	
Number of funded posts	Number of posts additional to the establishment	Actual			Revised estimate			Medium-term expenditure estimate						Average growth rate (%)	Salary level/Total: Average (%)			
		2014/15			2015/16			2016/17		2017/18		2018/19				2015/16 - 2018/19		
		Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost				Number	Cost
<b>Technology Innovation</b>		<b>56</b>	<b>35.6</b>	<b>0.6</b>	<b>50</b>	<b>42.0</b>	<b>0.8</b>	<b>50</b>	<b>43.5</b>	<b>0.9</b>	<b>50</b>	<b>47.9</b>	<b>1.0</b>	<b>50</b>	<b>51.2</b>	<b>1.0</b>	<b>-</b>	<b>100.0%</b>
Salary level	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1 - 6	5	-	-	-	5	0.8	0.2	5	0.8	0.2	5	0.9	0.2	5	0.9	0.2	-	10.0%
7 - 10	7	-	-	-	7	2.4	0.3	7	2.5	0.4	7	2.8	0.4	7	3.0	0.4	-	14.0%
11 - 12	24	-	-	-	24	12.3	0.5	22	18.4	0.8	22	20.9	1.0	22	22.4	1.0	-	44.0%
13 - 16	20	-	-	-	16	20.4	1.3	16	21.2	1.3	16	23.3	1.5	16	24.9	1.6	-	32.0%
<b>Reduction</b>	-	-	-	-	-	-	-	-	-	-	-	(2.9)	-	-	(4.5)	-	-	-
<b>Total</b>	<b>56</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>50</b>	<b>42.0</b>	<b>0.8</b>	<b>50</b>	<b>43.5</b>	<b>0.9</b>	<b>-</b>	<b>44.9</b>	<b>-</b>	<b>-</b>	<b>46.7</b>	<b>-</b>	<b>-</b>	<b>-</b>

1.Data has been provided by the department and may not necessarily reconcile with official government personnel data.

2.This programme's compensation of employees budget has been reduced by R7.5 million for 2017/18 and 2018/19. After consultation with the Department of Public Service and Administration and National Treasury, the department will finalise, develop and implement a plan to manage its personnel expenditure within this reduced expenditure ceiling.

3.Rand million.

## Programme 3: International Cooperation and Resources

### Programme purpose

Strategically develop, promote and manage international partnerships that strengthen the national system of innovation. Enable an exchange of knowledge, capacity and resources between South Africa and its international partners, with a focus on supporting science, technology and innovation capacity building in Africa. Support South African foreign policy through science diplomacy.

### Objectives

- Complement South Africa's national investments in science, technology and innovation, including access to resources for department initiatives that require external investment, by securing international funds amounting to R1.3 billion by 31 March 2019.
- Enhance South Africa's national science, technology and innovation capabilities to contribute to the attainment of the department's targets for human capital development by accessing international knowledge and resources through securing the participation of 1 150 South African researchers in international postgraduate training programmes by 31 March 2019.
- Build capacity in and support initiatives for the Southern African Development Community (SADC) and African Union (AU) to advance Africa's growth and development agenda by strengthening cooperation in science, technology and innovation in Africa through technical and financial support for 39 approved SADC and AU science, technology and innovation initiatives and programmes by 31 March 2019.
- Support South Africa's foreign policy objectives of creating a better South Africa, a better Africa and a better world by maximising South Africa's strategic interests in international science, technology and innovation cooperation through interventions that ensure South Africa occupies 12 new leadership positions in international science, technology and innovation governance structures by 31 March 2019.

### Subprogrammes

- *Multilateral Cooperation and Africa* advances and facilitates South Africa's participation in: bilateral science, technology and innovation cooperation initiatives with other African partners; African multilateral programmes, specifically with the AU and SADC; and broader multilateral science technology and innovation partnerships, with a strategic focus on South-South cooperation.
- *International Resources* works to increase international funding accessed for South African science technology and innovation initiatives and African regional and continental programmes, through concerted investment promotion efforts, and the fostering of strategic partnerships.
- *Overseas Bilateral Cooperation* promotes and facilitates South Africa's bilateral science, technology and innovation cooperation with partners in the Americas, Asia, Australasia and Europe, especially for human capital development and collaborative research in science, technology and innovation, and to secure their support for joint cooperation with other African partners.

### Expenditure trends and estimates

**Table 30.10 International Cooperation and Resources expenditure trends and estimates by subprogramme and economic classification**

Subprogramme	Audited outcome			Adjusted appropriation 2015/16	Average growth rate (%) 2012/13 - 2015/16	Expenditure/Total: Average (%) 2012/13 - 2015/16	Medium-term expenditure estimate			Average growth rate (%) 2015/16 - 2018/19	Expenditure/Total: Average (%) 2015/16 - 2018/19
	2012/13	2013/14	2014/15				2016/17	2017/18	2018/19		
R thousand											
Multilateral Cooperation and Africa	24 790	25 281	22 167	27 433	3.4%	22.8%	28 697	29 869	31 282	4.5%	22.9%
International Resources	44 716	50 402	54 021	56 525	8.1%	47.1%	57 459	60 058	63 224	3.8%	46.3%
Overseas Bilateral Cooperation	33 369	28 863	31 401	37 401	3.9%	30.0%	38 307	40 099	42 037	4.0%	30.8%
<b>Total</b>	<b>102 875</b>	<b>104 546</b>	<b>107 589</b>	<b>121 359</b>	<b>5.7%</b>	<b>100.0%</b>	<b>124 463</b>	<b>130 026</b>	<b>136 543</b>	<b>4.0%</b>	<b>100.0%</b>
Change to 2015 Budget estimate				(638)			589	(753)	(1 821)		

**Table 30.10 International Cooperation and Resources expenditure trends and estimates by subprogramme and economic classification**

Economic classification	Audited outcome			Adjusted appropriation 2015/16	Average growth rate (%)		Medium-term expenditure estimate			Average growth rate (%)	
	2012/13	2013/14	2014/15		2012/13 - 2015/16	Expenditure/Total: Average (%)	2016/17	2017/18	2018/19	2015/16 - 2018/19	Expenditure/Total: Average (%)
R thousand											
<b>Current payments</b>	<b>56 550</b>	<b>53 233</b>	<b>53 349</b>	<b>60 310</b>	<b>2.2%</b>	<b>51.2%</b>	<b>63 109</b>	<b>65 604</b>	<b>68 385</b>	<b>4.3%</b>	<b>50.2%</b>
Compensation of employees	33 934	33 205	36 762	44 327	9.3%	34%	46 150	47 827	49 679	3.9%	36.7%
Goods and services	22 580	20 028	16 587	15 983	-10.9%	17.2%	16 959	17 777	18 706	5.4%	13.5%
of which:											
Administrative fees	1 101	775	839	144	-49.2%	0.7%	144	153	162	4%	0.1%
Advertising	627	338	60	395	-14.3%	0.3%	396	421	446	4.1%	0.3%
Minor assets	29	-	-	-	-100%	-	-	-	-	-	-
Audit costs: External	-	30	-	-	-	-	-	-	-	-	-
Catering: Departmental activities	285	621	444	351	7.2%	0.4%	353	371	393	3.8%	0.3%
Communication	565	620	494	1 291	31.7%	0.7%	1 299	1 376	1 455	4.1%	1.1%
Computer services	54	-	-	163	44.5%	-	164	173	183	3.9%	0.1%
Consultants: Business and advisory services	848	269	163	256	-32.9%	0.4%	257	269	285	3.6%	0.2%
Legal services	134	103	-	-	-100%	0.1%	-	-	-	-	-
Science and technological services	-	-	53	-	-	-	-	-	-	-	-
Contractors	-	82	-	-	-	-	-	-	-	-	-
Agency and support/outourced services	812	662	327	621	-8.6%	0.6%	624	655	693	3.7%	0.5%
Entertainment	383	182	218	740	24.6%	0.3%	744	781	826	3.7%	0.6%
Inventory: Materials and supplies	24	-	-	-	-100%	-	-	-	-	-	-
Inventory: Other supplies	-	2	-	204	-	-	205	216	228	3.8%	0.2%
Consumable supplies	-	31	2	-	-	-	-	-	-	-	-
Consumables: Stationery, printing and office supplies	537	8	-	-	-100%	0.1%	-	-	-	-	-
Operating leases	323	296	-	-	-100%	0.1%	-	-	-	-	-
Rental and hiring	11	43	-	-	-100%	-	-	-	-	-	-
Property payments	-	-	-	474	-	0.1%	476	500	529	3.7%	0.4%
Transport provided: Departmental activity	-	-	8 152	-	-	1.9%	-	-	-	-	-
Travel and subsistence	10 303	11 164	-	6 582	-13.9%	6.4%	7 509	7 837	8 188	7.5%	5.9%
Training and development	-	-	1 579	-	-	0.4%	-	-	-	-	-
Operating payments	1 042	955	3 891	1 050	0.3%	1.6%	1 055	1 108	1 173	3.8%	0.9%
Venues and facilities	5 502	3 847	365	3 712	-12.3%	3.1%	3 733	3 917	4 145	3.7%	3.0%
Interest and rent on land	36	-	-	-	-100%	-	-	-	-	-	-
<b>Transfers and subsidies</b>	<b>45 707</b>	<b>51 313</b>	<b>54 127</b>	<b>61 049</b>	<b>10.1%</b>	<b>48.6%</b>	<b>61 354</b>	<b>64 422</b>	<b>68 158</b>	<b>3.7%</b>	<b>49.8%</b>
Departmental agencies and accounts	16 574	17 625	14 591	13 530	-6.5%	14.3%	13 598	14 278	15 106	3.7%	11%
Higher education institutions	13 788	17 033	19 986	-	-100%	11.6%	-	-	-	-	-
Public corporations and private enterprises	12 453	16 317	16 198	-	-100%	10.3%	-	-	-	-	-
Non-profit institutions	2 892	272	28	47 519	154.2%	11.6%	47 756	50 144	53 052	3.7%	38.7%
Households	-	66	3 324	-	-	0.8%	-	-	-	-	-
<b>Payments for capital assets</b>	<b>618</b>	<b>-</b>	<b>113</b>	<b>-</b>	<b>-100%</b>	<b>0.2%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Machinery and equipment	618	-	113	-	-100%	0.2%	-	-	-	-	-
<b>Total</b>	<b>102 875</b>	<b>104 546</b>	<b>107 589</b>	<b>121 359</b>	<b>5.7%</b>	<b>100%</b>	<b>124 463</b>	<b>130 026</b>	<b>136 543</b>	<b>4%</b>	<b>100%</b>
<b>Proportion of total programme expenditure to vote expenditure</b>	<b>2.1%</b>	<b>1.7%</b>	<b>1.7%</b>	<b>1.6%</b>	<b>-</b>	<b>-</b>	<b>1.7%</b>	<b>1.7%</b>	<b>1.8%</b>	<b>-</b>	<b>-</b>
<b>Details of transfers and subsidies</b>											
<b>Households</b>											
<b>Other transfers to households</b>											
Current	-	33	3 293	-	-	0.8%	-	-	-	-	-
Households	-	33	3 293	-	-	0.8%	-	-	-	-	-
<b>Departmental agencies and accounts</b>											
<b>Departmental agencies (non-business entities)</b>											
Current	16 574	17 625	14 591	13 530	-6.5%	14.3%	13 598	14 278	15 106	3.7%	11.0%
National Research Foundation: Global science: Bilateral cooperation	9 600	12 203	12 935	13 530	12.1%	11.1%	13 598	14 278	15 106	3.7%	11.0%
Various institutions: Global science: International multilateral agreements	3 174	1 622	1 656	-	-100%	1.5%	-	-	-	-	-
Various institutions: Global science: African multilateral agreements	3 800	3 800	-	-	-100%	1.7%	-	-	-	-	-
<b>Households</b>											
<b>Social benefits</b>											
Current	-	33	31	-	-	-	-	-	-	-	-
Households	-	33	31	-	-	-	-	-	-	-	-

**Table 30.10 International Cooperation and Resources expenditure trends and estimates by subprogramme and economic classification**

Details of transfers and subsidies				Adjusted appropriation	Average growth rate (%)	Expenditure/ Total: Average (%)	Medium-term expenditure estimate			Average growth rate (%)	Expenditure/ Total: Average (%)
Audited outcome			2015/16				2012/13 - 2015/16	2016/17	2017/18		
R thousand	2012/13	2013/14	2014/15	2015/16	2012/13 - 2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19	2015/16 - 2018/19	
<b>Public corporations and private enterprises</b>											
<b>Public corporations</b>											
<b>Other transfers to public corporations</b>											
<b>Current</b>	12 453	9 382	16 198	-	-100%	8.7%	-	-	-	-	-
National Research Foundation: Global science: Bilateral cooperation	2 000	-	-	-	-100%	0.5%	-	-	-	-	-
Various institutions: Global science: International multilateral agreements	10 453	9 382	16 198	-	-100%	8.3%	-	-	-	-	-
<b>Non-profit institutions</b>											
<b>Current</b>	2 892	272	28	47 519	154.2%	11.6%	47 756	50 144	53 052	3.7%	38.7%
Various institutions: Global science: International multilateral agreements	2 892	272	28	39 025	138.1%	9.7%	39 220	41 181	43 569	3.7%	31.8%
Various institutions: Global science: African multilateral agreements	-	-	-	8 494	-	1.9%	8 536	8 963	9 483	3.7%	6.9%
<b>Higher education institutions</b>											
<b>Current</b>	13 788	17 033	19 986	-	-100%	11.6%	-	-	-	-	-
Various institutions: Global science: International multilateral agreements	10 188	13 133	15 666	-	-100%	8.9%	-	-	-	-	-
Various institutions: Global science: African multilateral agreements	3 600	3 900	4 320	-	-100%	2.7%	-	-	-	-	-
<b>Public corporations and private enterprises</b>											
<b>Private enterprises</b>											
<b>Other transfers to private enterprises</b>											
<b>Current</b>	-	6 935	-	-	-	1.6%	-	-	-	-	-
Various institutions: Global science: International multilateral agreements	-	6 935	-	-	-	1.6%	-	-	-	-	-

## Personnel information

**Table 30.11 International Cooperation and Resources personnel numbers and cost by salary level<sup>1</sup> prior to Cabinet approved reduction, effective from 2017/18<sup>2</sup>; budget reductions and aggregate baseline total**

Number of posts estimated for 31 March 2016		Number and cost <sup>3</sup> of personnel posts filled / planned for on funded establishment														Number			
Number of funded posts	Number of posts additional to the establishment	Actual			Revised estimate			Medium-term expenditure estimate						Average growth rate (%)	Salary level/total: Average (%)				
		2014/15		2015/16		2016/17		2017/18		2018/19		2015/16 - 2018/19							
International Cooperation and Resources		Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost			
<b>Salary level</b>	<b>63</b>	-	63	36.8	0.6	57	44.3	0.8	57	46.2	0.8	57	51.0	0.9	57	54.5	1.0	-	100.0%
1 – 6	4	-	4	0.7	0.2	4	0.8	0.2	4	0.9	0.2	4	1.0	0.2	4	1.0	0.3	-	7.0%
7 – 10	25	-	25	10.6	0.4	24	13.0	0.5	24	13.5	0.6	24	15.1	0.6	24	16.2	0.7	-	42.1%
11 – 12	18	-	18	11.8	0.7	17	15.2	0.9	17	15.9	0.9	17	17.4	1.0	17	18.6	1.1	-	29.8%
13 – 16	16	-	16	13.7	0.9	12	15.3	1.3	12	15.9	1.3	12	17.5	1.5	12	18.7	1.6	-	21.1%
<b>Reduction</b>	-	-	-	-	-	-	-	-	-	-	-	-	(3.1)	-	-	(4.8)	-	-	-
<b>Total</b>	<b>63</b>	-	63	36.8	0.6	57	44.3	0.8	57	46.2	0.8	-	47.8	-	-	49.7	-	-	-

1. Data has been provided by the department and may not necessarily reconcile with official government personnel data.

2. This programme's compensation of employees budget has been reduced by R7.9 million for 2017/18 and 2018/19. After consultation with the Department of Public Service and Administration and National Treasury, the department will finalise, develop and implement a plan to manage its personnel expenditure within this reduced expenditure ceiling.

3. Rand million.

## Programme 4: Research, Development and Support

### Programme purpose

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

## Objectives

- Contribute to the development of representative, high level human capital that is capable of pursuing locally relevant, globally competitive research and innovation activities by:
  - increasing the total number of students awarded bursaries to 42 396 over the medium term
  - increasing the number of pipeline postgraduate students awarded bursaries to 32 988 over the medium term
  - maintaining the total number of graduates and students placed in department funded work preparation programmes in science, engineering and technology institutions at 2 440 over the medium term.
- Ensure the availability of and access to internationally comparable research and innovation infrastructure by:
  - maintaining the number of researchers awarded research infrastructure grants at 70 per year over the medium term
  - increasing the average amount of bandwidth per South African National Research Network site, from 3 500 Mbps in 2016/17 to 8 000 Mbps in 2018/19, which will assist in providing more efficient transmission of data to all research and academic institutions and national projects.
- Support and promote research that develops basic sciences through the production of new knowledge and relevant training opportunities by:
  - maintaining the total number of researchers awarded research grants through programmes managed by the National Research Foundation at 13 617 over the medium term
  - maintaining the number of articles published by researchers funded by the National Research Foundation and accredited by the Institute for Scientific Information at 21 000 over the medium term
  - implementing a national basic sciences development and support programme over the medium term.
- Strategically develop priority science areas in which South Africa has a competitive advantage by:
  - increasing the total number of MeerKAT antennae installed to 64 in 2016/17
  - ensuring that a functional climate change research network is in place and 2 reports on the state of climate change in South Africa are approved by Cabinet by 2018/19.
- Promote public engagement on science, technology and innovation by increasing the total number of participants in science awareness and engagement programmes to 3.6 million over the medium term.

## Subprogrammes

- *Human Capital and Science Promotions* formulates and implements policies and strategies that address the availability of human capital for science, technology and innovation, and fundamental support for research activities.
- *Science Missions* promotes the development of research, production of scientific knowledge, and human capital development within science areas in which South Africa enjoys a geographic advantage.
- *Basic Science and Infrastructure* facilitates the strategic implementation of research and innovation equipment and facilities to promote knowledge production in areas of national priority and to sustain research and development led innovation.
- *Astronomy* supports the development of astronomical sciences around a multi-wavelength research strategy, and provides strategic guidance and support to relevant astronomy institutions in the implementation of strategic astronomy programmes.

## Expenditure trends and estimates

**Table 30.12 Research, Development and Support expenditure trends and estimates by subprogramme and economic classification**

Subprogramme	Audited outcome			Adjusted appropriation 2015/16	Average growth rate (%) 2012/13 - 2015/16	Expenditure/Total: Average (%)	Medium-term expenditure estimate			Average growth rate (%) 2015/16 - 2018/19	Expenditure/Total: Average (%)
	2012/13	2013/14	2014/15				2016/17	2017/18	2018/19		
R thousand											
Human Capital and Science Promotions	1 413 926	1 683 088	1 872 787	2 337 984	18.3%	55.2%	2 356 414	2 441 051	2 534 667	2.7%	55.5%
Science Missions	83 896	151 318	159 549	165 786	25.5%	4.2%	164 335	175 742	185 719	3.9%	4.0%
Basic Science and Infrastructure	561 350	710 235	783 727	1 009 611	21.6%	23.2%	988 306	1 050 543	1 069 203	1.9%	23.6%
Astronomy	243 598	654 192	673 774	725 444	43.9%	17.4%	691 541	752 543	771 806	2.1%	16.9%
<b>Total</b>	<b>2 302 770</b>	<b>3 198 833</b>	<b>3 489 837</b>	<b>4 238 825</b>	<b>22.6%</b>	<b>100.0%</b>	<b>4 200 596</b>	<b>4 419 879</b>	<b>4 561 395</b>	<b>2.5%</b>	<b>100.0%</b>
Change to 2015 Budget estimate				(8 241)			(64 673)	(28 595)	(86 688)		
<b>Economic classification</b>											
<b>Current payments</b>	<b>28 878</b>	<b>32 422</b>	<b>37 696</b>	<b>44 834</b>	<b>15.8%</b>	<b>1.1%</b>	<b>46 728</b>	<b>48 452</b>	<b>50 537</b>	<b>4.1%</b>	<b>1.1%</b>
Compensation of employees	21 179	24 516	29 438	30 465	12.9%	0.8%	31 805	32 796	34 065	3.8%	0.7%
Goods and services	7 677	7 906	8 258	14 369	23.2%	0.3%	14 923	15 656	16 472	4.7%	0.4%
of which:											
Administrative fees	261	166	202	493	23.6%	-	503	527	558	4.2%	-
Advertising	457	149	44	39	-56.0%	-	39	41	43	3.3%	-
Minor assets	9	-	1	-	-100.0%	-	-	-	-	-	-
Audit costs: External	2	-	-	-	-100.0%	-	-	-	-	-	-
Catering: Departmental activities	231	74	96	696	44.4%	-	541	570	602	-4.7%	-
Communication	307	429	339	574	23.2%	-	563	646	684	6.0%	-
Computer services	-	-	428	144	-	-	146	154	162	4.0%	-
Consultants: Business and advisory services	5	688	385	1 403	554.7%	-	1 348	1 365	1 445	1.0%	-
Legal services	-	-	-	166	-	-	171	180	190	4.6%	-
Contractors	17	50	-	-	-100.0%	-	-	-	-	-	-
Agency and support/outourced services	860	1 124	919	829	-1.2%	-	836	879	930	3.9%	-
Entertainment	8	18	6	220	201.8%	-	190	200	211	-1.4%	-
Inventory: Fuel, oil and gas	-	-	1	-	-	-	-	-	-	-	-
Inventory: Other supplies	-	-	-	17	-	-	17	19	20	5.6%	-
Consumable supplies	-	6	-	-	-	-	-	-	-	-	-
Consumables: Stationery, printing and office supplies	312	17	-	-	-100.0%	-	-	-	-	-	-
Operating leases	176	69	-	-	-100.0%	-	-	-	-	-	-
Rental and hiring	1	-	-	-	-100.0%	-	-	-	-	-	-
Transport provided: Departmental activity	-	-	4 864	-	-	-	-	-	-	-	-
Travel and subsistence	3 907	3 925	61	7 463	24.1%	0.1%	8 223	8 612	9 020	6.5%	0.2%
Training and development	-	-	241	-	-	-	-	-	-	-	-
Operating payments	70	759	671	429	83.0%	-	431	453	480	3.8%	-
Venues and facilities	1 054	432	-	1 896	21.6%	-	1 915	2 010	2 127	3.9%	-
Interest and rent on land	22	-	-	-	-100.0%	-	-	-	-	-	-
<b>Transfers and subsidies</b>	<b>2 273 592</b>	<b>3 166 411</b>	<b>3 452 010</b>	<b>4 193 991</b>	<b>22.6%</b>	<b>98.9%</b>	<b>4 153 868</b>	<b>4 371 427</b>	<b>4 510 858</b>	<b>2.5%</b>	<b>98.9%</b>
Departmental agencies and accounts	1 918 945	2 617 282	2 999 342	3 980 512	27.5%	87.0%	3 939 322	4 146 154	4 272 519	2.4%	93.8%
Higher education institutions	22 585	31 025	53 477	-	-100.0%	0.8%	-	-	-	-	-
Public corporations and private enterprises	293 113	482 305	390 539	213 479	-10.0%	10.4%	214 546	225 273	238 339	3.7%	5.1%
Non-profit institutions	38 531	35 244	8 280	-	-100.0%	0.6%	-	-	-	-	-
Households	418	555	372	-	-100.0%	-	-	-	-	-	-
<b>Payments for capital assets</b>	<b>289</b>	<b>-</b>	<b>72</b>	<b>-</b>	<b>-100.0%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Machinery and equipment	289	-	72	-	-100.0%	-	-	-	-	-	-
<b>Payments for financial assets</b>	<b>11</b>	<b>-</b>	<b>59</b>	<b>-</b>	<b>-100.0%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Total</b>	<b>2 302 770</b>	<b>3 198 833</b>	<b>3 489 837</b>	<b>4 238 825</b>	<b>22.6%</b>	<b>100.0%</b>	<b>4 200 596</b>	<b>4 419 879</b>	<b>4 561 395</b>	<b>2.5%</b>	<b>100.0%</b>
Proportion of total programme expenditure to vote expenditure	46.3%	51.8%	54.6%	56.8%	-	-	56.5%	58.4%	58.8%	-	-
<b>Details of transfers and subsidies</b>											
<b>Households</b>											
<b>Other transfers to households</b>											
<b>Current</b>	<b>418</b>	<b>555</b>	<b>325</b>	<b>-</b>	<b>-100.0%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Households	22	-	-	-	-100.0%	-	-	-	-	-	-
Various institutions: Policy development on human and social development dynamics	125	125	125	-	-100.0%	-	-	-	-	-	-
National Research Foundation: Human resources development for science and engineering	245	-	-	-	-100.0%	-	-	-	-	-	-
Indigenous knowledge system	26	-	-	-	-100.0%	-	-	-	-	-	-
Various institutions: Science awareness	-	430	-	-	-	-	-	-	-	-	-

**Table 30.12 Research, Development and Support expenditure trends and estimates by subprogramme and economic classification**

Details of transfers and subsidies	Audited outcome			Adjusted appropriation 2015/16	Average growth rate (%)		Medium-term expenditure estimate			Average growth rate (%) 2015/16 - 2018/19	Expenditure/ Total: Average (%)
	2012/13	2013/14	2014/15		2012/13	2015/16	2016/17	2017/18	2018/19		
R thousand											
Various institutions: Strategic science platforms for research and development	-	-	200	-	-	-	-	-	-	-	-
<b>Departmental agencies and accounts</b>											
<b>Departmental agencies (non-business entities)</b>											
<b>Current</b>	<b>1 445 255</b>	<b>1 798 624</b>	<b>2 010 392</b>	<b>2 515 106</b>	<b>20.3%</b>	<b>58.7%</b>	<b>2 531 686</b>	<b>2 628 656</b>	<b>2 733 382</b>	<b>2.8%</b>	<b>59.7%</b>
Academy of Science of South Africa	16 284	-	21 577	23 229	12.6%	0.5%	23 106	24 261	25 668	3.4%	0.6%
Various institutions: Policy development on human and social development dynamics	10 096	11 098	9 838	10 170	0.2%	0.3%	10 487	11 012	11 651	4.6%	0.2%
National Research Foundation: Human resources development for science and engineering	1 254 852	1 522 913	1 316 944	1 761 516	12.0%	44.3%	1 767 067	1 821 908	1 879 842	2.2%	41.5%
Various institutions: Science awareness	53 883	40 332	53 103	69 195	8.7%	1.6%	69 541	73 018	77 253	3.7%	1.7%
National Research Foundation: South African research chairs initiative to develop human resources in science	60 385	74 045	451 779	470 446	98.2%	8.0%	482 243	506 875	536 274	4.5%	11.5%
Various institutions: Strategic science platforms for research and development	26 240	125 105	138 044	152 739	79.9%	3.3%	151 292	162 234	171 644	4.0%	3.7%
Various institutions: Astronomy research and development	11 673	12 673	12 707	13 999	6.2%	0.4%	14 069	14 773	15 630	3.7%	0.3%
National Research Foundation: Square Kilometre Array: Research and development	11 842	12 458	6 400	13 812	5.3%	0.3%	13 881	14 575	15 420	3.7%	0.3%
<b>Capital</b>	<b>473 690</b>	<b>818 658</b>	<b>988 950</b>	<b>1 465 406</b>	<b>45.7%</b>	<b>28.3%</b>	<b>1 407 636</b>	<b>1 517 498</b>	<b>1 539 137</b>	<b>1.6%</b>	<b>34.0%</b>
Various institutions: Infrastructure projects for research and development	254 952	398 551	343 751	777 991	45.0%	13.4%	754 880	805 567	810 160	1.4%	18.1%
National Research Foundation: Square Kilometre Array: Capital contribution to research	218 738	420 107	645 199	687 415	46.5%	14.9%	652 756	711 931	728 977	2.0%	16.0%
<b>Households</b>											
<b>Social benefits</b>											
<b>Current</b>	-	-	47	-	-	-	-	-	-	-	-
Households	-	-	47	-	-	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>											
<b>Public corporations</b>											
<b>Other transfers to public corporations</b>											
<b>Current</b>	<b>15 017</b>	<b>4 688</b>	<b>1 423</b>	-	<b>-100.0%</b>	<b>0.2%</b>	-	-	-	-	-
Various institutions: Strategic science platforms for research and development	15 017	4 688	700	-	-100.0%	0.2%	-	-	-	-	-
National Research Foundation: Square Kilometre Array: Research and development	-	-	723	-	-	-	-	-	-	-	-
<b>Capital</b>	<b>278 096</b>	<b>474 837</b>	<b>389 116</b>	<b>213 479</b>	<b>-8.4%</b>	<b>10.2%</b>	<b>214 546</b>	<b>225 273</b>	<b>238 339</b>	<b>3.7%</b>	<b>5.1%</b>
Council for Scientific and Industrial Research	216 014	192 382	204 045	213 479	-0.4%	6.2%	214 546	225 273	238 339	3.7%	5.1%
Various institutions: Infrastructure projects for research and development	62 082	74 455	185 071	-	-100.0%	2.4%	-	-	-	-	-
Square Kilometre Array	-	208 000	-	-	-	1.6%	-	-	-	-	-
<b>Non-profit institutions</b>											
<b>Current</b>	<b>38 531</b>	<b>24 244</b>	<b>8 280</b>	-	<b>-100.0%</b>	<b>0.5%</b>	-	-	-	-	-
Academy of Science of South Africa	-	20 744	-	-	-	0.2%	-	-	-	-	-
National Research Foundation: Human resources development for science and engineering	8 320	-	80	-	-100.0%	0.1%	-	-	-	-	-
Various institutions: Science awareness	-	2 200	3 200	-	-	-	-	-	-	-	-
Square Kilometre Array	-	-	2 000	-	-	-	-	-	-	-	-
Various institutions: Strategic science platforms for research and development	30 211	1 300	3 000	-	-100.0%	0.3%	-	-	-	-	-
<b>Capital</b>	-	<b>11 000</b>	-	-	-	<b>0.1%</b>	-	-	-	-	-
Various institutions: Infrastructure projects for research and development	-	11 000	-	-	-	0.1%	-	-	-	-	-

**Table 30.12 Research, Development and Support expenditure trends and estimates by subprogramme and economic classification**

Details of transfers and subsidies		Audited outcome			Adjusted appropriation 2015/16	Average growth rate (%) 2012/13 - 2015/16	Expenditure/ Total: Average (%)	Medium-term expenditure estimate			Average growth rate (%) 2015/16 - 2018/19	Expenditure/ Total: Average (%)
		2012/13	2013/14	2014/15				2016/17	2017/18	2018/19		
R thousand												
<b>Higher education institutions</b>												
<b>Current</b>												
	10 088	15 425	20 671	-	-100.0%	0.3%	-	-	-	-	-	-
National Research Foundation: Human resources development for science and engineering	1 198	551	4 940	-	-100.0%	0.1%	-	-	-	-	-	-
Various institutions: Science awareness	8 099	8 805	9 652	-	-100.0%	0.2%	-	-	-	-	-	-
Various institutions: Strategic science platforms for research and development	791	6 069	5 467	-	-100.0%	0.1%	-	-	-	-	-	-
Various institutions: Astronomy research and development	-	-	612	-	-	-	-	-	-	-	-	-
<b>Capital</b>												
Various institutions: Infrastructure projects for research and development	12 497	15 600	32 806	-	-100.0%	0.5%	-	-	-	-	-	-
<b>Public corporations and private enterprises</b>												
<b>Private enterprises</b>												
<b>Other transfers to private enterprises</b>												
<b>Current</b>												
Various institutions: Strategic science platforms for research and development	-	2 780	-	-	-	-	-	-	-	-	-	-

## Personnel information

**Table 30.13 Research, Development and Support personnel numbers and cost by salary level<sup>1</sup> prior to Cabinet approved reduction, effective from 2017/18<sup>2</sup>; budget reductions and aggregate baseline total**

Number of posts estimated for 31 March 2016		Number and cost <sup>3</sup> of personnel posts filled / planned for on funded establishment															Number		
Number of funded posts	Number of posts additional to the establishment	Actual			Revised estimate			Medium-term expenditure estimate						Average growth rate (%) 2015/16 - 2018/19	Salary level/total: Average (%)				
		2014/15		2015/16		2016/17		2017/18		2018/19									
		Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost			
<b>Research, Development and Support</b>																			
Salary level	50	-	50	29.4	0.6	45	30.5	0.7	45	31.8	0.7	45	34.9	0.8	45	37.4	0.8	-	100.0%
1 – 6	5	-	5	1.0	0.2	3	0.6	0.2	3	0.7	0.2	3	0.7	0.2	3	0.8	0.3	-	6.7%
7 – 10	7	-	7	1.9	0.3	7	2.0	0.3	7	2.1	0.3	7	2.3	0.3	7	2.4	0.3	-	15.6%
11 – 12	23	-	23	11.4	0.5	21	9.8	0.5	21	15.5	0.7	21	16.9	0.8	21	18.0	0.9	-	46.7%
13 – 16	15	-	15	15.1	1.0	14	18.0	1.3	14	13.6	1.0	14	15.0	1.1	14	16.1	1.2	-	31.1%
Reduction	-	-	-	-	-	-	-	-	-	-	-	-	(2.1)	-	-	(3.3)	-	-	-
<b>Total</b>	<b>50</b>	<b>-</b>	<b>50</b>	<b>29.4</b>	<b>0.6</b>	<b>45</b>	<b>30.5</b>	<b>0.7</b>	<b>45</b>	<b>31.8</b>	<b>0.7</b>	<b>-</b>	<b>32.8</b>	<b>-</b>	<b>-</b>	<b>34.1</b>	<b>-</b>	<b>-</b>	<b>-</b>

1. Data has been provided by the department and may not necessarily reconcile with official government personnel data.

2. This programme's compensation of employees budget has been reduced by R5.4 million for 2017/18 and 2018/19. After consultation with the Department of Public Service and Administration and National Treasury, the department will finalise, develop and implement a plan to manage its personnel expenditure within this reduced expenditure ceiling.

3. Rand million.

## Programme 5: Socio-Economic Innovation Partnerships

### Programme purpose

Enhance the growth and development priorities of government through targeted science and technology-based innovation interventions, and the development of strategic partnerships with other government departments, industry, research institutions and communities.

### Objectives

- Inform and influence how knowledge, evidence and learning from science and technology can be used to achieve inclusive development by publishing 16 knowledge products (prototypes and patents), maintaining and improving 10 decision support systems and generating 27 learning interventions by 31 March 2019.

- Identify, grow and sustain science, technology and innovation capabilities for sustainable development and the greening of society and the economy through funding 170 honours, masters and doctoral students, and adding 14 knowledge and innovation products to the intellectual property portfolio by 31 March 2019.
- Identify, grow and sustain science, technology and innovation capabilities that improve the competitiveness of existing industries with growth potential in aerospace, advanced manufacturing, chemicals, advanced metals, mining, ICTs and sector innovation funds; and facilitate the development of new research and development led targeted industries, by 31 March 2019, by:
  - funding 870 masters and doctoral students, and 272 interns
  - supporting 6 instruments
  - adding 68 knowledge and innovation products to the intellectual property portfolio.
- Strengthen provincial and rural innovation and production systems through analysis and catalytic interventions through funding or co-funding 8 innovation support interventions by 31 March 2019.
- Enhance understanding and analysis that support improvements in the functioning and performance of the national system of innovation by approving/publishing 18 reports and policy briefings on the innovation system and policy by 31 March 2019.
- Introduce and manage interventions and incentive programmes that increase the level of private sector investment in scientific or technological research and development by providing pre-approval decisions within 90 days from the date of receiving research and development tax incentive applications by 31 March 2019.

## Subprogrammes

- *Sector Innovation and Green Economy* provides policy, strategy and direction setting for research and development led growth of strategic sectors of the economy; and supports the transition to a green economy.
- *Innovation for Inclusive Development* supports the development of science and technology based innovations for tackling poverty, including creation of sustainable jobs, sustainable human settlements, and the enhanced delivery of basic services.
- *Science and Technology Investment* leads and supports the development of indicators and instruments for monitoring investments in science and technology and the performance of the national system of innovation, as well as ways of strengthening policy in relation to the national system of innovation.
- *Technology Localisation, Beneficiation and Advanced Manufacturing* funds technology and innovation development programmes to advance strategic medium and long term sustainable economic growth and sector development priorities as well as public service delivery.

## Expenditure trends and estimates

**Table 30.14 Socio-Economic Innovation Partnerships expenditure trends and estimates by subprogramme and economic classification**

Subprogramme	Audited outcome			Adjusted appropriation	Average growth rate (%)		Medium-term expenditure estimate			Average growth rate (%)		
	2012/13	2013/14	2014/15		2015/16	2012/13 - 2015/16	Average (%)	2016/17	2017/18	2018/19	2015/16 - 2018/19	Average (%)
R thousand												
Sector Innovation and Green Economy	833 595	812 750	875 737	873 803	1.6%	55.6%	937 080	985 109	1 044 918	6.1%	56.5%	
Innovation for Inclusive Development	315 974	325 125	340 095	365 022	4.9%	22.1%	349 970	358 402	358 029	-0.6%	21.1%	
Science and Technology Investment	31 976	25 377	29 864	29 023	-3.2%	1.9%	29 548	30 837	32 413	3.8%	1.8%	
Technology Localisation, Beneficiation and Advanced Manufacturing	127 669	294 990	293 470	529 023	60.6%	20.4%	476 278	237 418	160 690	-32.8%	20.6%	
<b>Total</b>	<b>1 309 214</b>	<b>1 458 242</b>	<b>1 539 166</b>	<b>1 796 871</b>	<b>11.1%</b>	<b>100.0%</b>	<b>1 792 876</b>	<b>1 611 766</b>	<b>1 596 050</b>	<b>-3.9%</b>	<b>100.0%</b>	
Change to 2015				(7 593)			(64 394)	(52 493)	4 541			
Budget estimate												

**Table 30.14 Socio-Economic Innovation Partnerships expenditure trends and estimates by subprogramme and economic classification**

Economic classification	Audited outcome			Adjusted appropriation 2015/16	Average growth rate (%) 2012/13 - 2015/16	Expenditure/ Total: Average (%)	Medium-term expenditure estimate			Average growth rate (%) 2015/16 - 2018/19	Expenditure/ Total: Average (%)
	2012/13	2013/14	2014/15				2016/17	2017/18	2018/19		
R thousand											
<b>Current payments</b>	<b>32 398</b>	<b>36 519</b>	<b>40 858</b>	<b>42 982</b>	<b>9.9%</b>	<b>2.5%</b>	<b>46 663</b>	<b>48 298</b>	<b>50 295</b>	<b>5.4%</b>	<b>2.8%</b>
Compensation of employees	25 240	29 988	34 158	34 579	11.1%	2.0%	37 838	39 050	40 566	5.5%	2.2%
Goods and services	7 113	6 531	6 700	8 403	5.7%	0.5%	8 825	9 248	9 729	5.0%	0.5%
of which:											
Administrative fees	272	229	362	116	-24.7%	-	116	122	129	3.6%	-
Advertising	98	239	40	188	24.3%	-	189	206	219	5.2%	-
Minor assets	7	-	2	-	-100.0%	-	-	-	-	-	-
Catering: Departmental activities	104	185	87	261	35.9%	-	267	281	297	4.4%	-
Communication	448	438	293	995	30.5%	-	915	963	1 036	1.4%	0.1%
Computer services	-	-	-	69	-	-	69	72	76	3.3%	-
Consultants: Business and advisory services	-	829	486	3 718	-	0.1%	3 410	3 574	3 730	0.1%	0.2%
Science and technological services	-	-	62	-	-	-	-	-	-	-	-
Contractors	-	46	-	-	-	-	-	-	-	-	-
Agency and support/outsourced services	2 617	497	1 715	187	-58.5%	0.1%	187	196	186	-0.2%	-
Entertainment	11	12	18	67	82.6%	-	95	100	106	16.5%	-
Inventory: Other supplies	1	-	-	5	71.0%	-	5	5	5	-	-
Consumable supplies	-	21	1	-	-	-	-	-	-	-	-
Consumables: Stationery, printing and office supplies	164	88	1	-	-100.0%	-	-	-	-	-	-
Operating leases	379	72	-	-	-100.0%	-	-	-	-	-	-
Transport provided: Departmental activity	-	-	2 828	-	-	-	-	-	-	-	-
Travel and subsistence	2 745	2 619	-	2 006	-9.9%	0.1%	2 725	2 839	3 003	14.4%	0.2%
Training and development	4	-	185	-	-100.0%	-	-	-	-	-	-
Operating payments	138	75	620	39	-34.4%	-	39	41	43	3.3%	-
Venues and facilities	125	1 181	-	752	81.9%	-	808	849	899	6.1%	-
Interest and rent on land	45	-	-	-	-100.0%	-	-	-	-	-	-
<b>Transfers and subsidies</b>	<b>1 276 327</b>	<b>1 421 723</b>	<b>1 498 308</b>	<b>1 753 889</b>	<b>11.2%</b>	<b>97.5%</b>	<b>1 746 213</b>	<b>1 563 468</b>	<b>1 545 755</b>	<b>-4.1%</b>	<b>97.2%</b>
Departmental agencies and accounts	381 482	346 204	391 492	812 532	28.7%	31.6%	749 435	513 251	433 322	-18.9%	36.9%
Higher education institutions	4 633	4 384	7 065	-	-100.0%	0.3%	-	-	-	-	-
Public corporations and private enterprises	883 764	1 058 283	1 064 637	941 357	2.1%	64.7%	996 778	1 050 217	1 112 433	5.7%	60.3%
Non-profit institutions	6 429	12 707	35 053	-	-100.0%	0.9%	-	-	-	-	-
Households	19	145	61	-	-100.0%	-	-	-	-	-	-
<b>Payments for capital assets</b>	<b>489</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-100.0%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Machinery and equipment	489	-	-	-	-100.0%	-	-	-	-	-	-
<b>Total</b>	<b>1 309 214</b>	<b>1 458 242</b>	<b>1 539 166</b>	<b>1 796 871</b>	<b>11.1%</b>	<b>100.0%</b>	<b>1 792 876</b>	<b>1 611 766</b>	<b>1 596 050</b>	<b>-3.9%</b>	<b>100.0%</b>
<b>Proportion of total programme expenditure to vote expenditure</b>	<b>26.3%</b>	<b>23.6%</b>	<b>24.1%</b>	<b>24.1%</b>	<b>-</b>	<b>-</b>	<b>24.1%</b>	<b>21.3%</b>	<b>20.6%</b>	<b>-</b>	<b>-</b>
<b>Details of transfers and subsidies</b>											
<b>Departmental agencies and accounts</b>											
<b>Departmental agencies (non-business entities)</b>											
<b>Current</b>	<b>381 482</b>	<b>346 204</b>	<b>391 492</b>	<b>812 532</b>	<b>28.7%</b>	<b>31.6%</b>	<b>749 435</b>	<b>513 251</b>	<b>433 322</b>	<b>-18.9%</b>	<b>36.9%</b>
Various institutions: Innovative research and development	39 780	8 330	16 678	68 558	19.9%	2.2%	49 926	43 522	41 902	-15.1%	3.0%
Human Sciences Research Council	247 820	258 867	276 010	288 706	5.2%	17.6%	290 149	304 656	305 495	1.9%	17.5%
Various institutions: Local manufacturing capacity research and technical support	7 000	40 000	43 712	213 117	212.3%	5.0%	214 183	84 312	27 168	-49.7%	7.9%
National Research Foundation: Research information management system	14 010	4 519	6 850	7 165	-20.0%	0.5%	7 201	7 561	8 000	3.7%	0.4%
Various institutions: Resource based industries research and development	-	-	1 000	-	-	-	-	-	-	-	-
Various institutions: Implementation of environmental innovation	63 853	-	4 585	16 463	-36.4%	1.4%	23 360	24 865	27 843	19.1%	1.4%
Various institutions: Local systems of innovation for the cold chain technologies project	-	25 000	33 000	208 003	-	4.4%	154 043	37 233	11 168	-62.3%	6.0%
Human Science Research Council: Science and technology indicators	9 019	9 488	9 657	10 520	5.3%	0.6%	10 573	11 102	11 746	3.7%	0.6%
<b>Households</b>											
<b>Social benefits</b>											
<b>Current</b>	<b>19</b>	<b>145</b>	<b>61</b>	<b>-</b>	<b>-100.0%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Households	19	145	61	-	-100.0%	-	-	-	-	-	-

**Table 30.14 Socio-Economic Innovation Partnerships expenditure trends and estimates by subprogramme and economic classification**

Details of transfers and subsidies	Audited outcome			Adjusted appropriation 2015/16	Average growth rate (%) 2012/13 - 2015/16	Expenditure/Total: Average (%) 2012/13 - 2015/16	Medium-term expenditure estimate			Average growth rate (%) 2015/16 - 2018/19	Expenditure/Total: Average (%) 2015/16 - 2018/19
	2012/13	2013/14	2014/15				2016/17	2017/18	2018/19		
R thousand											
<b>Public corporations and private enterprises</b>											
<b>Public corporations</b>											
<b>Other transfers to public corporations</b>											
<b>Current</b>	<b>141 012</b>	<b>248 864</b>	<b>238 897</b>	<b>121 153</b>	<b>-4.9%</b>	<b>12.3%</b>	<b>124 735</b>	<b>134 572</b>	<b>143 681</b>	<b>5.8%</b>	<b>7.7%</b>
Council for Scientific and Industrial Research	17 270	20 167	24 208	26 144	14.8%	1.4%	30 745	33 257	36 490	11.8%	1.9%
Various institutions: Advanced manufacturing technology strategy implementation	42 444	22 642	25 649	45 502	2.3%	2.2%	45 755	53 293	56 384	7.4%	3.0%
Various institutions: Innovative research and development	23 366	37 835	20 827	-	-100.0%	1.3%	-	-	-	-	-
Various institutions: Local manufacturing capacity research and technical support	13 862	71 398	68 034	-	-100.0%	2.5%	-	-	-	-	-
Various institutions: Resource based industries research and development	44 070	39 134	38 494	49 507	4.0%	2.8%	48 235	48 022	50 807	0.9%	2.9%
Various institutions: Implementation of environmental innovation	-	-	10 263	-	-	0.2%	-	-	-	-	-
Various institutions: Local systems of innovation for the cold chain technologies project	-	57 688	51 422	-	-	1.8%	-	-	-	-	-
<b>Non-profit institutions</b>											
<b>Current</b>	<b>6 429</b>	<b>12 707</b>	<b>35 053</b>	<b>-</b>	<b>-100.0%</b>	<b>0.9%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Various institutions: Advanced manufacturing technology strategy implementation	-	-	100	-	-	-	-	-	-	-	-
Various institutions: Innovative research and development	-	2 502	19 644	-	-	0.4%	-	-	-	-	-
Various institutions: Resource based industries research and development	1 429	205	1 222	-	-100.0%	-	-	-	-	-	-
Various institutions: Implementation of environmental innovation	-	-	690	-	-	-	-	-	-	-	-
Various institutions: Local systems of innovation for the cold chain technologies project	5 000	10 000	13 397	-	-100.0%	0.5%	-	-	-	-	-
<b>Higher education institutions</b>											
<b>Current</b>	<b>4 633</b>	<b>4 384</b>	<b>7 065</b>	<b>-</b>	<b>-100.0%</b>	<b>0.3%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Council for Scientific and Industrial Research	-	1 001	-	-	-	-	-	-	-	-	-
Various institutions: Advanced manufacturing technology strategy implementation	550	169	2 321	-	-100.0%	-	-	-	-	-	-
Various institutions: Innovative research and development	-	-	631	-	-	-	-	-	-	-	-
Various institutions: Local manufacturing capacity research and technical support	-	549	747	-	-	-	-	-	-	-	-
Various institutions: Resource based industries research and development	1 515	1 515	1 000	-	-100.0%	0.1%	-	-	-	-	-
Various institutions: Local systems of innovation for the cold chain technologies project	2 568	1 150	2 366	-	-100.0%	0.1%	-	-	-	-	-
<b>Public corporations and private enterprises</b>											
<b>Public corporations</b>											
<b>Public corporations - subsidies on products and production</b>											
<b>Current</b>	<b>742 752</b>	<b>781 996</b>	<b>825 740</b>	<b>820 204</b>	<b>3.4%</b>	<b>51.9%</b>	<b>872 043</b>	<b>915 645</b>	<b>968 752</b>	<b>5.7%</b>	<b>52.6%</b>
Council for Scientific and Industrial Research	742 752	781 996	825 740	820 204	3.4%	51.9%	872 043	915 645	968 752	5.7%	52.6%
<b>Private enterprises</b>											
<b>Other transfers to private enterprises</b>											
<b>Current</b>	<b>-</b>	<b>27 423</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>0.4%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Various institutions: Advanced manufacturing technology strategy implementation	-	15 142	-	-	-	0.2%	-	-	-	-	-
Various institutions: Innovative research and development	-	12 281	-	-	-	0.2%	-	-	-	-	-

## Personnel information

**Table 30.15 Socio-Economic Innovation Partnerships personnel numbers and cost by salary level<sup>1</sup> prior to Cabinet approved reduction, effective from 2017/18<sup>2</sup>; budget reductions and aggregate baseline total**

Number of posts estimated for 31 March 2016		Number and cost <sup>3</sup> of personnel posts filled / planned for on funded establishment												Number					
Number of funded posts	Number of posts additional to the establishment	Actual			Revised estimate			Medium-term expenditure estimate						Average growth rate (%)	Salary level/total: Average (%)				
		2014/15			2015/16			2016/17		2017/18		2018/19				2015/16 - 2018/19			
		Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost						
Socio-Economic Innovation Partnerships																			
Salary level	57	-	57	34.2	0.6	54	34.6	0.6	54	37.8	0.7	54	41.6	0.8	54	44.5	0.8	-	100.0%
1 – 6	6	-	6	0.9	0.2	5	0.9	0.2	5	1.0	0.2	5	1.1	0.2	5	1.2	0.2	-	9.3%
7 – 10	10	-	10	3.6	0.4	10	3.7	0.4	10	4.0	0.4	10	4.4	0.4	10	4.7	0.5	-	18.5%
11 – 12	26	-	26	15.7	0.6	24	15.8	0.7	24	17.3	0.7	24	19.0	0.8	24	20.3	0.8	-	44.4%
13 – 16	15	-	15	13.9	0.9	15	14.2	0.9	15	15.6	1.0	15	17.1	1.1	15	18.3	1.2	-	27.8%
Reduction	-	-	-	-	-	-	-	-	-	-	-	-	(2.6)	-	-	(3.9)	-	-	-
<b>Total</b>	<b>57</b>	<b>-</b>	<b>57</b>	<b>34.2</b>	<b>0.6</b>	<b>54</b>	<b>34.6</b>	<b>0.6</b>	<b>54</b>	<b>37.8</b>	<b>0.7</b>	<b>-</b>	<b>39.1</b>	<b>-</b>	<b>-</b>	<b>40.6</b>	<b>-</b>	<b>-</b>	<b>-</b>

1. Data has been provided by the department and may not necessarily reconcile with official government personnel data.

2. This programme's compensation of employees budget has been reduced by R6.5 million for 2017/18 and 2018/19. After consultation with the Department of Public Service and Administration and National Treasury, the department will finalise, develop and implement a plan to manage its personnel expenditure within this reduced expenditure ceiling.

3. Rand million.

## Entities

### Academy of Science of South Africa

#### Mandate

The Academy of Science of South Africa was established under the Academy of Science of South Africa Act (2001), as amended. The academy's mandate is to promote outstanding achievements in all fields of scientific enquiry, grant recognition for excellence, and provide evidence based scientific advice to government and other stakeholders.

#### Selected performance indicators

**Table 30.16 Academy of Science of South Africa performance indicators by programme/objective/activity and related outcome**

Indicator	Programme/Objective/Activity	Outcome	Past			Current	Projections		
			2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Number of exhibitions at science events per year	Administration	Outcome 1: Quality basic education	8	8	8	8	8	8	8
Number of young scientists' conferences hosted per year	Liaison	Outcome 5: A skilled and capable workforce to support an inclusive growth path	1	1	1	1	1	1	1
Number of Science for Society gold medals awarded per year	Liaison		2	2	2	2	2	2	2
Number of regional public lectures hosted per year	Liaison		7	7	7	7	7	7	7
Number of scientific evidence-based reports produced per year	Policy advisory programme		8	8	8	8	8	8	8
Number of new journal titles added to open access platform per year	Scholarly publishing programme		6	10	10	10	10	10	10
Number of national scholarly publishers' programme forums hosted per year	Scholarly publishing programme		1	1	1	1	1	1	1
Number of national scholarly editors' forums hosted per year	Scholarly publishing programme		1	1	1	1	1	1	1
Number of South African Journal of Science publications per year	Scholarly publishing programme		6	6	6	6	6	6	6
Number of Quest: Science for South Africa magazines produced per year	Scholarly publishing programme		4	4	4	4	4	4	4
		Outcome 1: Quality basic education							

## Expenditure analysis

As set out in the national development plan and outcome 5 (a skilled and capable workforce to support an inclusive growth path) of government's 2014-2019 medium term strategic framework, the Academy of Science of South Africa will continue to recognise scholarly achievement and scientific excellence, and thereby contribute to science education and innovation in the sector.

Over the medium term, the academy's focus will be on providing evidence based scientific advice on issues related to climate change, poverty alleviation and health. This will be done through a range of studies that look at issues such as the state of energy research in South Africa, agriculture, and the technical readiness of South Africa to support the shale gas industry. It will further focus on developing the intellectual capacity of scientists in South Africa, and on raising public awareness and educating the public about science. These activities will be achieved through the science policy advisory programme, the scholarly publishing programme, and the liaison programme.

The academy will aim to produce and publish quality research documents, increase the quality and visibility of South African research publications, and strengthen partnerships with other institutions in different spheres of government. It is envisaged that the number of scientific evidence based reports produced and the number of South African Journal of Science publications released will remain constant over the medium term. R32.9 million over the medium term is allocated to the scholarly publishing programme to ensure enhanced capacity, and the programme is expected to account for 31.6 per cent of the academy's total budget of R91.1 million over the medium term.

The academy has initiated a process of organisational redesign to enhance operational efficiency and effectiveness. To this end, it will incorporate the publications programme into the scholarly publishing programme, which will increase expenditure in the scholarly publishing programme by an estimated 24.2 per cent over the medium term.

The academy will continue to provide its personnel with the necessary resources, infrastructure, mentoring and in-house training, and encourage and enable them to undergo relevant external training. To equip personnel to deliver services and products, expenditure on goods and services is expected to increase from R10.1 million in 2016/17 to R13.7 million in 2018/19. The academy's activities are labour intensive and require highly qualified staff, which is why compensation of employees remains the key cost driver, accounting for an expected 58.2 per cent (R55.9 million) of total expenditure over the medium term.

The academy derives its revenue mainly from transfers from the Department of Science and Technology, and these are expected to increase over the medium term from R26.7 million in 2016/17 to R32.3 million in 2018/19. The agency further expects to generate its own revenue from its publications in the form of advertising revenue (R1.5 million), membership fees (R272 000), interest received from short term investments (R1.75 million), and secretariat services and workshop fees (R120 000) over the medium term.

## Programmes/objectives/activities

**Table 30.17 Academy of Science of South Africa expenditure trends and estimates by programme/objective/activity**

R thousand	Audited outcome			Revised estimate 2015/16	Average growth rate (%) 2012/13 - 2015/16	Expenditure/Total: Average (%) 2012/13 - 2015/16	Medium-term expenditure estimate			Average growth rate (%) 2015/16 - 2018/19	Expenditure/Total: Average (%) 2015/16 - 2018/19
	2012/13	2013/14	2014/15				2016/17	2017/18	2018/19		
Administration	4 532	5 947	4 562	6 665	13.7%	20.1%	7 967	8 045	8 417	8.1%	25.0%
Communication	1 210	1 429	1 576	1 381	4.5%	5.2%	–	–	–	-100.0%	1.0%
Liaison	3 268	3 503	7 314	7 930	34.4%	18.7%	5 702	5 425	6 584	-6.0%	20.3%
Policy advisory programme	2 904	2 607	8 615	8 054	40.5%	18.2%	5 380	4 773	5 907	-9.8%	19.0%
Publications	3 925	3 661	3 613	4 389	3.8%	14.6%	–	–	–	-100.0%	3.1%
Scholarly publishing programme	3 807	6 000	10 349	6 570	19.9%	23.2%	8 815	11 466	12 594	24.2%	31.6%
<b>Total</b>	<b>19 646</b>	<b>23 147</b>	<b>36 029</b>	<b>34 989</b>	<b>21.2%</b>	<b>100.0%</b>	<b>27 864</b>	<b>29 709</b>	<b>33 502</b>	<b>-1.4%</b>	<b>100.0%</b>

## Statements of historical financial performance

**Table 30.18 Academy of Science of South Africa statements of historical financial performance**

Statement of financial performance		Budget	Audited outcome	Budget	Audited outcome	Budget	Audited outcome	Budget estimate	Revised estimate	Outcome/ Budget Average (%)
R thousand		2012/13		2013/14		2014/15		2015/16		2012/13 - 2015/16
<b>Revenue</b>										
<b>Non-tax revenue</b>		874	1 863	728	1 406	750	2 272	1 154	1 176	191.6%
Sale of goods and services other than capital assets		324	758	328	608	332	511	586	586	156.9%
<i>of which:</i>										
Administrative fees		74	72	78	65	82	90	86	86	97.8%
Sales by market establishment		250	686	250	543	250	421	500	500	172.0%
Other non-tax revenue		550	1 105	400	798	418	1 761	568	590	219.7%
<b>Transfers received</b>		16 319	17 703	20 982	23 190	21 797	35 714	24 231	33 813	132.5%
<b>Total revenue</b>		17 193	19 566	21 710	24 596	22 547	37 986	25 385	34 989	134.9%
<b>Expenses</b>										
<b>Current expenses</b>		17 193	19 646	21 710	23 147	22 547	36 029	26 102	34 989	130.0%
Compensation of employees		9 563	9 070	9 559	9 425	10 090	13 499	12 925	16 876	116.0%
Goods and services		7 420	10 304	12 151	13 463	12 457	22 310	12 957	17 893	142.2%
Depreciation		210	272	-	259	-	220	220	220	225.8%
<b>Total expenses</b>		17 193	19 646	21 710	23 147	22 547	36 029	26 102	34 989	130.0%
<b>Surplus/(Deficit)</b>		-	(80)	-	1 449	-	1 957	(717)	-	-

## Statements of estimates of financial performance

**Table 30.19 Academy of Science of South Africa statements of estimates of financial performance and position**

Statement of financial performance		Revised estimate	Average growth rate (%)	Expenditure/ Total: Average (%)	Medium-term estimate			Average growth rate (%)	Expenditure/ Total: Average (%)
R thousand		2015/16	2012/13 - 2015/16		2016/17	2017/18	2018/19	2015/16 - 2018/19	
<b>Revenue</b>									
<b>Non-tax revenue</b>		1 176	-14.2%	6.1%	1 178	1 230	1 234	1.6%	3.9%
Sale of goods and services other than capital assets		586	-8.2%	2.3%	588	590	594	0.5%	1.9%
<i>of which:</i>									
Administrative fees		86	6.1%	0.3%	88	90	94	3.0%	0.3%
Sales by market establishment		500	-10.0%	2.1%	500	500	500	-	1.6%
Other non-tax revenue		590	-18.9%	3.8%	590	640	640	2.7%	2.0%
<b>Transfers received</b>		33 813	24.1%	93.9%	26 686	28 479	32 268	-1.5%	96.1%
<b>Total revenue</b>		34 989	21.4%	100.0%	27 864	29 709	33 502	-1.4%	100.0%
<b>Expenses</b>									
<b>Current expenses</b>		34 989	21.2%	100.0%	27 864	29 709	33 502	-1.4%	137.2%
Compensation of employees		16 876	23.0%	43.1%	17 567	18 498	19 820	5.5%	58.2%
Goods and services		17 893	20.2%	55.9%	10 077	11 001	13 682	-8.6%	41.3%
Depreciation		220	-6.8%	0.9%	220	210	-	-100.0%	0.5%
<b>Total expenses</b>		34 989	21.2%	100.0%	27 864	29 709	33 502	-1.4%	100.0%
<b>Surplus/(Deficit)</b>		-	(1)	-	-	-	-	-	-

## Personnel information

**Table 30.20 Academy of Science of South Africa personnel numbers and cost by salary level<sup>1</sup>**

Number of posts estimated for 31 March 2016		Number and cost <sup>1</sup> of personnel posts filled / planned for on funded establishment															Number	
Number of funded posts	Number of posts on approved establishment	Actual			Revised estimate			Medium-term expenditure estimate						Average growth rate (%)	Salary level/total: Average (%)			
		2014/15		Unit Cost	2015/16		Unit Cost	2016/17		Unit Cost	2017/18		Unit Cost			2018/19		Unit Cost
Academy of Science of South Africa	Salary level	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost	2015/16 - 2018/19	
		38	13.5	0.4	35	16.9	0.5	35	17.6	0.5	35	18.5	0.5	35	19.8	0.6	5.5%	100.0%
1 – 6		4	0.4	0.1	2	0.2	0.1	2	0.1	0.1	2	0.2	0.1	2	0.2	0.1	-2.1%	5.7%
7 – 10		27	7.8	0.3	26	10.1	0.4	26	10.4	0.4	15	4.7	0.3	15	5.0	0.3	-20.8%	58.6%
11 – 12		4	1.9	0.5	4	3.2	0.8	4	3.4	0.8	14	8.9	0.6	11	6.9	0.6	29.2%	23.6%
13 – 16		3	3.4	1.1	3	3.4	1.1	3	3.6	1.2	4	4.7	1.2	7	7.8	1.1	31.2%	12.1%

1. Rand million.

## Council for Scientific and Industrial Research

### Mandate

The Council for Scientific and Industrial Research was established in terms of the Scientific Research Council Act (1988), as amended. The council's mandate is to foster industrial and scientific development in the national interest through multidisciplinary research and technological innovation.

### Selected performance indicators

**Table 30.21 Council for Scientific and Industrial Research performance indicators by programme/objective/activity and related outcome**

Indicator	Programme/Objective/Activity	Outcome	Past			Current	Projections		
			2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Number of journal articles published per year	Science, engineering and technology operating units and centres	Outcome 5: A skilled and capable workforce to support an inclusive growth path	- <sup>1</sup>	- <sup>1</sup>	275	300	308	320	380
Number of conference papers delivered per year	Science, engineering and technology operating units and centres		- <sup>1</sup>	- <sup>1</sup>	280	290	315	325	335
Number of new technology demonstrators per year	Science, engineering and technology operating units and centres	Outcome 4: Decent employment through inclusive economic growth	33	48	25	>30	>25	>25	>30
Contract research and development income generated per year	Science, engineering and technology operating units and centres		R1.4bn	R1.5bn	R1.6bn	R1.8bn	R1.9bn	R2bn	R2.2bn
Number of science, engineering and technology staff per year	Science, engineering and technology operating units and centres	Outcome 5: A skilled and capable workforce to support an inclusive growth path	1 578	1 691	1 753	1 850	1 789	1 807	1 890
Percentage of science, engineering and technology staff who are black per year	Science, engineering and technology operating units and centres		49% (773)	49% (829)	53% (929)	57% (1 054)	56% (1 002)	55% (994)	56% (1 058)
Number of science, engineering and technology staff with doctorates per year	Science, engineering and technology operating units and centres		301	310	320	330	329	343	383
Number of new patents granted per year	Science, engineering and technology operating units and centres	Outcome 4: Decent employment through inclusive economic growth	35	15	>15	>15	>15	>15	>15

1. No historical data available as these indicators were introduced in 2014/15.

## Expenditure analysis

The scientific initiatives of the Council for Scientific and Industrial Research support the national development plan, which sets out broad parameters to national imperatives relating to science, engineering and technology. In addition, the council contributes to outcome 5 (a skilled and capable workforce to support an inclusive growth path) and outcome 6 (an efficient, competitive and responsive economic infrastructure network) of government's 2014-2019 medium term strategic framework. The council will continue to focus on research and development in the areas of health, energy, industry (advanced manufacturing and mining), the built environment, defence and security, the natural environment, and scientific equipment and infrastructure investment. The council's planned expenditure will further support these areas and activities to ensure an increase in new technology demonstrators and new patents, and further contribute to decent employment.

To address developmental needs, all the council's research impact areas and flagship programmes are aligned to deliver an integrated response both within the council and from the perspective of the national system of innovation. Over the medium term, the council will continue to focus on performing relevant research and development; strengthening the science, engineering and technology base; building and transforming human capital; and transferring skills and technology, thereby contributing to a skilled and capable workforce that supports economic growth.

The council's focus on scientific equipment and infrastructure investment ensures the generation of knowledge and the development of technologies. The council has more than 50 buildings on its campuses, many of which are almost 70 years old and in need of upgrading. Large infrastructure projects include the establishment of the South African National Research and Education network on behalf of the Department of Science and Technology to provide low cost broadband to all tertiary education institutions and research organisations in the country. As the council requires world class facilities to support biomanufacturing, biorefineries, advanced manufacturing, nano-polymer upscale facilities, and the modernisation of laboratories, R772 million is set to be invested in scientific equipment and infrastructure over the medium term. Further spending on computer services, contractors, and research and development is expected to increase goods and services expenditure from R1.1 billion in 2016/17 to R1.3 billion in 2018/19.

Due to the highly skilled nature of the council's work, compensation of employees will remain a key cost driver over the medium term, accounting for an expected 56.9 per cent of the council's total budget. To enable the council to develop, attract and retain world class research and engineering expertise to deliver on its mandate, expenditure on compensation of employees is expected to increase from R1.6 billion in 2016/17 to R1.8 billion in 2018/19, in line with the expected increase in personnel from 2 716 to 2 815 over the same period.

The council uses its revenue to support innovation in South Africa to improve national competitiveness in the global economy. It derives its revenue from transfers from the department, contract research and development income from local and international public and private sectors, and income from intellectual property and technology transfer efforts. Contract income is expected to increase by an average of 7.2 per cent from R1.9 billion in 2016/17 to R2.3 billion in 2018/19 through additional research and development work. Total revenue generated from research and development activities is projected to increase from R2 billion 2016/17 to R2.3 billion in 2018/19. Transfers from the department are expected to increase from R792.1 million in 2016/17 to R879.7 million in 2018/19. The council projects total revenue over the medium term to be approximately R9 billion.

## Programmes/objectives/activities

**Table 30.22 Council for Scientific and Industrial Research expenditure trends and estimates by programme/objective/activity**

	Audited outcome			Revised estimate	Average growth rate (%)		Medium-term expenditure estimate			Average growth rate (%)	
	2012/13	2013/14	2014/15		2015/16	2012/13 - 2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19	2015/16 - 2018/19
R thousand											
Administration	261 372	262 657	362 578	393 135	14.6%	13.8%	414 701	444 982	475 276	6.5%	15.2%
Council for Scientific and Industrial Research science, engineering and technology operating units and centres	1 765 184	1 892 408	2 036 497	2 217 230	7.9%	86.2%	2 311 903	2 479 803	2 645 715	6.1%	84.8%
<b>Total</b>	<b>2 026 556</b>	<b>2 155 065</b>	<b>2 399 075</b>	<b>2 610 365</b>	<b>8.8%</b>	<b>100.0%</b>	<b>2 726 604</b>	<b>2 924 785</b>	<b>3 120 991</b>	<b>6.1%</b>	<b>100.0%</b>

## Statements of historical financial performance

**Table 30.23 Council for Scientific and Industrial Research statements of historical financial performance**

Statement of financial performance									
R thousand	Budget		Audited outcome		Budget		Audited outcome		Outcome/ Budget Average (%)
	2012/13	2013/14	2013/14	2014/15	2014/15	2015/16	2015/16		
<b>Revenue</b>									
<b>Non-tax revenue</b>	1 334 488	1 485 342	1 503 004	1 590 355	1 662 780	1 776 555	1 909 496	1 878 606	105.0%
Sale of goods and services other than capital assets	1 278 044	1 408 837	1 453 444	1 509 305	1 625 768	1 686 836	1 863 125	1 832 438	103.5%
<i>of which:</i>									
<i>Sales by market establishment</i>	1 278 044	1 408 837	1 453 444	1 509 305	1 625 768	1 686 836	1 863 125	1 832 438	103.5%
Other non-tax revenue	56 444	76 505	49 560	81 050	37 012	89 719	46 371	46 168	154.9%
<b>Transfers received</b>	680 834	594 478	781 996	618 849	825 740	675 340	827 705	794 968	86.1%
<b>Total revenue</b>	2 015 322	2 079 820	2 285 000	2 209 204	2 488 520	2 451 895	2 737 201	2 673 575	98.8%
<b>Expenses</b>									
<b>Current expenses</b>	1 980 256	2 026 556	2 238 288	2 155 065	2 437 876	2 399 075	2 610 365	2 610 365	99.2%
Compensation of employees	1 073 754	1 110 208	1 220 671	1 231 173	1 284 173	1 341 617	1 455 036	1 455 036	102.1%
Goods and services	865 219	866 732	965 413	872 017	1 099 411	1 001 854	1 103 758	1 103 758	95.3%
Depreciation	41 283	44 940	52 204	47 240	54 292	48 652	51 571	51 571	96.5%
Interest, dividends and rent on land	–	4 676	–	4 635	–	6 952	–	–	–
<b>Total expenses</b>	1 980 256	2 026 556	2 238 288	2 155 065	2 437 876	2 399 075	2 610 365	2 610 365	99.2%
<b>Surplus/(Deficit)</b>	35 066	53 264	46 712	54 139	50 644	52 820	126 836	63 210	–

## Statements of estimates of financial performance

**Table 30.24 Council for Scientific and Industrial Research statements of estimates of financial performance**

Statement of financial performance								
R thousand	Revised estimate	Average growth rate (%)	Expenditure/ Total: Average (%)	Medium-term estimate			Average growth rate (%)	Expenditure/ Total: Average (%)
				2015/16	2012/13 - 2015/16	2016/17		
<b>Revenue</b>								
<b>Non-tax revenue</b>	1 878 606	8.1%	71.5%	1 993 282	2 156 951	2 304 563	7.0%	71.6%
Sale of goods and services other than capital assets	1 832 438	9.2%	68.3%	1 946 748	2 109 076	2 255 703	7.2%	70.0%
<i>of which:</i>								
<i>Sales by market establishment</i>	1 832 438	9.2%	68.3%	1 946 748	2 109 076	2 255 703	7.2%	70.0%
Other non-tax revenue	46 168	-15.5%	3.2%	46 534	47 875	48 860	1.9%	1.6%
<b>Transfers received</b>	794 968	10.2%	28.5%	792 103	831 469	879 694	3.4%	28.4%
<b>Total revenue</b>	2 673 575	8.7%	100.0%	2 785 385	2 988 421	3 184 257	6.0%	100.0%
<b>Expenses</b>								
<b>Current expenses</b>	2 610 365	8.8%	100.0%	2 726 604	2 924 785	3 120 991	6.1%	127.1%
Compensation of employees	1 455 036	9.4%	55.9%	1 558 024	1 674 029	1 791 211	7.2%	56.9%
Goods and services	1 103 758	8.4%	41.8%	1 113 915	1 192 811	1 268 358	4.7%	41.1%
Depreciation	51 571	4.7%	2.1%	54 665	57 945	61 422	6.0%	2.0%
<b>Total expenses</b>	2 610 365	8.8%	100.0%	2 726 604	2 924 785	3 120 991	6.1%	100.0%
<b>Surplus/(Deficit)</b>	63 210	–	–	58 781	63 636	63 266	0.0%	–

## Personnel information

**Table 30.25 Council for Scientific and Industrial Research personnel numbers and cost by salary level<sup>1</sup>**

Number of posts estimated for 31 March 2016			Number and cost <sup>1</sup> of personnel posts filled / planned for on funded establishment												Number				
Number of funded posts	Number of posts on approved establishment	Actual	Revised estimate			Medium-term expenditure estimate						Average growth rate (%)	Salary level/total: Average (%)						
			2015/16			2016/17		2017/18		2018/19				2015/16 - 2018/19					
Salary level	2 668	2 668	2 621	1 341.6	0.5	2 668	1 455.0	0.5	2 716	1 558.0	0.6	2 765	1 674.0	0.6	2 815	1 791.2	0.6	7.2%	100.0%
1 – 6	323	323	318	35.4	0.1	323	43.0	0.1	335	46.1	0.1	346	49.5	0.1	355	53.0	0.1	7.2%	12.4%
7 – 10	1 452	1 452	1 422	472.8	0.3	1 452	524.1	0.4	1 481	561.5	0.4	1 508	603.2	0.4	1 535	645.5	0.4	7.2%	54.5%
11 – 12	504	504	500	359.3	0.7	504	383.4	0.8	509	410.5	0.8	516	441.2	0.9	524	472.1	0.9	7.2%	18.7%
13 – 16	376	376	367	433.5	1.2	376	461.8	1.2	378	494.1	1.3	382	531.0	1.4	388	568.1	1.5	7.1%	13.9%
17 – 22	13	13	14	40.6	2.9	13	42.7	3.3	13	45.8	3.5	13	49.1	3.8	13	52.6	4.0	7.2%	0.5%

1. Rand million.

## Human Sciences Research Council

### Mandate

The Human Sciences Research Council was established in 1968 to undertake, promote and coordinate research in the human and social sciences, and operates in terms of the Human Sciences Research Council Act (2008), as amended. In terms of the act, the council is mandated to:

- initiate, undertake and foster strategic, basic and applied research in human sciences
- address developmental challenges in South Africa, elsewhere in Africa and in the rest of the world by gathering, analysing and publishing data relevant to such challenges, especially through projects linked to public sector oriented collaborative programmes
- inform the effective formulation and monitoring of policy, and evaluate how it is implemented
- stimulate public debate through the effective dissemination of fact based research results
- help to build research capacity and infrastructure for human sciences
- foster research collaboration, networks and institutional linkages
- respond to the needs of vulnerable and marginalised groups in society through research and analysis of developmental issues, to contribute to the improvement of the quality of their lives
- develop and make available data sets underpinning research, policy development and public discussion of developmental issues
- develop new and improved methodologies for use in the development of these kinds of data sets.

### Selected performance indicators

**Table 30.26 Human Sciences Research Council performance indicators by programme/objective/activity and related outcome**

Indicator	Programme/Objective/Activity	Outcome	Past			Current	Projections		
			2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Percentage of female researchers at senior level (senior research specialist/senior research manager and above) per year	Research, development and innovation		48% (31/65)	48% (31/65)	36% (24/66)	49% (33/68)	49% (34/70)	49% (35/72)	50% (36/72)
Number of peer reviewed publications in an internationally accredited scientific journal, per senior researcher (senior research specialist/senior research manager and above) per year <sup>2</sup>	Research, development and innovation	Outcome 5: A skilled and capable workforce to support an inclusive growth path	1.77 (115/65)	1.75 (114/65)	1.83 (121/66)	1.9 (129/68)	1.4 (98/70)	1.4 (101/72)	1.4 (101/72)

**Table 30.26 Human Sciences Research Council performance indicators by programme/objective/activity and related outcome**

Indicator	Programme/Objective/Activity	Outcome	Past			Current	Projections		
			2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Number of recognised books with at least 1 council researcher listed as author or co-author per year	Research, development and innovation	Outcome 5: A skilled and capable workforce to support an inclusive growth path	8	13	13	16	19	18	20
Number of council review publications produced per year	Research, development and innovation		4	5	6	6	4	4	4
Number of policy briefs produced by council researchers and published by the council per year	Research, development and innovation	Outcome 2: A long and healthy life for all South Africans	8	8	19	23	15	15	15
Number of research projects completed by the council per year	Research, development and innovation		11	27	16	18	22	23	24
Number of research reports produced by the council per year	Research, development and innovation		19	45	26	26	32	31	32
Number of structured collaboration research projects completed by the council per year	Research, development and innovation		7	42	14	28	18	20	20
Number of research fellows from elsewhere in Africa employed by the council per year	Research, development and innovation		10	11	15	14	11	11	11
Percentage of all black researchers at senior level (senior research specialist/senior research manager and above) employed by the council per year	Research, development and innovation		35% (23/65)	45% (29/65)	54% (28/66)	42% (28/66)	56% (39/70)	56% (40/72)	56% (40/72)
Number of students reached through research seminars or the campus lecture series organised by the council per year	Africa Institute of South Africa	- <sup>1</sup>	- <sup>1</sup>	579	550	550	600	600	
Number of policy briefs produced by council researchers and published by the council per year	Africa Institute of South Africa	Outcome 2: A long and healthy life for all South Africans	- <sup>1</sup>	- <sup>1</sup>	8	4	5	5	6

1. No historical data available as this indicator was introduced in 2014/15.

2. Figure is determined by using the number of accredited scientific journal articles published divided by the number of senior researchers within the council.

## Expenditure analysis

The Human Science Research Council will continue to provide services, as stipulated in the Human Science Research Council Act (2008), such as promoting and undertaking social research on pressing issues relevant to human welfare and prosperity. Over the medium term, the council's focus will be on issues related to poverty, inequality and inclusive development, and on building the capacity of scholars and researchers. This is aligned with outcome 1 (quality basic education), outcome 2 (a long and healthy life for all South Africans), outcome 5 (a skilled and capable workforce to support an inclusive growth path) and outcome 11 (create a better South Africa, a better Africa and a better world) of government's 2014-2019 medium term strategic framework. The mandate of the council is further aligned with the vision of the national development plan and the strategic objectives of the Department of Science and Technology.

Over the medium term, the council's expenditure will: support large scale, longitudinal and cross sectional studies in line with government's monitoring and evaluation mandate; disseminate more innovative and collaborative research; build infrastructure, including personnel, for data curation, which entails the preservation and ongoing management of research data to enable it to be accessed and used for further research, planning and educational purposes; and participate in activities that aim to enhance interinstitutional collaboration and capacity, both nationally and globally. These initiatives are provided for in the research, development and innovation programme, which accounts for an expected 55.1 per cent of expenditure over the medium term, expected to increase to R315.5 million in 2018/19 from R281.4 million in 2016/17.

The council intends to support 33 researchers from Africa to develop capacity within the continent through a new strategy that aims to cater for Africa's research needs. This strategy will be implemented in 2016/17 through the Africa Institute of South Africa, which was incorporated into the council in 2014. The research generated from this programme will focus on issues of governance, sustainable development and human security in Africa, thus contributing to the implementation of the department's Africa strategy and promoting collective research and development, and innovation strategies. It receives an allocation of R132 million over the medium term.

Maintaining ICT infrastructure and research facilities that are conducive to producing good research outputs will improve operational efficiencies, and allow the council to manage the envisaged increase in the number of

research publications produced. This will drive an increase in expenditure on goods and services from R193.8 million in 2016/17 to R216.6 million in 2018/19.

The council requires specialist scientists who have both multidisciplinary and trans-disciplinary skills to undertake basic or problem oriented research in economic inclusion, social development, and challenges facing governance and decision making. Thus, as a knowledge and labour intensive research organisation, expenditure on compensation of employees is expected to increase from R268.3 million in 2016/17 to R301.5 million in 2018/19, accounting for an expected 52.6 per cent of the council's total budget over the medium term.

The council is funded by transfers from the department, which comprise an estimated 56.3 per cent (R900 million) of its total revenue of R1.6 billion over the medium term. A further R705.5 million in revenue is expected to be generated over the medium term from research contracts from national and international funding agencies, government departments, and private sector foundations. The council will utilise this revenue further to help build research capacity infrastructure for the human sciences, and develop and make available datasets that underpin research and policy development.

## Programmes/objectives/activities

**Table 30.27 Human Sciences Research Council expenditure trends and estimates by programme/objective/activity**

	Audited outcome			Revised estimate	Average growth rate (%)	Expenditure/ Total: Average (%)	Medium-term expenditure estimate			Average growth rate (%)	Expenditure/ Total: Average (%)
	2012/13	2013/14	2014/15				2015/16	2016/17	2017/18		
R thousand					2012/13 - 2015/16		2016/17	2017/18	2018/19	2015/16 - 2018/19	
Administration	148 725	144 850	151 094	177 249	6.0%	38.6%	187 612	198 274	209 977	5.8%	36.7%
Research, development and innovation	251 499	203 532	212 349	265 517	1.8%	57.7%	281 428	297 900	315 488	5.9%	55.1%
Africa Institute of South Africa	–	–	26 579	39 108	–	3.7%	41 484	43 942	46 545	6.0%	8.1%
<b>Total</b>	<b>400 224</b>	<b>348 382</b>	<b>390 022</b>	<b>481 874</b>	<b>6.4%</b>	<b>100.0%</b>	<b>510 524</b>	<b>540 115</b>	<b>572 011</b>	<b>5.9%</b>	<b>100.0%</b>

## Statements of historical financial performance

**Table 30.28 Human Sciences Research Council statements of historical financial performance**

Statement of financial performance	Audited outcome		Audited outcome		Audited outcome		Budget estimate	Revised estimate	Outcome/ Budget Average (%)
	Budget	2012/13	Budget	2013/14	Budget	2014/15			
R thousand									2012/13 - 2015/16
<b>Revenue</b>									
<b>Non-tax revenue</b>	<b>172 331</b>	<b>208 417</b>	<b>178 258</b>	<b>154 388</b>	<b>188 652</b>	<b>161 986</b>	<b>193 168</b>	<b>193 168</b>	<b>98.0%</b>
Sale of goods and services other than capital assets	151 843	183 051	156 289	128 019	160 359	131 191	163 239	163 239	95.8%
<i>of which:</i>									
<i>Administrative fees</i>	–	–	–	–	181	–	192	192	51.5%
<i>Sales by market establishment</i>	148 843	180 504	152 971	125 404	156 545	128 826	159 247	159 247	96.2%
<i>Other sales</i>	3 000	2 547	3 318	2 615	3 633	2 365	3 800	3 800	82.4%
Other non-tax revenue	20 488	25 366	21 969	26 369	28 293	30 796	29 929	29 929	111.7%
<b>Transfers received</b>	<b>214 177</b>	<b>187 875</b>	<b>223 630</b>	<b>197 473</b>	<b>276 010</b>	<b>245 872</b>	<b>288 706</b>	<b>288 706</b>	<b>91.8%</b>
<b>Total revenue</b>	<b>386 508</b>	<b>396 292</b>	<b>401 888</b>	<b>351 861</b>	<b>464 662</b>	<b>407 858</b>	<b>481 874</b>	<b>481 874</b>	<b>94.4%</b>
<b>Expenses</b>									
<b>Current expenses</b>	<b>360 206</b>	<b>400 224</b>	<b>374 425</b>	<b>348 382</b>	<b>435 370</b>	<b>390 022</b>	<b>451 234</b>	<b>446 419</b>	<b>97.8%</b>
Compensation of employees	182 669	197 164	192 716	208 098	225 394	230 800	262 725	253 535	103.0%
Goods and services	171 775	191 409	175 630	129 848	197 561	149 257	175 809	182 462	90.6%
Depreciation	4 183	8 338	4 413	9 403	10 665	8 695	11 548	9 270	115.9%
Interest, dividends and rent on land	1 580	3 312	1 666	1 033	1 750	1 270	1 152	1 152	110.1%
<b>Transfers and subsidies</b>	<b>26 302</b>	<b>–</b>	<b>27 463</b>	<b>–</b>	<b>29 293</b>	<b>–</b>	<b>30 640</b>	<b>35 455</b>	<b>31.2%</b>
<b>Total expenses</b>	<b>386 508</b>	<b>400 224</b>	<b>401 888</b>	<b>348 382</b>	<b>464 663</b>	<b>390 022</b>	<b>481 874</b>	<b>481 874</b>	<b>93.4%</b>
<b>Surplus/(Deficit)</b>	<b>–</b>	<b>(3 932)</b>	<b>–</b>	<b>3 479</b>	<b>(1)</b>	<b>17 837</b>	<b>–</b>	<b>–</b>	<b>–</b>

## Statements of estimates of financial performance

**Table 30.29 Human Sciences Research Council statements of estimates of financial performance**

Statement of financial performance		Average growth rate (%)	Expenditure/ Total: Average (%)	Medium-term estimate			Average growth rate (%)	Expenditure/ Total: Average (%)
Revised estimate	2012/13 - 2015/16			2016/17	2017/18	2018/19		
R thousand	2015/16							
<b>Revenue</b>								
<b>Non-tax revenue</b>	<b>193 168</b>	<b>-2.5%</b>	<b>44.1%</b>	<b>220 375</b>	<b>235 459</b>	<b>266 515</b>	<b>11.3%</b>	<b>43.4%</b>
Sale of goods and services other than capital assets	163 239	-3.7%	37.2%	186 290	196 633	222 258	10.8%	36.4%
<i>of which:</i>								
Administrative fees	192	-	0.0%	204	216	228	5.9%	0.0%
Sales by market establishment	159 247	-4.1%	36.5%	182 051	192 148	217 512	11.0%	35.6%
Other sales	3 800	14.3%	0.7%	4 036	4 270	4 517	5.9%	0.8%
Other non-tax revenue	29 929	5.7%	6.9%	34 084	38 826	44 257	13.9%	7.0%
<b>Transfers received</b>	<b>288 706</b>	<b>15.4%</b>	<b>55.9%</b>	<b>290 149</b>	<b>304 656</b>	<b>305 495</b>	<b>1.9%</b>	<b>56.6%</b>
<b>Total revenue</b>	<b>481 874</b>	<b>6.7%</b>	<b>100.0%</b>	<b>510 524</b>	<b>540 115</b>	<b>572 010</b>	<b>5.9%</b>	<b>100.0%</b>
<b>Expenses</b>								
<b>Current expenses</b>	<b>446 419</b>	<b>3.7%</b>	<b>98.2%</b>	<b>473 360</b>	<b>501 053</b>	<b>530 682</b>	<b>5.9%</b>	<b>123.8%</b>
Compensation of employees	253 535	8.7%	55.2%	268 292	284 390	301 453	5.9%	52.6%
Goods and services	182 462	-1.6%	40.3%	193 775	204 733	216 607	5.9%	37.9%
Depreciation	9 270	3.6%	2.2%	10 070	10 654	11 272	6.7%	2.0%
Interest, dividends and rent on land	1 152	-29.7%	0.4%	1 223	1 276	1 350	5.4%	0.2%
<b>Transfers and subsidies</b>	<b>35 455</b>	<b>-</b>	<b>1.8%</b>	<b>37 164</b>	<b>39 063</b>	<b>41 328</b>	<b>5.2%</b>	<b>7.3%</b>
<b>Total expenses</b>	<b>481 874</b>	<b>6.4%</b>	<b>100.0%</b>	<b>510 524</b>	<b>540 115</b>	<b>572 011</b>	<b>5.9%</b>	<b>100.0%</b>
<b>Surplus/(Deficit)</b>	<b>-</b>	<b>(1)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>(1)</b>	<b>-</b>	<b>-</b>

## Personnel information

**Table 30.30 Human Sciences Research Council personnel numbers and cost by salary level<sup>1</sup>**

Number of posts estimated for 31 March 2016		Number and cost <sup>1</sup> of personnel posts filled / planned for on funded establishment														Number			
Number of funded posts	Number of posts on approved establishment	Actual			Revised estimate			Medium-term expenditure estimate						Average growth rate (%)	Salary level/total: Average (%)				
		2014/15		2015/16		2016/17		2017/18		2018/19		2015/16 - 2018/19							
Human Sciences Research Council		Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost			
Salary level	614	614	530	230.8	0.4	530	253.5	0.5	530	268.3	0.5	530	284.4	0.5	530	301.5	0.6	5.9%	100.0%
1 - 6	147	147	143	18.6	0.1	143	20.4	0.1	143	21.6	0.2	143	22.9	0.2	143	24.3	0.2	5.9%	27.0%
7 - 10	276	276	238	83.9	0.4	238	92.0	0.4	238	97.4	0.4	238	103.3	0.4	238	109.5	0.5	6.0%	44.9%
11 - 12	132	132	100	68.2	0.7	100	75.2	0.8	100	79.0	0.8	100	83.7	0.8	100	88.8	0.9	5.7%	18.9%
13 - 16	57	57	47	55.4	1.2	47	60.8	1.3	47	64.8	1.4	47	68.6	1.5	47	72.7	1.5	6.2%	8.9%
17 - 22	2	2	2	4.8	2.4	2	5.2	2.6	2	5.5	2.8	2	5.9	2.9	2	6.2	3.1	5.9%	0.4%

<sup>1</sup>. Rand million.

## National Research Foundation

### Mandate

The National Research Foundation was established in terms of the National Research Foundation Act (1998), as amended. In terms of the act, the foundation is mandated to promote and support research in all fields of humanities, the social and natural sciences, engineering and technology, and indigenous knowledge. The foundation provides research funding and platforms through national facilities and science engagement activities. It also performs an agency function on behalf of the Department of Science and Technology, and is a service provider to several other government departments in matters related to research.

## Selected performance indicators

**Table 30.31 National Research Foundation performance indicators by programme/objective/activity and related outcome**

Indicator	Programme/Objective/Activity	Outcome	Past		Current	Projections			
			2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Approximate number of members of the public reached through interactions focusing on science awareness activities per year	Science engagement and corporate relations	Entity mandate	551 408	502 186	972 547	990 000	1 040 000	1 080 000	1 080 000
Number of black researchers funded per year	Research and innovation support and advancement		790	1 008	1 235	1 543	1 739	1 960	2 193
Number of female researchers funded per year	Research and innovation support and advancement		1 044	1 285	1 514	1 997	2 209	2 450	2 550
Number of black postgraduate students funded per year	Research and innovation support and advancement	Outcome 5: A skilled and capable workforce to support an inclusive growth path	5 541	6 110	7 057	9 373	9 715	10 350	10 850
Number of female postgraduate students funded per year	Research and innovation support and advancement		4 557	5 186	5 976	8 075	8 265	8 700	8 990
Number of masters students supported per year	Research and innovation support and advancement		3 397	3 704	4 329	5 515	5 300	5 350	5 600
Number of doctoral students supported per year	Research and innovation support and advancement		2 031	2 265	2 917	2 996	3 200	3 230	3 300
Number of black researchers rated by the National Research Foundation per year	Research and innovation support and advancement		569	668	766	768	850	936	1 026
Number of female researchers rated by the National Research Foundation per year	Research and innovation support and advancement		780	889	962	992	1 088	1 188	1 292
Total number of researchers rated through the National Research Foundation system	Research and innovation support and advancement		2 638	2 959	3 161	3 200	3 400	3 600	3 800
Number of active grants provided emanating from binational, multinational as well as agency to agency agreements per year	Research and innovation support and advancement		Entity mandate	515	858	1 055	1 161	1 277	1 404
Number of international co-publication per year	Research and innovation support and advancement	Outcome 5: A skilled and capable workforce to support an inclusive growth path	6 080	6 601	7 691	7 400	7 800	8 200	8 600
Number of publications produced per year for the Institute for Scientific Information at national research facilities in the fields of nuclear technology, biodiversity, conservation and the environment	National research facilities: Nuclear, biodiversity, conservation and environment	Entity mandate	157	187	234	200	210	220	232
Total infrastructure investment in national research facilities for nuclear, biodiversity, conservation and environment	National research facilities: Nuclear, biodiversity, conservation and environment		R39.2m	R44.7m	R38m	R75.7m	R55.2m	R7m	R7.4m
Number of publications produced per year for the Institute for Scientific Information at the national research facilities in astronomy	National research facilities: Astronomy		110	118	135	130	140	157	165
Total infrastructure investment in national research facilities for astronomy <sup>1</sup>	National research facilities: Astronomy		R224.7m	R266m	R225.2m	R293.4m	R316.6m	R29.1m	R30.8m

1. The decrease in projected investment in 2017/18 and 2018/19 is due to the ramp down and completion of the MeerKAT radio telescope, a precursor to the Square Kilometre Array telescope.

## Expenditure analysis

The National Research Foundation's funding and initiatives for the provision of infrastructure are aligned with the national development plan, and outcome 5 (a skilled and capable workforce to support an inclusive growth path) and outcome 6 (an efficient, competitive and responsive economic infrastructure network) of government's 2014-2019 medium term strategic framework. These initiatives provide access to quality education and training, and promote investment in research and development to sharpen the country's innovative edge and contribution to global scientific and technological advancement. Over the medium term, the foundation will continue to focus on promoting and supporting research through human resource development, and providing national research facilities to facilitate the creation of knowledge, innovation and development.

The national development plan acknowledges that economic development is a long term process. Adequate and appropriate investment in research and development is required to carry out government's programme of action, and achieve its developmental objectives and key targets. Government's 2014-2019 medium term strategic framework includes a policy target of 1.5 per cent of GDP spent on research and development. To ensure that

South Africa meets its target of increased spending on research and development, the foundation's total expenditure is estimated at R11.7 billion over the medium term.

The foundation aims to ensure transformation with the next generation of researchers through awarding scholarships, grant holder linked bursaries, and academic development programmes through investing a projected R2.2 billion over the medium term to support research and the creation of highly skilled, next generation researchers. In line with encouraging the participation of previously disadvantaged individuals in research, the number of black researchers funded is envisaged to increase from 1 235 in 2014/15 to 2 193 in 2018/19. Through the National Research Foundation Strategy 2020, the foundation hopes to utilise the transfers of R8.6 billion over the medium term from the Department of Science and Technology effectively to ensure research support and excellence.

The foundation will seek to position Africa, particularly Southern Africa, as a key player in cutting edge science and technology innovation. The Square Kilometre Array and MeerKAT projects will create a large group of young scientists and engineers with world class technological expertise (such as very fast computing; very fast data transport; large networks of sensors and software radios; and imaging algorithms), which will be crucial in the next 10 to 20 years. The Square Kilometre Array human capital development programme will continue to attract Africa's youth into the fields of astronomy and engineering, and strengthen university teaching and research by providing R40 million worth of bursaries and scholarships to approximately 110 learners per year over the medium term.

The foundation will continue to invest in honours, masters and doctoral studies to ensure the next generation of researchers emerges as established scholars. In doing this, the foundation expects to support 5 600 masters students and 3 300 doctoral students in 2018/19. It will continue to drive research competitiveness over the medium term by supporting high quality research and innovation, and investing in human capacity development through the research and innovation support and advancement programme. This accounts for an expected 65.9 per cent of expenditure over the medium term, reaching R2.7 billion in 2018/19.

For research facilities to remain internationally competitive and relevant, infrastructure requires regular renewal and enhancement. Expenditure on infrastructure over the medium term is mainly on the Square Kilometre Array project. Capital expenditure on the project represents approximately 82 per cent (R2.1 billion) of the foundation's total capital expenditure over the medium term. This expenditure aims to ensure the project's completion in 2018/19. Other infrastructure expenditure relates to the national facilities, and includes a radioactive ion beam prototype (R32 million); a 3 megavolt tandem accelerator (R46 million); and a new fast slewing 13.2 m very long baseline interferometry radio telescope (R49 million). Expenditure on national research facilities in the astronomy programme is expected to increase by 14.3 per cent over the medium term, from R619.6 million in 2016/17 to R908.9 million in 2018/19.

National research facilities provides a critical mass of equipment, skills and users ideal for knowledge generation and human capacity development in energy security, biodiversity, global change, bio-economy and astronomy. The operational activities at national facilities, excluding the Square Kilometre Array South Africa, will be maintained through an allocation of R1.2 billion received from the department over the medium term, increasing from R359.4 million in 2016/17 to R605 million in 2018/19. R200 million is allocated for the operations of the MeerKAT instrument once it becomes operational in 2018/19, and will include the commissioning of 64 satellite dishes.

The Square Kilometre Array project is labour intensive, and to ensure its completion, the number of personnel is expected to increase from 1 397 in 2015/16 to 1 444 in 2018/19 as more engineers, scientists, technicians and artisans are required. To allow for this, expenditure on compensation of employees is expected to increase from R679 million in 2016/17 to R758.8 million in 2018/19, growing at an average annual rate of 18 per cent between 2015/16 and 2018/19.

The foundation's programmes and operational activities receive funding primarily through transfers from the department, and other government departments and entities. The foundation's revenue is expected to decrease slightly over the medium term, from R4.4 billion in 2016/17 to R4.3 billion in 2018/19, due to the economic competitiveness support package coming to an end in 2017/18, as all funds from it have been allocated.

## Programmes/objectives/activities

**Table 30.32 National Research Foundation expenditure trends and estimates by programme/objective/activity**

R thousand	Audited outcome			Revised estimate 2015/16	Average growth rate (%) 2012/13 - 2015/16	Expenditure/ Total: Average (%)	Medium-term expenditure estimate			Average growth rate (%) 2015/16 - 2018/19	Expenditure/ Total: Average (%)
	2012/13	2013/14	2014/15				2016/17	2017/18	2018/19		
Administration	57 012	64 321	67 291	81 087	12.5%	2.4%	94 131	98 717	104 680	8.9%	2.4%
Science engagement and corporate relations	106 685	126 378	135 010	144 663	10.7%	4.7%	168 912	159 396	165 048	4.5%	4.1%
Research and innovation support and advancement	1 211 307	1 931 679	1 877 740	2 471 575	26.8%	66.1%	2 503 710	2 622 525	2 742 116	3.5%	65.9%
National research facilities: Nuclear, biodiversity, conservation and environment	316 705	342 773	381 370	396 934	7.8%	13.2%	391 542	405 354	425 160	2.3%	10.3%
National research facilities: Astronomy	271 804	306 662	364 528	608 886	30.8%	13.6%	619 638	597 910	908 859	14.3%	17.3%
<b>Total</b>	<b>1 963 513</b>	<b>2 771 813</b>	<b>2 825 939</b>	<b>3 703 145</b>	<b>23.6%</b>	<b>100.0%</b>	<b>3 777 933</b>	<b>3 883 902</b>	<b>4 345 863</b>	<b>5.5%</b>	<b>100.0%</b>

## Statements of historical financial performance

**Table 30.33 National Research Foundation statements of historical financial performance**

Statement of financial performance									
R thousand	Budget	Audited outcome	Budget	Audited outcome	Budget	Audited outcome	Budget estimate	Revised estimate	Outcome/ Budget Average (%)
	2012/13	2013/14	2013/14	2014/15	2014/15	2015/16	2015/16	2015/16	2012/13 - 2015/16
<b>Revenue</b>									
<b>Non-tax revenue</b>	<b>1 433 325</b>	<b>1 236 839</b>	<b>1 961 729</b>	<b>1 747 657</b>	<b>1 604 110</b>	<b>1 534 298</b>	<b>1 003 006</b>	<b>1 307 477</b>	<b>97.1%</b>
Sale of goods and services other than capital assets	1 367 019	78 176	1 526 733	86 169	1 523 607	104 915	852 917	121 969	7.4%
<i>of which:</i>									
<i>Sales by market establishment</i>	53 426	48 542	32 198	55 793	53 330	71 699	64 780	69 143	120.3%
<i>Other sales</i>	1 313 593	29 634	1 494 535	30 376	1 470 277	33 216	788 137	52 826	2.9%
Other non-tax revenue	66 306	1 158 663	434 996	1 661 488	80 503	1 429 383	150 089	1 185 508	742.6%
<b>Transfers received</b>	<b>1 093 043</b>	<b>918 290</b>	<b>1 112 879</b>	<b>1 412 879</b>	<b>1 565 365</b>	<b>1 568 756</b>	<b>2 740 358</b>	<b>2 877 081</b>	<b>104.1%</b>
<b>Total revenue</b>	<b>2 526 368</b>	<b>2 155 129</b>	<b>3 074 608</b>	<b>3 160 536</b>	<b>3 169 475</b>	<b>3 103 054</b>	<b>3 743 364</b>	<b>4 184 558</b>	<b>100.7%</b>
<b>Expenses</b>									
<b>Current expenses</b>	<b>963 086</b>	<b>838 073</b>	<b>950 285</b>	<b>907 887</b>	<b>1 131 565</b>	<b>1 036 904</b>	<b>1 308 607</b>	<b>1 308 607</b>	<b>94.0%</b>
Compensation of employees	483 510	439 653	516 789	482 874	612 608	541 632	666 440	666 440	93.5%
Goods and services	434 946	354 552	387 176	366 241	460 693	413 615	563 093	563 093	92.0%
Depreciation	44 515	43 521	46 228	58 633	58 232	81 283	79 039	79 039	115.1%
Interest, dividends and rent on land	115	347	92	139	32	374	35	35	326.6%
<b>Transfers and subsidies</b>	<b>1 291 129</b>	<b>1 125 440</b>	<b>1 703 788</b>	<b>1 863 926</b>	<b>1 952 887</b>	<b>1 789 035</b>	<b>2 394 538</b>	<b>2 394 538</b>	<b>97.7%</b>
<b>Total expenses</b>	<b>2 254 215</b>	<b>1 963 513</b>	<b>2 654 073</b>	<b>2 771 813</b>	<b>3 084 452</b>	<b>2 825 939</b>	<b>3 703 145</b>	<b>3 703 145</b>	<b>96.3%</b>
<b>Surplus/(Deficit)</b>	<b>272 153</b>	<b>191 616</b>	<b>420 535</b>	<b>388 723</b>	<b>85 023</b>	<b>277 115</b>	<b>40 219</b>	<b>481 413</b>	<b>-</b>

## Statements of estimates of financial performance

**Table 30.34 National Research Foundation statements of estimates of financial performance**

Statement of financial performance								
R thousand	Revised estimate 2015/16	Average growth rate (%) 2012/13 - 2015/16	Expenditure/ Total: Average (%)	Medium-term estimate			Average growth rate (%) 2015/16 - 2018/19	Expenditure/ Total: Average (%)
				2016/17	2017/18	2018/19		
<b>Revenue</b>								
<b>Non-tax revenue</b>	<b>1 307 477</b>	<b>1.9%</b>	<b>48.3%</b>	<b>1 195 965</b>	<b>1 214 864</b>	<b>1 236 067</b>	<b>-1.9%</b>	<b>29.0%</b>
Sale of goods and services other than capital assets	121 969	16.0%	3.2%	130 500	137 550	141 953	5.2%	3.1%
<i>of which:</i>								
<i>Sales by market establishment</i>	69 143	12.5%	2.0%	76 577	79 951	83 395	6.4%	1.8%
<i>Other sales</i>	52 826	21.3%	1.2%	53 923	57 599	58 558	3.5%	1.3%
Other non-tax revenue	1 185 508	0.8%	45.2%	1 065 465	1 077 314	1 094 114	-2.6%	25.9%
<b>Transfers received</b>	<b>2 877 081</b>	<b>46.3%</b>	<b>51.7%</b>	<b>3 154 232</b>	<b>3 000 090</b>	<b>3 111 361</b>	<b>2.6%</b>	<b>71.0%</b>
<b>Total revenue</b>	<b>4 184 558</b>	<b>24.8%</b>	<b>100.0%</b>	<b>4 350 197</b>	<b>4 214 954</b>	<b>4 347 428</b>	<b>1.3%</b>	<b>100.0%</b>

**Table 30.34 National Research Foundation statements of estimates of financial performance**

Statement of financial performance	Revised estimate	Average growth rate (%)	Expenditure/ Total: Average (%)	Medium-term estimate			Average growth rate (%)	Expenditure/ Total: Average (%)
				2015/16	2012/13 - 2015/16	2016/17		
R thousand	2015/16	2012/13 - 2015/16		2016/17	2017/18	2018/19	2015/16 - 2018/19	
<b>Expenses</b>								
<b>Current expenses</b>	<b>1 308 607</b>	<b>16.0%</b>	<b>36.9%</b>	<b>1 337 133</b>	<b>1 315 846</b>	<b>1 655 702</b>	<b>8.2%</b>	<b>51.9%</b>
Compensation of employees	666 440	14.9%	19.2%	679 003	714 705	758 777	4.4%	18.0%
Goods and services	563 093	16.7%	15.3%	561 555	499 204	788 434	11.9%	15.3%
Depreciation	79 039	22.0%	2.3%	96 544	101 906	108 459	11.1%	2.5%
Interest, dividends and rent on land	35	-53.5%	0.0%	31	31	32	-2.9%	0.0%
<b>Transfers and subsidies</b>	<b>2 394 538</b>	<b>28.6%</b>	<b>63.1%</b>	<b>2 440 800</b>	<b>2 568 056</b>	<b>2 690 161</b>	<b>4.0%</b>	<b>64.3%</b>
<b>Total expenses</b>	<b>3 703 145</b>	<b>23.6%</b>	<b>100.0%</b>	<b>3 777 933</b>	<b>3 883 902</b>	<b>4 345 863</b>	<b>5.5%</b>	<b>100.0%</b>
<b>Surplus/(Deficit)</b>	<b>481 413</b>	<b>-</b>	<b>-</b>	<b>572 264</b>	<b>331 052</b>	<b>1 565</b>	<b>-85.2%</b>	<b>-</b>

## Personnel information

**Table 30.35 National Research Foundation personnel numbers and cost by salary level<sup>1</sup>**

Number of posts estimated for 31 March 2016		Number and cost <sup>1</sup> of personnel posts filled / planned for on funded establishment												Number					
Number of funded posts	Number of posts on approved establishment	Actual			Revised estimate			Medium-term expenditure estimate						Average growth rate (%)	Salary level/total : Average (%)				
		2014/15		2015/16		2016/17		2017/18		2018/19		2015/16 - 2018/19							
National Research Foundation		Number	Unit Cost	Number	Unit Cost	Number	Unit Cost	Number	Unit Cost	Number	Unit Cost	Number	Unit Cost	Number	Unit Cost				
Salary level	1 536	1 536	1 382	541.6	0.4	1 397	666.4	0.5	1 413	679.0	0.5	1 428	714.7	0.5	1 444	758.8	0.5	4.4%	100.0%
1 - 6	362	362	324	39.8	0.1	328	48.3	0.1	330	49.1	0.1	336	51.4	0.2	338	54.3	0.2	4.0%	23.4%
7 - 10	857	857	781	265.8	0.3	790	327.9	0.4	799	333.8	0.4	807	352.4	0.4	817	374.9	0.5	4.6%	56.5%
11 - 12	228	228	199	143.0	0.7	201	175.8	0.9	204	179.4	0.9	205	188.3	0.9	208	199.6	1.0	4.3%	14.4%
13 - 16	83	83	73	81.2	1.1	73	99.9	1.4	75	101.9	1.4	75	107.0	1.4	76	113.4	1.5	4.3%	5.3%
17 - 22	6	6	5	11.9	2.4	5	14.6	2.9	5	14.9	3.0	5	15.6	3.1	5	16.6	3.3	4.3%	0.4%

1. Rand million.

## South African National Space Agency

### Mandate

The South African National Space Agency was established in terms of the South African National Space Agency Act (2008), as amended. The agency became operational in 2010 and is broadly required to promote the peaceful use of space, foster international cooperation in space related activities, and facilitate the creation of an environment that is conducive to space technology and industrial development.

### Selected performance indicators

**Table 30.36 South African National Space Agency performance indicators by programme/objective/activity and related outcome**

Indicator	Programme/Objective/Activity	Outcome	Past <sup>1</sup>			Current	Projections		
			2012/13	2013/14	2014/15		2015/16	2016/17	2017/18
Number of national high impact products and applications per year	Earth observation	Outcome 10: Protect and enhance our environmental assets and natural resources	-	-	-	4	4	4	5
Number of youth directly engaged in promoting space science and technology in academic institutions and science centres per year	Earth observation	Outcome 1: Quality basic education	-	-	-	2 000	2 500	3 000	3 000
Total income generated from activities related to space operations	Space operation	Outcome 4: Decent employment through inclusive economic growth	-	-	-	R58m	R61m	R65m	R69m
National research productivity score for space research and development	Space science	Outcome 10: Protect and enhance our environmental assets and natural resources	-	-	-	750	1 000	1 500	2 000

**Table 30.36 South African National Space Agency performance indicators by programme/objective/activity and related outcome**

Indicator	Programme/Objective/Activity	Outcome	Past <sup>1</sup>			Current	Projections		
			2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Number of supported students and interns receiving formalised training per year	Space engineering	Outcome 5: A skilled and capable workforce to support an inclusive growth path	-	-	-	40	50	70	90
Percentage of proportional progress status on the earth observation satellite 1 (the first contribution to the African resource management constellation satellites) development project	Space engineering	Outcome 12: An efficient, effective and development oriented public service	-	-	-	25%	50%	75%	100%
Total contract expenditure on small and medium enterprises for core projects	Space engineering	Outcome 6: An efficient, competitive and responsive economic infrastructure network	-	-	-	R10m	R12m	R13m	R15m
Total contract expenditure on the broad space related industry for core space projects	Space engineering	Outcome 4: Decent employment through inclusive economic growth	-	-	-	R50m	R55m	R61m	R67m

1. No historical data available as these are new indicators measured from 2015/16 onwards, so as to align expenditure to agency's the objectives.

## Expenditure analysis

The South African National Space Agency contributes to both the national development plan and government's 2014-2019 medium term strategic framework, particularly outcome 1 (quality basic education), outcome 4 (decent employment through inclusive economic growth) and outcome 6 (an efficient, competitive and responsive economic infrastructure network). It does this by creating high technology jobs; mapping rural areas using satellites to improve geospatial patterns and foster the development of marginalised communities; planning and monitoring national infrastructure through the space system; monitoring health surveillance and intelligence through satellites; improving space based service delivery and performance monitoring to assist in the eradication of corruption; and providing geospatial decision making tools. These activities are aligned with the strategic goals of the Department of Science and Technology in accelerating inclusive development through scientific knowledge, evidence, and appropriate technology.

The agency's focus over the medium term will continue to be on activities that ensure that space services are integrated into service delivery, as they provide an indispensable tool for the formulation of government decisions and policies by helping to provide knowledge on and address challenges in industries such as agriculture, water, energy, health, and safety and security. The agency will lead national high impact collaborative research and development, develop national human capacity, ensure transformation, enhance South Africa's competitiveness in the space industry, and develop new capabilities in space based technology. To address the organisation's strategic objectives and activities, the agency's earth observation, space operations and space science programmes are expected to account for 58 per cent of expenditure over the medium term, increasing from R154.3 million in 2016/17 to R164.6 million in 2018/19.

The agency plans to develop four layered satellite maps over the medium term. The national human settlements layer will map all built up areas using automated algorithms; the national water layer will produce an inventory of all bodies of water in the country to ensure compliance with the Water Act (1998); the national vegetation layer will map the country's rangelands; and the national disaster management layer will focus on flood prediction and vulnerability modelling, and facilitate the development of flood and fire maps, drought monitoring, and the generation of reference datasets for disaster management for the national disaster management centre. These activities will contribute to providing crucial geospatial information for the planning and monitoring of the country's resources, and are expected to incur expenditure of R109 million over the medium term.

To ensure the effectiveness of the satellite build programme and capacitate the space engineering programme, the agency will need to recruit scientists, engineers and researchers in the space science industry. The number of personnel in the agency is thus expected to increase marginally from 207 to 218 over the medium, driving an increase in expenditure on compensation of employees, which accounts for a projected 42.6 per cent (R358.4 million) of the agency's total expenditure over the medium term. The agency plans to support between 50 and 90 students in space related studies over the medium term to contribute to higher quality research outputs and the production of more space related publications at an estimated cost of R15 million over the medium term.

Through its satellite build programme, the agency expects to contribute to the creation of 100 external direct jobs over the medium term through contracting directly with the local space industry, and this will improve innovation in space based technologies, as well as foreign direct investment. As the primary driver of the agency's industry development initiatives, the satellite build programme has an allocation of R230 million over the medium term.

The projected decrease in expenditure in the space engineering programme from R102.6 million in 2016/17 to R12.7 million in 2018/19 is as a result of the economic competitiveness support package coming to an end in 2017/18, which will also result in a decrease in transfers from the Department of Science and Technology from R288.7 million in 2016/17 to R151.5 million in 2018/19. Despite this, the agency will aim to maintain its ability to source satellite imagery and sustain the satellite build programme. Similarly, expenditure on goods and services is expected to decrease by 21.3 per cent over the medium term from R162.3 million in 2016/17 to R73.2 million in 2018/19. The agency will strive to ensure this does not have a detrimental effect on job creation and technology innovation.

The agency derives its revenue mainly from transfers from the department. Other sources of revenue include interest earned on investments, income from services rendered, and other income in the form of rentals and donations. Revenue is expected to decrease at an average annual rate of 7.8 per cent over the medium term to R220.6 million as a result of the limited scope to provide mandated work at a fee to state institutions; fixed term hosting contracts from international clients reaching their end; and the inability to project for launch support revenues as these are dependent on the success of managing and tracking satellite launches.

## Programmes/objectives/activities

**Table 30.37 South African National Space Agency expenditure trends and estimates by programme/objective/activity**

R thousand	Audited outcome			Revised estimate	Average growth rate (%)	Expenditure/Total: Average (%)	Medium-term expenditure estimate			Average growth rate (%)	Expenditure/Total: Average (%)
	2012/13	2013/14	2014/15				2015/16	2016/17	2017/18		
Administration	33 573	35 336	37 969	38 802	4.9%	16.8%	39 002	40 946	43 321	3.7%	14.9%
Earth observation	50 275	52 053	65 231	69 601	11.5%	27.0%	72 164	74 784	77 986	3.9%	27.1%
Space operation	57 132	66 358	42 676	47 442	-6.0%	25.3%	47 022	48 084	49 430	1.4%	17.6%
Space science	35 775	30 548	34 794	33 779	-1.9%	15.7%	35 125	36 769	37 205	3.3%	13.1%
Space engineering	-	15 400	46 389	91 387	-	15.2%	102 653	114 681	12 657	-48.3%	27.3%
<b>Total</b>	<b>176 755</b>	<b>199 695</b>	<b>227 058</b>	<b>281 011</b>	<b>16.7%</b>	<b>100.0%</b>	<b>295 967</b>	<b>315 263</b>	<b>220 599</b>	<b>-7.8%</b>	<b>100.0%</b>

## Statements of historical financial performance

**Table 30.38 South African National Space Agency statements of historical financial performance**

Statement of financial performance									
R thousand	Budget	Audited outcome	Budget	Audited outcome	Budget	Audited outcome	Budget estimate	Revised estimate	Outcome/Budget Average (%)
	2012/13	2013/14	2013/14	2014/15	2014/15	2015/16	2015/16	2015/16	2012/13 - 2015/16
<b>Revenue</b>									
<b>Non-tax revenue</b>	<b>40 499</b>	<b>78 216</b>	<b>66 706</b>	<b>77 136</b>	<b>59 576</b>	<b>78 127</b>	<b>62 367</b>	<b>63 270</b>	<b>129.5%</b>
Sale of goods and services other than capital assets	40 499	72 322	62 368	71 272	59 396	69 699	61 633	62 820	123.3%
<i>of which:</i>									
<i>Sales by market establishment</i>	40 499	72 322	62 368	71 272	59 396	69 699	61 633	62 820	123.3%
Other non-tax revenue	-	5 894	4 338	5 864	180	8 428	734	449	392.9%
<b>Transfers received</b>	<b>347 771</b>	<b>128 986</b>	<b>148 908</b>	<b>137 604</b>	<b>272 604</b>	<b>180 584</b>	<b>224 511</b>	<b>217 741</b>	<b>66.9%</b>
<b>Total revenue</b>	<b>388 270</b>	<b>207 202</b>	<b>215 614</b>	<b>214 740</b>	<b>332 180</b>	<b>258 711</b>	<b>286 878</b>	<b>281 011</b>	<b>78.6%</b>
<b>Expenses</b>									
<b>Current expenses</b>	<b>368 270</b>	<b>170 168</b>	<b>215 613</b>	<b>193 913</b>	<b>345 380</b>	<b>224 957</b>	<b>277 684</b>	<b>277 684</b>	<b>71.8%</b>
Compensation of employees	87 991	62 398	83 597	85 124	87 366	91 680	104 545	104 545	94.6%
Goods and services	260 529	92 294	132 016	92 542	258 014	108 934	150 047	150 047	55.4%
Depreciation	19 750	15 476	-	16 247	-	24 343	23 092	23 092	184.8%
<b>Transfers and subsidies</b>	<b>-</b>	<b>6 587</b>	<b>-</b>	<b>5 781</b>	<b>-</b>	<b>2 100</b>	<b>3 327</b>	<b>3 327</b>	<b>534.9%</b>
<b>Total expenses</b>	<b>368 270</b>	<b>176 755</b>	<b>215 613</b>	<b>199 694</b>	<b>345 380</b>	<b>227 057</b>	<b>281 011</b>	<b>281 011</b>	<b>73.1%</b>
<b>Surplus/(Deficit)</b>	<b>20 000</b>	<b>30 447</b>	<b>-</b>	<b>15 046</b>	<b>(13 200)</b>	<b>31 654</b>	<b>5 868</b>	<b>-</b>	<b>-</b>

## Statements of estimates of financial performance

**Table 30.39 South African National Space Agency statements of estimates of financial performance**

Statement of financial performance	Revised estimate	Average growth rate (%)	Expenditure/ Total: Average (%)	Medium-term estimate			Average growth rate (%)	Expenditure/ Total: Average (%)
				2015/16	2012/13 - 2015/16	2016/17		
R thousand								
<b>Revenue</b>								
<b>Non-tax revenue</b>	<b>63 270</b>	<b>-6.8%</b>	<b>31.6%</b>	<b>67 316</b>	<b>68 227</b>	<b>69 105</b>	<b>3.0%</b>	<b>24.6%</b>
Sale of goods and services other than capital assets	62 820	-4.6%	29.3%	66 590	67 482	68 317	2.8%	24.3%
<i>of which:</i>								
<i>Sales by market establishment</i>	62 820	-4.6%	29.3%	66 590	67 482	68 317	2.8%	24.3%
Other non-tax revenue	449	-57.6%	2.2%	726	745	788	20.6%	0.2%
<b>Transfers received</b>	<b>217 741</b>	<b>19.1%</b>	<b>68.4%</b>	<b>228 651</b>	<b>247 036</b>	<b>151 494</b>	<b>-11.4%</b>	<b>75.4%</b>
<b>Total revenue</b>	<b>281 011</b>	<b>10.7%</b>	<b>100.0%</b>	<b>295 967</b>	<b>315 263</b>	<b>220 599</b>	<b>-7.8%</b>	<b>100.0%</b>
<b>Expenses</b>								
<b>Current expenses</b>	<b>277 684</b>	<b>17.7%</b>	<b>97.8%</b>	<b>293 111</b>	<b>312 609</b>	<b>219 501</b>	<b>-7.5%</b>	<b>102.3%</b>
Compensation of employees	104 545	18.8%	38.9%	111 703	119 299	127 411	6.8%	42.6%
Goods and services	150 047	17.6%	50.0%	162 345	175 081	73 150	-21.3%	49.2%
Depreciation	23 092	14.3%	9.0%	19 063	18 229	18 940	-6.4%	7.3%
<b>Transfers and subsidies</b>	<b>3 327</b>	<b>-20.4%</b>	<b>2.2%</b>	<b>2 856</b>	<b>2 653</b>	<b>1 098</b>	<b>-30.9%</b>	<b>0.9%</b>
<b>Total expenses</b>	<b>281 011</b>	<b>16.7%</b>	<b>100.0%</b>	<b>295 967</b>	<b>315 263</b>	<b>220 599</b>	<b>-7.8%</b>	<b>100.0%</b>
<b>Surplus/(Deficit)</b>	<b>-</b>	<b>(1)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

## Personnel information

**Table 30.40 South African National Space Agency personnel numbers and cost by salary level<sup>1</sup>**

Number of posts estimated for 31 March 2016		Number and cost <sup>1</sup> of personnel posts filled / planned for on funded establishment												Number					
Number of funded posts	Number of posts on approved establishment	Actual			Revised estimate			Medium-term expenditure estimate						Average growth rate (%)	Salary level/total: Average (%)				
		2014/15		2015/16		2016/17		2017/18		2018/19		2015/16 - 2018/19							
Salary level	214	214	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost		
South African National Space Agency																			
1 – 6	30	30	28	3.9	0.1	28	4.2	0.1	30	4.5	0.1	30	4.8	0.2	30	5.1	0.2	6.8%	13.8%
7 – 10	126	126	124	44.0	0.4	124	47.7	0.4	126	51.0	0.4	128	55.1	0.4	127	59.4	0.5	7.6%	59.1%
11 – 12	36	36	33	20.5	0.6	33	26.7	0.8	35	28.6	0.8	35	29.9	0.9	35	28.9	0.8	2.7%	16.1%
13 – 16	22	22	22	23.2	1.1	22	25.9	1.2	23	27.7	1.2	23	29.6	1.3	26	34.0	1.3	9.4%	11.0%

1. Rand million.

## Technology Innovation Agency

### Mandate

The Technology Innovation Agency was established in terms of the Technology Innovation Agency Act (2008), as amended. The agency serves as a key institutional intervention to bridge the innovation chasm between research and development outcomes from higher education institutions, science councils, public entities and private companies to intensify the effect of technological innovation in the economy.

## Selected performance indicators

**Table 30.41 Technology Innovation Agency performance indicators by programme/objective/activity and related outcome**

Indicator	Programme/Objective/Activity	Outcome	Past			Current	Projections		
			2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Number of technologies, products, processes and services reaching the demonstration stage per year	Provide customer centric early stage commercialisation for technology development	Outcome 5: A skilled and capable workforce to support an inclusive growth path	-1	-1	8	6	12	13	14
Number of technologies, products, processes and services taken up in the market per year	Provide customer centric early stage commercialisation for technology development		5	8	6	4	14	10	11
Amount of third party funding received in the agency's portfolio per year	Provide customer centric early stage commercialisation for technology development		R65.5m	R74.4m	R30m	R75m	R59m	R66m	R94m
External income raised per year	Provide customer centric early stage commercialisation for technology development		-1	-1	-1	R98m	R124m	R141.8m	R146.2m
Number of knowledge innovation products supported (prototypes developed, patents registered) receiving follow on funding per year	Provide an enabling environment for technology innovation	Outcome 6: An efficient, competitive and responsive economic infrastructure network	-1	-1	38	30	45	54	65
Number of third party funding (follow on funding, co-funding, co-development) opportunities secured as a result of knowledge innovation interventions and initiatives per year	Provide an enabling environment for technology innovation		-1	-1	8	7	25	25	25
Number of small and medium enterprises receiving technology support from technology stations and the Institute for Advanced Tooling per year	Provide an enabling environment for technology innovation		-1	-1	2 188	2 000	2 200	2 200	2 200
Number of small to medium enterprises owned by previously disadvantaged individuals or individuals receiving funding, support and/or technology services from the agency per year	Provide an enabling environment for technology innovation		-1	-1	-1	-1	35	40	45
Number of technology innovations undertaken by the agency per year	Provide an enabling environment for technology innovation		-1	-1	-1	-1	10	12	14

1. No historical data available as these are new indicators.

## Expenditure analysis

The national development plan identifies science, technology and innovation as key elements in South Africa's long term development to speed up growth and transformation in the economy, and create decent employment and sustainable livelihoods. In line with this, the Technology Innovation Agency seeks to position itself as a world class institution that stimulates and supports technological innovation to improve quality of life for all South Africans, thus contributing to outcome 5 (a skilled and capable workforce to support an inclusive growth path) and outcome 6 (an efficient, competitive and responsive economic infrastructure network) of government's 2014-2019 medium term strategic framework.

The agency's core business objective is to support the development and commercialisation of new products. It primarily uses South Africa's science and technology base to develop new industries, create sustainable jobs, and help diversify the economy. The agency invests in technology sectors such as advanced manufacturing, agriculture, industrial biotechnology, health biotechnology, mining, energy, and ICT.

Over the medium term, the agency's focus will be on the commercialisation of technology based services, processes and products. To further support product innovation, the agency will continue to support small and medium enterprises through the technology station and technology platform programmes. These programmes are expected to produce 164 innovation products, and will assist a projected 6 600 small and medium enterprises with product development. This will contribute to economic growth, and create an estimated 900 sustainable jobs in small and medium enterprises. To ensure effectiveness, the number of personnel in the agency is

expected to remain constant at 164 over the medium term. These programmes have an allocation of R404 million over the medium term.

The agency will continue to focus on stimulating and intensifying technological innovation by providing funding for customer centric technology development and support; fostering an enabling environment for technology innovation in collaboration with other role players; ensuring the effective implementation of strategies to develop and exploit technological innovations to provide South Africa with appropriate and effective support for innovation with high social and economic impact; and supporting and enhancing technological innovation in Africa, as well as global partnership initiatives. To address these objectives, the agency's customer centric early stage commercialisation for technology development programme accounts for 30.9 per cent (R480.3 million) of expected expenditure over the medium term, and the provision of an enabling environment for technology innovation programme accounts for 39.1 per cent (R662.1 million) of the agency's total budget of R1.7 billion over the medium term.

The development of knowledge innovation products (prototypes, patents, technology demonstrators, and technology transfer packages) is expected to lead to greater efficiency and market access for innovations and new information technologies, biological sciences, material sciences, and energy. The agency will seek to increase the number of these products from 45 in 2016/17 to 65 in 2018/19, resulting in a projected increase in expenditure from R211.3 million in 2016/17 to R230.8 million in 2018/19 in the enabling environment for technology innovation programme. The agency will further strive to ensure that at least 36 technologies, products, and/or processes and services are taken up in the market by 2018/19, further enabling the agency to use technology innovation to address issues of national importance such as poverty alleviation, job creation, and the reduction of the burden of disease through health biotechnology.

The agency provides financial and non-financial support to innovators, entrepreneurs, technology stations, and technology platforms, among others. It reviews and approves business plans and case studies, and on the achievement of certain milestones, makes payments in the form of transfers to relevant beneficiaries. These transfers form part of agency's core business and operating model, which is to support strategic technology innovation, emerging technologies, and knowledge innovation products. To allow the agency to invest in more technology development, transfers disbursed to qualifying individuals or institutions are expected to increase from R355.2 million in 2016/17 to R408.4 million in 2018/19, accounting for 70 per cent (R1.1 billion) of the total budget.

The agency derives its revenue mainly from transfers from the Department of Science and Technology. It is set to receive R1.2 billion over the medium term from the department, accounting for approximately 76.9 per cent of its projected revenue. Other sources of income include co-funding partnerships, sundry receipts, profit on sales of investments, royalties and dividends received on investments, and interest on bank funds.

## Programmes/objectives/activities

**Table 30.42 Technology Innovation Agency expenditure trends and estimates by programme/objective/activity**

	Audited outcome			Revised estimate 2015/16	Average growth rate (%) 2012/13 - 2015/16	Expenditure/ Total: Average (%) 2015/16	Medium-term expenditure estimate			Average growth rate (%) 2015/16 - 2018/19	Expenditure/ Total: Average (%) 2015/16 - 2018/19
	2012/13	2013/14	2014/15				2016/17	2017/18	2018/19		
R thousand											
Administration	146 483	251 543	160 783	141 659	-1.1%	31.3%	161 175	169 718	178 204	8.0%	30.2%
To provide customer-centric early stage commercialisation for technology development	400 781	192 756	171 750	186 606	-22.5%	42.6%	143 942	158 769	167 608	-3.5%	30.6%
To provide an enabling environment for technology innovation	28 581	152 679	199 780	185 045	86.4%	26.0%	211 291	220 034	230 760	7.6%	39.3%
<b>Total</b>	<b>575 845</b>	<b>596 978</b>	<b>532 313</b>	<b>513 310</b>	<b>-3.8%</b>	<b>100.0%</b>	<b>516 408</b>	<b>548 521</b>	<b>576 572</b>	<b>4.0%</b>	<b>100.0%</b>

## Statements of historical financial performance

**Table 30.43 Technology Innovation Agency statements of historical financial performance**

Statement of financial performance		Budget	Audited outcome	Budget	Audited outcome	Budget	Audited outcome	Budget estimate	Revised estimate	Outcome/ Budget Average (%)
R thousand		2012/13		2013/14		2014/15		2015/16		2012/13 - 2015/16
<b>Revenue</b>										
<b>Non-tax revenue</b>		7 151	65 756	49 812	96 591	73 948	80 070	10 000	51 122	208.3%
Sale of goods and services other than capital assets		112	26 062	40 123	61 992	58 948	13 491	–	6 150	108.6%
<i>of which:</i>										
Administrative fees		112	2 000	123	–	45 000	–	–	6 150	18.0%
Sales by market establishment		–	24 062	40 000	61 992	13 948	13 491	–	–	184.5%
Other non-tax revenue		7 039	39 694	9 689	34 599	15 000	66 579	10 000	44 972	445.4%
<b>Transfers received</b>		<b>455 196</b>	<b>456 350</b>	<b>481 081</b>	<b>481 761</b>	<b>380 717</b>	<b>380 588</b>	<b>385 188</b>	<b>385 188</b>	<b>100.1%</b>
<b>Total revenue</b>		<b>462 347</b>	<b>522 106</b>	<b>530 893</b>	<b>578 352</b>	<b>454 665</b>	<b>460 658</b>	<b>395 188</b>	<b>436 310</b>	<b>108.4%</b>
<b>Expenses</b>										
<b>Current expenses</b>		<b>177 526</b>	<b>250 932</b>	<b>197 189</b>	<b>251 543</b>	<b>255 146</b>	<b>160 783</b>	<b>141 659</b>	<b>141 659</b>	<b>104.3%</b>
Compensation of employees		86 487	113 274	93 725	125 307	130 198	110 512	92 729	92 729	109.6%
Goods and services		86 714	126 844	94 564	115 412	113 806	39 800	42 957	42 957	96.1%
Depreciation		4 325	10 700	8 900	10 711	11 037	10 471	5 973	5 973	125.2%
Interest, dividends and rent on land		–	114	–	113	105	–	–	–	216.2%
<b>Transfers and subsidies</b>		<b>236 118</b>	<b>324 913</b>	<b>319 110</b>	<b>345 435</b>	<b>266 634</b>	<b>371 530</b>	<b>371 651</b>	<b>371 651</b>	<b>118.4%</b>
<b>Total expenses</b>		<b>413 644</b>	<b>575 845</b>	<b>516 299</b>	<b>596 978</b>	<b>521 780</b>	<b>532 313</b>	<b>513 310</b>	<b>513 310</b>	<b>112.9%</b>
<b>Surplus/(Deficit)</b>		<b>48 703</b>	<b>(53 739)</b>	<b>14 594</b>	<b>(18 626)</b>	<b>(67 115)</b>	<b>(71 655)</b>	<b>(118 122)</b>	<b>(77 000)</b>	<b>–</b>

## Statements of estimates of financial performance

**Table 30.44 Technology Innovation Agency statements of estimates of financial performance**

Statement of financial performance		Average growth rate	Expenditure/ Total: Average	Medium-term estimate			Average growth rate	Expenditure/ Total: Average
R thousand	Revised estimate	(%)	(%)	2016/17	2017/18	2018/19	(%)	(%)
	2015/16	2012/13 - 2015/16		2015/16 - 2018/19				
<b>Revenue</b>								
<b>Non-tax revenue</b>	51 122	-8.0%	14.6%	134 044	151 789	156 250	45.1%	23.1%
Sale of goods and services other than capital assets	6 150	-38.2%	5.0%	–	–	–	-100.0%	0.4%
<i>of which:</i>								
Administrative fees	6 150	45.4%	0.4%	–	–	–	-100.0%	0.4%
Other non-tax revenue	44 972	4.2%	9.6%	134 044	151 789	156 250	51.5%	22.8%
<b>Transfers received</b>	<b>385 188</b>	<b>-5.5%</b>	<b>85.4%</b>	<b>382 364</b>	<b>396 732</b>	<b>420 322</b>	<b>3.0%</b>	<b>76.9%</b>
<b>Total revenue</b>	<b>436 310</b>	<b>-5.8%</b>	<b>100.0%</b>	<b>516 408</b>	<b>548 521</b>	<b>576 572</b>	<b>9.7%</b>	<b>100.0%</b>
<b>Expenses</b>								
<b>Current expenses</b>	<b>141 659</b>	<b>-17.4%</b>	<b>35.9%</b>	<b>161 175</b>	<b>169 718</b>	<b>178 204</b>	<b>8.0%</b>	<b>31.8%</b>
Compensation of employees	92 729	-6.5%	19.9%	101 569	106 952	112 300	6.6%	19.2%
Goods and services	42 957	-30.3%	14.3%	51 836	53 038	55 203	8.7%	9.4%
Depreciation	5 973	-17.7%	1.7%	7 770	9 728	10 701	21.5%	1.6%
<b>Transfers and subsidies</b>	<b>371 651</b>	<b>4.6%</b>	<b>64.1%</b>	<b>355 233</b>	<b>378 803</b>	<b>398 368</b>	<b>2.3%</b>	<b>69.8%</b>
<b>Total expenses</b>	<b>513 310</b>	<b>-3.8%</b>	<b>100.0%</b>	<b>516 408</b>	<b>548 521</b>	<b>576 572</b>	<b>4.0%</b>	<b>100.0%</b>
<b>Surplus/(Deficit)</b>	<b>(77 000)</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>-100.0%</b>	<b>–</b>

## Personnel information

**Table 30.45 Technology Innovation Agency personnel numbers and cost by salary level<sup>1</sup>**

Number of posts estimated for 31 March 2016		Number and cost <sup>1</sup> of personnel posts filled / planned for on funded establishment												Number					
Number of funded posts	Number of posts on approved establishment	Actual			Revised estimate			Medium-term expenditure estimate						Average growth rate (%)	Salary level/total: Average (%)				
		2014/15			2015/16			2016/17		2017/18		2018/19				2015/16 - 2018/19			
Technology Innovation Agency		Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost	Number	Cost	Unit Cost			
Salary level	158	153	193	110.5	0.6	153	92.7	0.6	164	101.6	0.6	164	107.0	0.7	164	112.3	0.7	6.6%	100.0%
1 – 6	29	29	29	3.4	0.1	29	3.4	0.1	21	2.9	0.1	21	3.0	0.1	18	2.5	0.1	-10.1%	13.9%
7 – 10	71	66	86	28.4	0.3	66	23.9	0.4	68	25.4	0.4	64	24.5	0.4	61	23.1	0.4	-1.2%	40.2%
11 – 12	33	33	38	23.5	0.6	33	22.6	0.7	39	26.4	0.7	42	29.5	0.7	45	32.1	0.7	12.4%	24.6%
13 – 16	23	23	38	43.9	1.2	23	26.4	1.1	32	35.4	1.1	33	38.4	1.2	36	43.4	1.2	17.9%	19.2%
17 – 22	2	2	2	11.4	5.7	2	16.4	8.2	4	11.5	2.9	4	11.6	2.9	4	11.3	2.8	-11.7%	2.2%

1. Rand million.

### Additional tables

**Table 30.A Summary of expenditure on infrastructure**

Project name	Service delivery outputs	Current project stage	Total project cost	Audited outcome			Adjusted appropriation	Medium-term expenditure estimate		
				2012/13	2013/14	2014/15		2015/16	2016/17	2017/18
<b>Infrastructure transfers to other spheres, agencies and departments</b>										
<b>Mega projects (total project cost of at least R1 billion over the project life cycle)</b>										
Square Kilometre Array	Construction of telescopes	Construction	1 649 195	218 738	328 107	645 199	687 415	652 756	711 931	728 977
<b>Large projects (total project cost of at least R250 million but less than R1 billion over the project life cycle)</b>										
Space infrastructure	Construction of satellite	Construction	290 791	36 000	45 000	40 000	31 386	29 653	28 860	30 634
Hydrogen strategy	Purchase of equipment	Various	440 714	54 498	57 223	60 772	63 588	63 886	67 080	70 971
National nanotechnology centres	Equipping of centres	Various	309 954	44 500	46 835	34 715	50 429	50 681	63 504	67 187
Cyber infrastructure	Creation of broadband network connectivity and high performance computing	Various	833 190	129 946	101 943	204 045	213 479	214 546	225 273	238 339
<b>Total</b>			<b>3 523 844</b>	<b>483 682</b>	<b>579 108</b>	<b>984 731</b>	<b>1 046 277</b>	<b>1 011 522</b>	<b>1 096 648</b>	<b>1 136 008</b>

**Table 30.B Summary of donor funding**

Donor	Project	Programme	Period of commitment	Amount committed	Main economic classification	Spending focus	Audited outcome			Medium-term expenditure estimate				
							2012/13	2013/14	2014/15	Estimate 2015/16	2016/17	2017/18	2018/19	
R thousand														
Foreign In cash														
Canadian International Development Agency	Epidemiological modelling for HIV and AIDS policy in South Africa	Technology Innovation	5 years	20 000	Foreign governments and international organisations	Improve region, age and gender specific epidemiological measures incorporated into routine surveillance. Increase the capacity of young South Africans to perform gender sensitive, policy impacting epidemiological research	4 717	-	-	-	-	-	-	-
European Union	Innovation for poverty alleviation	Socio-Economic Innovation Partnerships	3 years	300 000	Departmental agencies and accounts	Contribute to South Africa's sustainable economic and social development through programmes and measures designed to reduce poverty and encourage economic growth that benefits the poor	10 000	-	-	-	-	-	-	-
Finland	South Africa-Finland knowledge partnership on ICT	International Cooperation and Resources	3 years	30 000	Departmental agencies and accounts	Narrow the digital divide by introducing interventions that will help South Africa become an inclusive knowledge society with a strong ICT brand, reflecting research excellence and demonstrating improvements in quality of life and economic competitiveness	9 232	-	-	-	-	-	-	-

Table 30.B Summary of donor funding

Donor	Project	Programme	Period of commitment	Amount committed	Main economic classification	Spending focus	Audited outcome		Estimate 2015/16	Medium-term expenditure estimate	
							2012/13	2013/14		2016/17	2017/18
R thousand Foreign In cash Finland	Southern African-Finland partnership on biosciences	International Cooperation and Resources	3 years	30 000	Foreign governments and international organisations	Strengthen the Southern Africa Biosciences Network secretariat; develop the operating environment; develop capacity; create and dissemination network; and identify, develop and implement projects	2 392	-	-	-	-
United States Agency for International Development	SADC capacity building in relation to the risk and vulnerability atlas	Socio-Economic Innovation Partnerships	4 years	3 097	Departmental agencies and accounts	Build capacity in the SADC member states in understanding information on climate change impact and risk in the context of SADC early warning mechanisms	965	-	-	-	-
United States Agency for International Development	Development of propagation of pathogen free potato seed for yield improvement in Malawi	Technology Innovation	2 years	488	Departmental agencies and accounts	Provide technical assistance to the Malawi government and higher education sector in the proposed project that aims at increased production of good quality seed of high yielding potato varieties in Malawi	-	-	-	-	-
Australia	Regional support for science and technology policy training and the development of a science and technology climate change framework	International Cooperation and Resources	3 years	3 000	Goods and services	Provide regional support for science and technology policy training and the development of a science and technology climate change framework	1 756	-	-	-	-
United States Agency for International Development	Mozambique marine finfish sea cage farming project	Socio-Economic Innovation Partnerships	2 years	1 864	Goods and services	Provide technical assistance to the Mozambique government and higher education sector in the proposed project that aims at sustainable and competitive aquaculture in Mozambique	932	932	-	-	-
United States Agency for International Development	Human health risks and coping mechanisms relating to environmental pollution in the Lower Olifants water catchment area	Technology Innovation	2 years	1 724	Goods and services	Determine the extent to which water and air pollution might impact on the health of two communities in the Lower Olifants water catchment area	862	-	-	-	-
European Union	Promoting Africa-EU research infrastructure	International Cooperation and Resources	2 years	450	Goods and services	Develop a database of African research infrastructure and influence policy dialogue in the region	225	-	-	-	-
European Union	Incontact-One World	International Cooperation and Resources	4 years	2 735	Goods and services	Cooperate with EU associated member states and developing countries on science and technology innovation	684	425	-	-	-

Table 30.B Summary of donor funding

Donor	Project	Programme	Period of commitment	Amount committed	Main economic classification	Spending focus	Audited outcome		Estimate 2015/16	Medium-term expenditure estimate	
							2012/13	2013/14		2014/15	2016/17
R thousand											
Foreign In cash											
European Union	Network for the Coordination and Advancement of Sub-Saharan Africa-EU Science and Technology Cooperation (phase 1)	International Cooperation and Resources	4 years	2 055	Goods and services	Promote mutual understanding of Africa-EU cooperation in critical science and technology areas of mutual interest	-	-	-	-	-
European Union	S-Access	International Cooperation and Resources	4 years	2 055	Goods and services	Promote mutual understanding of Africa-EU cooperation in critical science and technology areas of mutual interest	-	-	-	-	-
European Union	European-South African science and technology advancement programme (phase 1)	International Cooperation and Resources	3 years	5 000	Goods and services	Advance South Africa-EU collaboration	-	-	-	-	-
European Union	Europe research area: Africa	International Cooperation and Resources	3 years	2 345	Goods and services	Implement wide dialogue with the aim of reaching consensus among EU and African programme owners	782	782	-	-	-
European Union	Nanocode programme	Research, Development and Support	2 years	594	Goods and services	Facilitate close collaboration between South Africa and other national contact points across the world in the area of food, agriculture, fisheries and biotechnology	-	-	-	-	-
European Union	BioCircles2	International Cooperation and Resources	2 years	419	Higher education institutions	Increase the participation of researchers from outside Europe in research projects under the theme of food, agriculture, fisheries and biotechnology	209	-	-	-	-
European Union	Science and technology opportunities for practical public policy	Socio-Economic Innovation Partnerships	3 years	143 500	Foreign governments and international organisations	Establish the link between science and technology opportunities for practical policy influence	35 900	47 800	59 800	-	-
European Union	Network for the Coordination and Advancement of Sub-Saharan Africa-EU Science and Technology Cooperation (phase 2)	International Cooperation and Resources	3 years	1 300	Goods and services	Promote mutual understanding of Africa-EU cooperation in critical science and technology areas of mutual interest	-	450	450	400	-
World Wide Fund for Nature South Africa	Energy access to rural communities	Socio-Economic Innovation Partnerships	3 years	1 700	Goods and services	Develop a social infrastructure lead approach to addressing lack of access to energy through renewable or clean technologies	-	485	485	486	-
Argentina	Argentinian Bureau for Enhancing Cooperation with the European Community in the Science, Technology and Innovation Area (phase 2)	International Cooperation and Resources	3 year	196	Goods and services	Support the enhancement of cooperation with the European community in the areas of science, technology and innovation	196	-	-	-	-

Table 30.B Summary of donor funding

Donor	Project	Programme	Period of commitment	Amount committed	Main economic classification	Spending focus	Audited outcome		Estimate 2015/16	Medium-term expenditure estimate	
							2012/13	2013/14		2014/15	2016/17
R thousand											
<b>Foreign</b>											
<b>In cash</b>											
European Union	EU-South Africa science and technology advancement programme (phase 2)	International Cooperation and Resources	3 year	2 500	Goods and services	Extend the advancement of South Africa-EU collaboration	833	833	833	-	-
European Union	ICT innovation to support government service delivery	Socio-Economic Innovation Partnerships	3 years	120 000.0	Departmental agencies and accounts	Demonstrate newly developed local technologies and implement them with the aim of improving service delivery	-	-	42 700	48 100	29 200
<b>Foreign</b>											
<b>In kind</b>											
Japan	Science centre senior volunteers to provinces	Research, Development and Support	4 years	12 402	Foreign governments and international organisations	Support science centres in developing teaching material for science and mathematics education, and develop exhibitions. Systematise the newly developed exhibitions to ensure knowledge gain by science centres	2 300	2 100	-	-	-
Japan	Hitachi scholarships	Research, Development and Support	4 years	2 400	Goods and services	3 Hitachi scholarships for South African engineers in the area of electricity generation and transmission	900	-	-	-	-
France	Extension of the contract of the scientific director on the French-South African Institute in the electronics programme at Tshwane University of Technology and Cape Peninsula University of Technology	Research, Development and Support	3 years	14 850	Foreign governments and international organisations	Extend the contract of the scientific director on the French-South African Institute in electronics programme at Tshwane University of Technology and Cape Peninsula University of Technology	1 764	-	-	-	-
United States Agency for International Development	Tenofovir microbicide gel for HIV prevention	Technology Innovation	3 years	127 800	Foreign governments and international organisations	FACTS 001 study: Confirmation of the results of the Centre for the AIDS Programme of Research in South Africa through a phase 3 clinical trial	60 000	7 800	-	-	-
Canadian International Development Agency	South African participation in the grand challenge call on point of care diagnostics	Technology Innovation	3 years	6 892	Higher education institutions	Support the development of new technology in improving existing point of care diagnostic tests	2 424	1 970	-	-	-
Japan	Short term training programme	Technology Innovation	1 Year	108	Goods and services	Provide technical training in the field of the management of electric power pools	108	-	-	-	-
Bill and Melinda Gates Foundation	Training of the next generation of African researchers in legume sciences	Technology Innovation	5 years	10 000	Higher education institutions	Train the next generation of African researchers in legume sciences	2 000	2 000	2 000	2 000	2 000

Table 30.B Summary of donor funding

Donor	Project	Programme	Period of commitment	Amount committed	Main economic classification	Spending focus	Audited outcome		Medium-term expenditure estimate				
							2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
R thousand													
<b>Foreign</b>													
<b>In kind</b>													
United Kingdom Department for International Development	Human Sciences Research Council longitudinal study on single mothers in South Africa	Socio-Economic Innovation Partnerships	1 year	395	Departmental agencies and accounts	Improve the understanding of the role of social security in respecting and protecting dignity	395	-	-	-	-	-	-
Japan	Climate simulation and projections for adaptation impact in Southern Africa	Socio-Economic Innovation Partnerships	3 years	30 000	Foreign governments and international organisations	Build capacity in ocean atmosphere coupled circulation models in Southern Africa and translate this into an early warning system	10 000	-	-	-	-	-	-
Japan	Observational study to mitigate seismic risks in mines	Socio-Economic Innovation Partnerships	5 years	16 000	Foreign governments and international organisations	Improve the accuracy of predicting and control of seismicity and earthquakes	3 200	3 200	3 200	-	-	-	-
<b>Total</b>				<b>895 869</b>			<b>152 776</b>	<b>68 777</b>	<b>109 468</b>	<b>50 986</b>	<b>29 200</b>	<b>-</b>	<b>-</b>



# 2016 BUDGET

ESTIMATES OF NATIONAL EXPENDITURE

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**national treasury**

Department:  
National Treasury  
REPUBLIC OF SOUTH AFRICA