



**2019**  
**BUDGET**  
ESTIMATES OF  
NATIONAL EXPENDITURE

**VOTE**  
**30**

**SCIENCE AND TECHNOLOGY**



**national treasury**

Department:  
National Treasury  
REPUBLIC OF SOUTH AFRICA





# **Estimates of National Expenditure**

## **2019**

**National Treasury**

**Republic of South Africa**



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The 2019 Estimates of National Expenditure is 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 this Estimates of National Expenditure publication, the e-publications for each vote contain more comprehensive coverage of all public entities. Also included are tables containing information on programme specific personnel expenditure, conditional grants to provinces and municipalities, public private partnerships and information on donor funding. Expenditure information at the level of site service delivery is included, where appropriate.

# Foreword

The Estimates of National Expenditure (ENE) publications are an integral part of the comprehensive annual budget process. The economic climate has made it necessary to focus on reprioritising existing resources towards areas where the most value can be derived for all South Africans. The budgets shown in this document reflect the outcome of a robust negotiation process, led by a committee of senior officials in central government departments, under the political guidance of the Ministers' Committee on the Budget. There was also wide-ranging intergovernmental consultation on budgets in the provincial and local spheres of government. Ultimately, these decisions are considered and endorsed by Cabinet.

The ENE publications present the detail of national government's expenditure estimates for the three-year 2019 medium-term expenditure framework period, most importantly for 2019/20 allocations contained in the Appropriation Bill, 2019, as tabled by the Minister of Finance, for Parliament's consideration and adoption.

The abridged ENE provides extensive information on the priorities, spending plans and service delivery commitments of all 40 national government votes, as well as for associated government agencies. The e-publications for each vote contain more detail on goods and services, transfers and subsidies, donor funding, public entities, and lower-level spending information on service delivery.

This information in these chapters ensures that Parliament, the public, civil society, the media, government departments, public entities and the executive can keep state institutions accountable and ensure that public funds are spent to achieve the outcomes for which they were intended. Since its launch in February 2018, the Vulekamali online portal has become the main source of transparent, user-friendly information, including information contained in ENE publications, for anybody who wants to know more about how government compiles its budget and spends public funds. The website, [www.vulekamali.gov.za](http://www.vulekamali.gov.za), continues to evolve, and now also provides geospatial information on government's infrastructure projects, which are focal in this year's budget as a key impetus for economic growth. I encourage you to be active citizens and use this information to hold government accountable for obtaining the best possible outcomes with the funds entrusted to it.

I wish to thank the executive for the political leadership shown in the budget process, our government colleagues for all of their efforts and contributions, and my team at the department for working diligently to bring it all together.



**Dondo Mogajane**  
**Director-General: National Treasury**



# Introduction

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

The Estimates of National Expenditure (ENE) publications describe in detail government's expenditure plans over the next three financial years, also known as the medium-term expenditure framework (MTEF) period. The 2019 MTEF period is from 2019/20 to 2021/22.

The ENE publications contain information on how government institutions have spent their budgets in previous years. They explain how these institutions intend to use their allocations over the medium term to achieve their goals, and the outputs and outcomes their spending is expected to lead to. The publications include tables depicting non-financial performance indicators and targets, departmental receipts, personnel, significant as well as detailed expenditure trends and estimates by programme, subprogramme and economic classification for each department and for entities that report to the vote's executive authority. Explanatory narratives set out the institution's purpose (and that of its programmes), its mandate and programme-level objectives and descriptions of subprogrammes. A more in-depth narrative analyses the institution's expected expenditure over the MTEF period. Summary data tables at the end of each vote contain data on provincial and municipal conditional grants, public-private partnerships, donor funding, infrastructure, and expenditure at the level of site service delivery, where applicable.

A separate 2019 ENE Overview publication is also available on [www.treasury.gov.za](http://www.treasury.gov.za) and summarises the ENE information across all votes. The 2019 ENE Overview contains a narrative explanation and budget-wide summary tables; 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**



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# Vote 30

## Science and Technology

### Budget summary

R million	2019/20				2020/21	2021/22
	Total	Current payments	Transfers and subsidies	Payments for capital assets	Total	Total
<b>MTEF allocation</b>						
Administration	380.3	362.5	15.1	2.7	342.9	359.9
Technology Innovation	1 224.3	78.8	1 145.5	—	1 293.2	1 355.0
International Cooperation and Resources	149.0	77.0	72.0	—	158.1	165.0
Research, Development and Support	4 572.9	58.6	4 514.4	—	4 900.9	5 155.4
Socioeconomic Innovation Partnerships	1 824.4	58.3	1 766.1	—	1 928.2	1 867.9
<b>Total expenditure estimates</b>	<b>8 151.0</b>	<b>635.3</b>	<b>7 513.0</b>	<b>2.7</b>	<b>8 623.2</b>	<b>8 903.2</b>
Executive authority	Minister of Science and Technology					
Accounting officer	Director-General of Science and Technology					
Website address	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 derives its mandate from the 1996 White Paper on Science and Technology, which introduced the concept of the national system of innovation, a set of interacting organisations and policies through which the country creates, acquires, diffuses and puts into practice new knowledge to help achieve individual and collective goals. A coordinated and efficient national system of innovation will help South Africa achieve its national development priorities by promoting change through innovation, enabling all South Africans to enjoy the economic, sociopolitical and intellectual benefits of science, technology and innovation.

### Selected performance indicators

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

Indicator	Programme	MTSF outcome	Past			Current	Projections		
			2015/16	2016/17	2017/18		2019/20	2020/21	2021/22
Number of instruments funded in support of knowledge utilisation per year	Technology Innovation		6	25	19	21	21	19 <sup>1</sup>	19 <sup>1</sup>
Number of commercial outputs in designated areas per year <sup>2</sup>	Technology Innovation		3	8	4	3	8	3	3
Amount of funds invested by international partners in their own organisations and initiatives targeted at cooperation with South African partners in the areas of research, innovation and science, technology and innovation human capital development, as part of cooperation initiatives implemented by the department per year	International Cooperation and Resources	Outcome 4: Decent employment through inclusive growth	R2.2m	R1.3bn <sup>3</sup>	R1.2bn <sup>3</sup>	R280m	R300m	R320m	R320m
Number of doctoral students awarded bursaries per year, as reflected in reports from the National Research Foundation and relevant entities	Research, Development and Support	Outcome 5: A skilled and capable workforce to support an inclusive growth path	3 404	3 454	3 621	3 100	3 100	3 100	3 100
Number of pipeline postgraduate students (BTech, honours and masters students) awarded bursaries per year, as reflected in reports from the National Research Foundation and relevant entities	Research, Development and Support		10 996	10 268	10 601	10 800	10 800	10 800	10 800

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

Indicator	Programme	MTSF outcome	Past			Current	Projections		
			2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Number of researchers awarded research grants per year through programmes managed by the National Research Foundation, as reflected in the foundation's project reports	Research, Development and Support	Outcome 5: A skilled and capable workforce to support an inclusive growth path	4 315	4 520	4 707	4 500	4 500	4 500	4 500
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	Socioeconomic Innovation Partnerships	Outcome 4: Decent employment through inclusive growth	38	36	38	26	50 <sup>4</sup>	50 <sup>4</sup>	50 <sup>4</sup>

1. Target decreases in line with available budget and an expected decrease in the number of personnel.

2. As commercialisation is difficult to predict, estimates are based on knowledge of projects under way.

3. Between 2016/17 and 2017/18, funding from international partners, particularly the European Union Horizon 2020 programme, was higher. Funding from these sources is expected to decrease over the MTEF period and targets have been revised accordingly.

4. Higher targets have been set against the backdrop of the department exceeding previous targets.

## Expenditure analysis

The National Development Plan acknowledges that science, technology and innovation are crucial to enabling broad-based socioeconomic development through a skilled and innovative population. This is expressed in terms of 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 work of the Department of Science and Technology is closely aligned with these outcomes. Accordingly, over the medium term, the department will focus on: producing new knowledge; developing human capital; funding research, innovation and infrastructure; and generating and exploiting knowledge and innovation for inclusive economic development.

As part of government's broader objective to lower national expenditure and reprioritise funds appropriately, Cabinet has approved reductions to the department's baseline budget amounting to R322.8 million over the MTEF period. Nevertheless, the department's overall budget is expected to increase at an average annual rate of 3.8 per cent, from R8.2 billion in 2019/20 to R8.9 billion in 2021/22. Of the department's total budget over the medium term, 92.5 per cent (R23.8 billion) is expected to be transferred to the department's entities. Spending on compensation of employees is expected to increase at an average annual rate of 8.6 per cent, from R339.8 million in 2018/19 to R435 million in 2021/22, with the number of personnel expected to increase from 444 in 2018/19 to 446 in 2021/22.

### Producing new knowledge

The department is committed to strengthening research and innovation competencies and programmes that form the strategic foundation for scientific innovation. Accordingly, through funds allocated in the *Technology Innovation* programme, the department plans to invest an estimated 15.1 per cent (R3.9 billion) of its total budget over the medium term towards the production of new knowledge, and the development and commercialisation of technology.

The department's investment in the industrial, health and agricultural sectors, as well as in the development of indigenous knowledge applications, is reflected in an allocation of R616.3 million over the MTEF period in the *Bio-innovation* subprogramme in the *Technology Innovation* programme. This investment will particularly seek to find solutions to the disposal of industrial and municipal waste; facilitate the development of biopharmaceuticals, vaccines and biofuels; and improve crop production. An estimated R564.7 million over the medium term is allocated in the *Technology Innovation* programme for developing hydrogen fuel cell technology, renewable energy technology and energy storage applications.

To ensure that publicly funded intellectual property is protected and used to create products, processes and services that improve the quality of life in South Africa, the department plans to spend R170.4 million over the medium term in the *National Intellectual Property Management Office* subprogramme in the *Technology Innovation* programme. Activities in the subprogramme provide support to institutions to protect and maintain their intellectual property through the Intellectual Property Fund.

The national space strategy aims to promote the peaceful use of space; support the creation of an environment conducive to industrial development in space technology; foster research in space science, communications, navigation and space physics; and advance scientific, engineering and technological competencies in space-related activities. As such, in implementing the national space strategy towards ensuring that South Africa captures a reasonable share of the global space market, which involves economic activities related to manufacturing components that enter the earth's orbit or go beyond, R597.9 million over the MTEF period is allocated in the *Space Science* subprogramme in the *Technology Innovation* programme.

### ***Developing human capital***

Highly skilled human capital is essential to developing a national system of innovation that is globally competitive and responsive to South Africa's developmental needs. Accordingly, the department has allocated R8.2 billion over the medium term in the *Human Capital and Science Promotions* subprogramme in the *Research, Development and Support* programme for postgraduate bursaries and scholarships, internships, and support for emerging and established researchers; and towards strategic instruments such as the South African research chairs initiative and centres of excellence programmes.

Over the medium term, the department aims to award 9 300 bursaries to PhD students, 32 400 bursaries to postgraduate students and place 1 750 graduates in department-funded work preparation programmes in science, engineering and technology institutions. To date, the department has established 216 research chairs and 15 centres of excellence across South Africa. Research chairs are designed to attract and retain excellence in research and innovation at South African public universities by expanding scientific research and innovation capacity; and centres of excellence bring together a range of universities and science councils in partnerships to tackle challenges in areas such as health, food security, human development, energy and biodiversity.

### ***Funding research, innovation and infrastructure***

The availability of adequate infrastructure is vital for the national system of innovation to be globally competitive. This infrastructure includes research equipment, pilot plants (small production plants that test processes before they are commercialised), technology demonstrators (proof concepts to showcase possible applications, feasibility, performance and methods of ideas for new technologies), and facilities for specialised sectors such as aerospace. To provide infrastructure for research and development across the national system of innovation, the department has earmarked R2.2 billion over the MTEF period in the *Research, Development and Support* programme.

An estimated R798 million will enable the implementation of the national integrated cyber-infrastructure system by the Council for Scientific and Industrial Research. The system supports the successful and sustainable implementation of national projects such as MeerKAT and the Square Kilometre Array, as well as large research infrastructure dependent on the presence of a robust cyber-infrastructure system. Funding for the system constitutes 40 per cent of the total allocation to the Council for Scientific and Industrial Research over the medium term. In addition, funds allocated to the *Basic Science and Infrastructure* subprogramme in the *Research, Development and Support* programme will continue to enable students and researchers to access international infrastructure such as the Large Hadron Collider in Switzerland, the Joint Institute for Nuclear Research in Russia, and the European Synchrotron Radiation Facility in France.

To support scientific research in strategic research areas defined by South Africa's geographic advantage, such as palaeosciences, astronomy, climate change, marine and polar research, and indigenous knowledge, R748.8 million over the MTEF period is allocated in the *Science Missions* subprogramme in the *Research, Development and Support* programme. Of this amount, R258.4 million over the medium term is earmarked to promote science through engagements such as exhibitions and festivals. This is expected to be done through the South African Agency for Science and Technology Advancement with the aim of advancing the South African public's awareness of, appreciation for and engagement with science, engineering and technology.

### Generating and exploiting knowledge and innovation for inclusive economic development

The work carried out in the *Socioeconomic Innovation Partnerships* programme is targeted at generating and exploiting knowledge and innovation that aligns with government's priorities for inclusive economic development. Over the medium term, R123.6 million is expected to be invested in a range of ICT initiatives such as artificial intelligence, nanotechnology, quantum computing and biotechnology, many of which are essential for South Africa to exploit the opportunities associated with the fourth industrial revolution.

Over the medium term, an estimated R3.3 billion in the *Sector Innovation and Green Economy* subprogramme in the *Socioeconomic Innovation Partnerships* programme will be used to advance a set of technology-based interventions. These interventions include the sector innovation funds, a partnership between industry and government formed to enhance South Africa's economic competitiveness with the aim of improving economic competitiveness and addressing local needs, with an emphasis on increased market share for exports. The overarching objective of the initiative is to create an environment where government can effectively partner with industry to co-fund research, development and innovation. In addition, to fund activities related to advancing the development of a joint industry-government mining research and development hub, R150 million in 2019/20 is allocated in the *Socioeconomic Innovation Partnerships* programme.

## Expenditure trends

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

Programmes														
1. Administration														
2. Technology Innovation														
3. International Cooperation and Resources														
4. Research, Development and Support														
5. Socioeconomic Innovation Partnerships														
Programme	Annual budget	Adjusted appropriation	Audited outcome	Annual budget	Adjusted appropriation	Audited outcome	Annual budget	Adjusted appropriation	Audited outcome	Annual budget	Adjusted appropriation	Revised estimate	Average: Outcome/Annual budget (%)	Average: Outcome/Adjusted appropriation (%)
R million	2015/16			2016/17			2017/18			2018/19			2015/16	2018/19
Programme 1	299.8	300.5	279.1	304.0	345.1	311.8	383.7	376.0	321.0	383.8	379.5	379.5	94.2%	92.2%
Programme 2	1 008.8	1 008.5	1 067.4	1 007.1	1 005.4	1 019.8	1 073.6	1 075.1	1 118.0	1 131.7	1 131.7	1 131.7	102.7%	102.8%
Programme 3	122.0	121.4	124.4	124.5	124.5	125.8	128.7	132.4	135.2	136.4	137.9	137.9	102.3%	101.4%
Programme 4	4 247.1	4 238.8	4 223.5	4 200.6	4 171.0	4 157.5	4 348.9	4 350.1	4 299.3	4 360.3	4 531.0	4 531.0	100.3%	99.5%
Programme 5	1 804.5	1 796.9	1 743.1	1 792.9	1 783.0	1 768.6	1 622.3	1 623.6	1 616.1	1 778.3	1 778.3	1 778.3	98.7%	98.9%
Total	7 482.1	7 466.1	7 437.5	7 429.0	7 429.0	7 383.6	7 557.2	7 557.2	7 489.5	7 790.5	7 958.4	7 958.4	100.0%	99.5%
Change to 2018	167.9													
Budget estimate														
Economic classification														
Current payments	496.4	495.0	464.8	509.7	532.3	507.9	575.8	570.7	514.2	603.3	602.7	602.7	95.6%	94.9%
Compensation of employees	291.3	295.3	301.1	309.2	313.8	319.0	315.5	326.8	323.8	339.8	339.8	339.8	102.2%	100.6%
Goods and services	205.1	199.7	163.7	200.5	218.5	188.9	260.2	243.9	190.3	263.5	262.9	262.9	86.7%	87.1%
Transfers and subsidies	6 983.4	6 968.8	6 956.1	6 917.0	6 872.2	6 860.1	6 960.5	6 964.5	6 954.5	7 175.0	7 343.5	7 343.5	100.3%	99.9%
Departmental agencies and accounts	5 466.0	5 457.1	4 758.4	5 344.7	5 311.4	4 695.1	5 204.3	5 204.3	4 768.2	5 312.3	5 496.5	5 496.5	93.3%	92.7%
Higher education institutions	114.6	114.6	225.7	—	—	204.3	—	—	—	—	—	—	375.3%	375.3%
Public corporations and private enterprises	1 253.3	1 249.8	1 833.1	1 307.4	1 299.4	1 793.8	1 447.1	1 447.1	1 722.5	1 519.9	1 504.8	1 504.8	124.0%	124.6%
Non-profit institutions	149.6	147.3	138.3	264.9	261.4	165.6	309.1	313.1	462.5	342.8	341.6	341.6	103.9%	104.2%
Households	—	—	0.6	—	—	1.3	—	—	1.2	—	0.7	0.7	—	584.8%
Payments for capital assets	2.3	2.3	16.5	2.3	24.5	15.5	21.0	22.0	20.6	12.2	12.2	12.2	171.4%	106.2%
Machinery and equipment	2.3	2.3	16.5	2.3	24.5	15.5	21.0	22.0	20.6	12.2	12.2	12.2	171.4%	106.2%
Payments for financial assets	—	—	0.1	—	—	0.1	—	—	0.2	—	—	—	—	—
Total	7 482.1	7 466.1	7 437.5	7 429.0	7 429.0	7 383.6	7 557.2	7 557.2	7 489.5	7 790.5	7 958.4	7 958.4	100.0%	99.5%

## 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. Socioeconomic Innovation Partnerships								
Programme	Revised estimate	Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
R million	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
Programme 1	379.5	8.1%	4.3%	380.3	342.9	359.9	-1.8%	4.3%
Programme 2	1 131.7	3.9%	14.3%	1 224.3	1 293.2	1 355.0	6.2%	14.9%
Programme 3	137.9	4.4%	1.7%	149.0	158.1	165.0	6.2%	1.8%
Programme 4	4 531.0	2.2%	56.9%	4 572.9	4 900.9	5 155.4	4.4%	57.0%
Programme 5	1 778.3	-0.3%	22.8%	1 824.4	1 928.2	1 867.9	1.7%	22.0%
<b>Total</b>	<b>7 958.4</b>	<b>2.2%</b>	<b>100.0%</b>	<b>8 151.0</b>	<b>8 623.2</b>	<b>8 903.2</b>	<b>3.8%</b>	<b>100.0%</b>
Change to 2018				(97.4)	(85.9)	(81.4)		
Budget estimate								
<b>Economic classification</b>								
<b>Current payments</b>	<b>602.7</b>	<b>6.8%</b>	<b>6.9%</b>	<b>635.3</b>	<b>616.1</b>	<b>649.3</b>	<b>2.5%</b>	<b>7.4%</b>
Compensation of employees	339.8	4.8%	4.2%	380.5	408.4	435.0	8.6%	4.6%
Goods and services	262.9	9.6%	2.7%	254.8	207.6	214.3	-6.6%	2.8%
<b>Transfers and subsidies</b>	<b>7 343.5</b>	<b>1.8%</b>	<b>92.9%</b>	<b>7 513.0</b>	<b>8 004.3</b>	<b>8 251.0</b>	<b>4.0%</b>	<b>92.5%</b>
Departmental agencies and accounts	5 496.5	0.2%	65.1%	5 583.1	5 968.4	6 126.8	3.7%	68.9%
Public corporations and private enterprises	1 504.8	6.4%	22.6%	1 563.9	1 649.9	1 718.0	4.5%	19.1%
Non-profit institutions	341.6	32.4%	3.7%	366.0	386.1	406.3	5.9%	4.5%
Households	0.7	-	0.0%	-	-	-	-100.0%	0.0%
<b>Payments for capital assets</b>	<b>12.2</b>	<b>74.1%</b>	<b>0.2%</b>	<b>2.7</b>	<b>2.8</b>	<b>2.9</b>	<b>-38.0%</b>	<b>0.1%</b>
Machinery and equipment	12.2	74.1%	0.2%	2.7	2.8	2.9	-38.0%	0.1%
<b>Total</b>	<b>7 958.4</b>	<b>2.2%</b>	<b>100.0%</b>	<b>8 151.0</b>	<b>8 623.2</b>	<b>8 903.2</b>	<b>3.8%</b>	<b>100.0%</b>

## Expenditure trends and estimates for significant spending items

**Table 30.4 Expenditure trends and estimates for significant spending items**

	Audited outcome			Adjusted appropriation	Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/ Total vote (%)
R thousand	2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
National Research Foundation	2 951 503	2 942 413	2 973 010	3 072 429	1.3%	39.4%	3 198 790	3 450 360	3 611 471	5.5%	39.6%
Human Sciences Research Council	294 151	290 149	311 609	313 717	2.2%	4.0%	326 259	344 295	360 584	4.8%	4.0%
Council for Scientific and Industrial Research	1 033 683	1 086 589	1 356 964	1 262 503	6.9%	15.7%	1 277 509	1 347 729	1 401 397	3.5%	15.7%
Technology Innovation Agency	385 188	382 364	396 732	420 322	3.0%	5.2%	440 929	465 161	481 018	4.6%	5.4%
<b>Total</b>	<b>4 664 525</b>	<b>4 701 515</b>	<b>5 038 315</b>	<b>5 068 971</b>	<b>2.8%</b>	<b>64.3%</b>	<b>5 243 487</b>	<b>5 607 545</b>	<b>5 854 470</b>	<b>4.9%</b>	<b>64.7%</b>

## Goods and services expenditure trends and estimates

**Table 30.5 Vote goods and services expenditure trends and estimates**

	Audited outcome			Adjusted appropriation	Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
R thousand	2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
Administrative fees	2 149	1 246	1 529	1 541	-10.5%	0.8%	1 782	1 880	2 045	9.9%	0.8%
Advertising	8 942	12 657	11 853	9 795	3.1%	5.4%	11 213	13 330	13 751	12.0%	5.1%
Minor assets	537	249	623	644	6.2%	0.3%	695	732	755	5.4%	0.3%
Audit costs: External	5 061	4 249	3 702	20 380	59.1%	4.1%	4 488	2 900	2 992	-47.2%	3.3%
Bursaries: Employees	1 067	1 485	2 620	3 540	49.1%	1.1%	2 927	3 088	3 186	-3.5%	1.4%
Catering: Departmental activities	3 501	3 496	2 072	3 181	-3.1%	1.5%	3 405	3 588	3 701	5.2%	1.5%
Communication	7 624	8 427	13 152	13 509	21.0%	5.3%	10 675	10 299	10 619	-7.7%	4.8%

**Table 30.5 Vote goods and services expenditure trends and estimates**

	Audited outcome			Adjusted appropriation	Average growth rate (%)		Medium-term expenditure estimate			Average growth rate (%)	
	2015/16	2016/17	2017/18		2015/16 - 2018/19	Average: Expenditure/ Total (%)	2019/20	2020/21	2021/22	2018/19 - 2021/22	Average: Expenditure/ Total (%)
R thousand											
Computer services	6 418	6 056	8 571	9 067	12.2%	3.7%	6 082	5 777	5 963	-13.0%	2.9%
Consultants: Business and advisory services	12 762	20 870	7 385	26 491	27.6%	8.4%	21 429	22 192	22 894	-4.7%	9.9%
Legal services	—	167	997	1 054	—	0.3%	1 113	1 174	1 211	4.7%	0.5%
Science and technological services	580	866	—	—	-100.0%	0.2%	—	—	—	—	—
Contractors	3 547	3 523	9 508	10 544	43.8%	3.4%	4 860	4 386	4 516	-24.6%	2.6%
Agency and support/outourced services	8 616	13 718	11 437	17 639	27.0%	6.4%	16 132	16 061	16 647	-1.9%	7.1%
Entertainment	1 051	677	1 824	5 594	74.6%	1.1%	5 179	5 463	5 637	0.3%	2.3%
Fleet services (including government motor transport)	764	882	2	—	-100.0%	0.2%	—	—	—	—	—
Inventory: Clothing material and accessories	48	—	—	—	-100.0%	—	—	—	—	—	—
Inventory: Fuel, oil and gas	72	—	136	144	26.0%	—	152	160	165	4.6%	0.1%
Inventory: Materials and supplies	103	—	—	—	-100.0%	—	—	—	—	—	—
Inventory: Medical supplies	1	—	—	—	-100.0%	—	—	—	—	—	—
Inventory: Other supplies	1	—	1 270	1 343	1003.3%	0.3%	1 417	1 494	1 543	4.7%	0.6%
Consumable supplies	995	1 160	—	—	-100.0%	0.3%	3	3	3	—	—
Consumables: Stationery, printing and office supplies	2 659	4 967	3 795	9 070	50.5%	2.5%	5 863	6 185	6 380	-11.1%	2.9%
Operating leases	2 906	4 117	9 452	7 762	38.7%	3.0%	4 397	4 639	4 785	-14.9%	2.3%
Rental and hiring	542	1 280	—	—	-100.0%	0.2%	—	—	—	—	—
Property payments	—	10 455	16 837	23 886	—	6.4%	71 479	14 220	14 673	-15.0%	13.2%
Transport provided: Departmental activity	18 005	—	—	—	-100.0%	2.2%	—	—	—	—	—
Travel and subsistence	49 394	67 191	50 241	58 826	6.0%	28.0%	53 917	58 167	59 954	0.6%	24.6%
Training and development	8 890	4 944	7 968	8 101	-3.1%	3.7%	6 221	6 563	6 770	-5.8%	2.9%
Operating payments	10 607	10 521	10 693	8 136	-8.5%	5.0%	8 651	9 123	9 405	5.0%	3.8%
Venues and facilities	6 897	5 673	14 680	22 639	48.6%	6.2%	12 725	16 207	16 696	-9.7%	7.3%
<b>Total</b>	<b>163 739</b>	<b>188 876</b>	<b>190 347</b>	<b>262 886</b>	<b>17.1%</b>	<b>100.0%</b>	<b>254 805</b>	<b>207 631</b>	<b>214 291</b>	<b>-6.6%</b>	<b>100.0%</b>

## Transfers and subsidies expenditure trends and estimates

**Table 30.6 Vote transfers and subsidies trends and estimates**

	Audited outcome			Adjusted appropriation	Average growth rate (%)		Medium-term expenditure estimate			Average growth rate (%)	
	2015/16	2016/17	2017/18		2015/16 - 2018/19	Average: Expenditure/ Total (%)	2019/20	2020/21	2021/22	2018/19 - 2021/22	Average: Expenditure/ Total (%)
R thousand											
<b>Households</b>											
<b>Social benefits</b>											
<b>Current</b>	<b>378</b>	<b>1 048</b>	<b>565</b>	<b>650</b>	<b>19.8%</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>-100.0%</b>	<b>—</b>
Households	378	1 048	565	650	19.8%	—	—	—	—	-100.0%	—
<b>Departmental agencies and accounts</b>											
<b>Departmental agencies (non-business entities)</b>											
<b>Current</b>	<b>3 666 930</b>	<b>3 662 604</b>	<b>3 719 686</b>	<b>3 978 697</b>	<b>2.8%</b>	<b>53.5%</b>	<b>4 215 155</b>	<b>4 437 720</b>	<b>4 517 088</b>	<b>4.3%</b>	<b>55.1%</b>
Various institutions: Biofuels	6 000	—	—	—	-100.0%	—	—	—	—	—	—
Various institutions: Technology transfer offices: Support of research units	4 411	687	6 901	—	-100.0%	—	—	—	—	—	—
Various institutions: Implementation of bioeconomy strategy	9 500	9 500	—	—	-100.0%	0.1%	—	—	—	—	—
Various institutions: Energy grand challenge research	26 373	22 316	17 501	37 049	12.0%	0.4%	40 946	43 198	45 411	7.0%	0.5%
Various institutions: Health innovation research	37 568	37 500	—	—	-100.0%	0.3%	—	—	—	—	—
Various institutions: HIV and AIDS prevention and treatment technologies research	24 535	23 800	55 007	24 588	0.1%	0.5%	27 866	29 399	31 684	8.8%	0.4%
Various institutions: Hydrogen strategy research	16 984	4 007	—	—	-100.0%	0.1%	—	—	—	—	—
Various institutions: Innovation projects research	12 000	10 000	25 750	38 529	47.5%	0.3%	35 318	37 260	39 285	0.6%	0.5%
International Centre for Genetic Engineering and Biotechnology	—	—	12 795	13 537	—	0.1%	14 295	15 081	16 914	7.7%	0.2%
Various institutions: Space science research: economic competitiveness and support package	71 978	—	44 860	9 200	-49.6%	0.4%	30 000	31 650	34 006	54.6%	0.3%



Table 30.6 Vote transfers and subsidies trends and estimates

R thousand	Audited outcome			Adjusted appropriation	Average growth rate (%)		Medium-term expenditure estimate			Average growth rate (%)	
	2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19	Average: Expenditure/ Total (%)	2019/20	2020/21	2021/22	2018/19 - 2021/22	Average: Expenditure/ Total (%)
National Research Foundation: Indigenous knowledge systems	1 840	—	—	—	-100.0%	—	—	—	—	—	—
Technology Innovation Agency	385 188	382 364	396 732	420 322	3.0%	5.6%	440 929	465 161	481 018	4.6%	5.8%
South African National Space Agency	124 355	154 630	131 226	138 036	3.5%	2.0%	143 464	151 338	157 427	4.5%	1.9%
Various institutions: Emerging research areas	11 802	11 498	—	—	-100.0%	0.1%	—	—	—	—	—
National Research Foundation: Research and development in indigenous knowledge systems	—	—	4 604	6 071	—	—	5 144	5 427	6 992	4.8%	0.1%
National Research Foundation: Bilateral cooperation for global science development	13 530	13 598	13 979	14 948	3.4%	0.2%	15 952	16 829	17 664	5.7%	0.2%
Various institutions: Global science: International multilateral agreements	22 353	28 088	27 857	—	-100.0%	0.3%	—	—	—	—	—
Various institutions: Global science: African multilateral agreements	958	2 900	3 300	—	-100.0%	—	—	—	—	—	—
Academy of Science of South Africa	—	—	25 261	25 668	—	0.2%	26 983	28 467	36 647	12.6%	0.4%
Various institutions: Astronomy research and development	25 155	14 069	29 348	31 050	7.3%	0.4%	32 789	34 592	42 585	11.1%	0.5%
Various institutions: Policy development on human and social development dynamics	10 283	10 283	26 012	27 409	38.7%	0.3%	28 896	30 485	38 731	12.2%	0.4%
National Research Foundation: Human resources development for science and engineering	878 609	841 728	794 601	889 172	0.4%	12.1%	950 582	1 000 577	1 041 455	5.4%	12.5%
National Research Foundation: Human resources development for science and engineering: Economic competitiveness and support package	—	38 388	39 056	13 800	—	0.3%	22 000	23 210	19 505	12.2%	0.3%
National Research Foundation	878 399	882 805	925 964	904 752	1.0%	12.8%	943 385	985 813	1 033 741	4.5%	12.4%
Various institutions: Science awareness, research and initiatives to encourage youth participation in science	57 766	66 221	73 018	77 253	10.2%	1.0%	81 579	86 066	96 069	7.5%	1.1%
National Research Foundation: Square Kilometre Array: Research and development	2 000	—	—	—	-100.0%	—	—	—	—	—	—
National Research Foundation: South African research chairs initiative initiatives	470 446	482 243	500 875	530 274	4.1%	7.1%	566 305	597 452	623 614	5.6%	7.4%
Various institutions: Strategic science platforms for research and development	149 943	181 819	180 626	208 325	11.6%	2.6%	220 176	232 286	246 530	5.8%	2.9%
Various institutions: Economic competitiveness and support package: Local manufacturing capacity research and technical support	—	—	—	80 000	—	0.3%	80 000	84 400	—	-100.0%	0.8%
Various institutions: Economic competitiveness and support package: Local systems of innovation for the cold chain technologies project	—	—	—	62 000	—	0.2%	62 000	65 410	—	-100.0%	0.6%
Various institutions: Innovative research and development	13 786	6 866	35 049	39 890	42.5%	0.3%	41 955	46 683	50 656	8.3%	0.6%
Human Sciences Research Council	288 706	290 149	304 656	303 733	1.7%	4.2%	313 855	331 209	344 145	4.3%	4.2%
Various institutions: Local manufacturing capacity research and technical support	42 000	70 739	3 311	25 864	-14.9%	0.5%	28 689	30 267	34 162	9.7%	0.4%
Various institutions: Local systems of innovation for the cold chain technologies project	60 000	64 000	30 689	10 632	-43.8%	0.6%	11 793	12 442	15 774	14.1%	0.2%
Various institutions: Resource-based industries research and development	1 304	1 000	—	—	-100.0%	—	—	—	—	—	—
National Research Foundation: Research information management system	12 240	7 201	—	4 000	-31.1%	0.1%	8 448	8 913	11 693	43.0%	0.1%
Human Science Research Council: Develop and monitor science and technology indicators	5 445	—	6 953	9 984	22.4%	0.1%	12 404	13 086	16 439	18.1%	0.2%
Various institutions: Environmental innovation	1 473	4 205	3 755	32 611	180.8%	0.1%	29 402	31 019	34 941	2.3%	0.4%
<b>Capital</b>	<b>1 136 449</b>	<b>1 079 949</b>	<b>1 137 597</b>	<b>1 531 597</b>	<b>10.5%</b>	<b>17.4%</b>	<b>1 389 989</b>	<b>1 553 856</b>	<b>1 629 245</b>	<b>2.1%</b>	<b>19.6%</b>
Various institutions: Infrastructure projects for research and development	449 034	413 312	443 666	822 185	22.3%	7.6%	703 015	741 717	772 438	-2.1%	9.8%
National Research Foundation: Square Kilometre Array: Capital contribution to research	687 415	666 637	693 931	709 412	1.1%	9.8%	686 974	812 139	856 807	6.5%	9.9%
<b>Households</b>											
<b>Other transfers to households</b>											
<b>Current</b>	<b>125</b>	<b>230</b>	<b>280</b>	<b>—</b>	<b>-100.0%</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>
Households	—	—	280	—	—	—	—	—	—	—	—
Various institutions: Policy development on human and social development dynamics	125	200	—	—	-100.0%	—	—	—	—	—	—

Table 30.6 Vote transfers and subsidies trends and estimates

R thousand	Audited outcome			Adjusted appropriation	Average growth rate (%)		Medium-term expenditure estimate			Average growth rate (%)	
	2015/16	2016/17	2017/18		2015/16	2018/19	2019/20	2020/21	2021/22	2018/19	2021/22
Various institutions: Strategic science platforms for research and development	–	30	–	–	–	–	–	–	–	–	–
<b>Public corporations and private enterprises</b>											
<b>Other transfers to private enterprises</b>											
<b>Current</b>	<b>42 227</b>	<b>–</b>	<b>15 812</b>	<b>–</b>	<b>-100.0%</b>	<b>0.2%</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>
Various institutions: Technology transfer offices: Support for research units	–	–	1 417	–	–	–	–	–	–	–	–
South African Medical Research Council	–	–	1 000	–	–	–	–	–	–	–	–
Various institutions: Innovation projects research	–	–	50	–	–	–	–	–	–	–	–
Various institutions: Advanced manufacturing technology strategy implementation	42 227	–	13 345	–	-100.0%	0.2%	–	–	–	–	–
<b>Non-profit institutions</b>											
<b>Current</b>	<b>132 679</b>	<b>148 234</b>	<b>261 219</b>	<b>270 669</b>	<b>26.8%</b>	<b>2.9%</b>	<b>291 028</b>	<b>307 034</b>	<b>323 330</b>	<b>6.1%</b>	<b>3.8%</b>
Various institutions: Institutional and programme support research	14 760	17 021	16 642	14 286	-1.1%	0.2%	15 086	15 916	16 233	4.4%	0.2%
Various institutions: Biofuels research	–	1 799	5 348	7 245	–	0.1%	7 651	8 072	9 683	10.2%	0.1%
Various institutions: Implementation of the biotechnology strategy	8 089	11 556	36 112	37 742	67.1%	0.3%	41 651	43 942	46 179	7.0%	0.5%
Various institutions: Energy grand challenge research	–	700	–	–	–	–	–	–	–	–	–
Various institutions: Health innovation research	–	300	6 029	75 747	–	0.3%	51 160	53 974	57 036	-9.0%	0.8%
Various institutions: Hydrogen strategy: Research	–	–	46 274	40 206	–	0.3%	42 458	44 793	45 312	4.1%	0.6%
Various institutions: Innovation projects research	2 955	1 000	–	–	-100.0%	–	–	–	–	–	–
International Centre for Genetic Engineering and Biotechnology	11 621	22 186	–	–	-100.0%	0.1%	–	–	–	–	–
Various institutions: Space science research	–	–	3 595	–	–	–	–	–	–	–	–
Various institutions: Technology transfer offices: Support for research units	–	1 833	55 125	39 000	–	0.3%	41 184	43 449	45 720	5.4%	0.5%
National Research Foundation: Indigenous knowledge systems	500	–	–	–	-100.0%	–	–	–	–	–	–
Southern African Association of Science and Technology Centres: Technology top 100 awards	3 507	–	24 583	3 916	3.7%	0.1%	4 135	4 362	5 856	14.4%	0.1%
South African National AIDS Council	–	–	15 000	–	–	0.1%	31 680	33 422	35 834	–	0.3%
Various institutions: Emerging research areas	6 000	6 000	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Global science: International multilateral agreements	147	424	13 629	43 139	564.5%	0.2%	46 009	48 539	50 326	5.3%	0.6%
Various institutions: Global science: African multilateral agreements	723	2 950	649	9 388	135.0%	–	10 014	10 565	11 151	5.9%	0.1%
Academy of Science of South Africa	23 229	25 106	12 480	–	-100.0%	0.2%	–	–	–	–	–
Various institutions: Science awareness	3 310	3 060	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Strategic science platforms for research and development	1 500	3 311	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Advanced manufacturing technology strategy implementation	100	100	8 080	–	-100.0%	–	–	–	–	–	–
Various institutions: Innovative research and development	8 105	8 920	–	–	-100.0%	0.1%	–	–	–	–	–
Various institutions: Local systems of innovation for the cold chain technologies project	36 351	30 291	–	–	-100.0%	0.2%	–	–	–	–	–
Various institutions: Resource-based industries research and development	1 706	1 697	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Environmental innovation	10 076	9 980	17 673	–	-100.0%	0.1%	–	–	–	–	–
<b>Capital</b>	<b>–</b>	<b>11 301</b>	<b>151 714</b>	<b>70 971</b>	<b>–</b>	<b>0.8%</b>	<b>74 945</b>	<b>79 067</b>	<b>82 922</b>	<b>5.3%</b>	<b>1.0%</b>
Various institutions: Hydrogen strategy	–	–	67 080	70 971	–	0.5%	74 945	79 067	82 922	5.3%	1.0%
Various institutions: Infrastructure projects for research and development	–	11 301	84 634	–	–	0.3%	–	–	–	–	–
<b>Higher education institutions</b>											
<b>Current</b>	<b>126 185</b>	<b>174 225</b>	<b>–</b>	<b>–</b>	<b>-100.0%</b>	<b>1.1%</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>
Various institutions: Biofuels	490	2 000	–	–	–	–	–	–	–	–	–
Various institutions: Technology transfer offices: Support of research units	31 744	23 313	–	–	-100.0%	0.2%	–	–	–	–	–
Various institutions: Implementation of bioeconomy strategy	8 515	995	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Energy grand challenge research	7 360	5 250	–	–	-100.0%	–	–	–	–	–	–

**Table 30.6 Vote transfers and subsidies trends and estimates**

	Audited outcome			Adjusted appropriation	Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
	2015/16	2016/17	2017/18				2019/20	2020/21	2021/22		
R thousand				2018/19	2015/16 - 2018/19					2018/19 - 2021/22	
Various institutions: Health innovation research	150	463	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Hydrogen strategy research	16 448	81 438	–	–	-100.0%	0.3%	–	–	–	–	–
Various institutions: Innovation projects research	–	2 004	–	–	–	–	–	–	–	–	–
International Centre for Genetic Engineering and Biotechnology	504	10 000	–	–	-100.0%	–	–	–	–	–	–
National Research Foundation: Indigenous knowledge systems	4 789	3 663	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Emerging research areas	13 500	14 500	–	–	-100.0%	0.1%	–	–	–	–	–
Various institutions: Global science: International multilateral agreements	11 187	8 332	–	–	-100.0%	0.1%	–	–	–	–	–
Various institutions: Global science: African multilateral agreements	1 937	200	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Science awareness	8 118	200	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Strategic science platforms for research and development	6 796	7 244	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Advanced manufacturing technology strategy implementation	2 892	330	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Innovative research and development	4 498	8 000	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Local manufacturing capacity research and technical support	2 407	1 974	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Local systems of innovation for the cold chain technologies project	3 545	4 319	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Resource-based industries research and development	1 305	–	–	–	-100.0%	–	–	–	–	–	–
<b>Capital</b>	<b>95 743</b>	<b>27 080</b>	<b>–</b>	<b>–</b>	<b>-100.0%</b>	<b>0.4%</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>
Various institutions: Hydrogen strategy	63 568	–	–	–	-100.0%	0.2%	–	–	–	–	–
Various institutions: Infrastructure projects for research and development	32 175	27 080	–	–	-100.0%	0.2%	–	–	–	–	–
<b>Public corporations and private enterprises</b>											
<b>Other transfers to public corporations</b>											
<b>Current</b>	<b>448 954</b>	<b>458 983</b>	<b>338 733</b>	<b>291 452</b>	<b>-13.4%</b>	<b>5.5%</b>	<b>324 399</b>	<b>342 241</b>	<b>365 287</b>	<b>7.8%</b>	<b>4.3%</b>
Various institutions: Technology transfer offices: Support for research units	6 592	5 680	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Implementation of bioeconomy strategy	6 850	76 620	11 973	–	-100.0%	0.3%	–	–	–	–	–
Various institutions: Energy grand challenge research	–	15 923	2 165	–	–	0.1%	–	–	–	–	–
Various institutions: Health innovation research	5 900	2 853	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Hydrogen strategy: Research	2 580	–	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Innovation projects research	14 657	7 450	–	–	-100.0%	0.1%	–	–	–	–	–
National Research Foundation: Indigenous knowledge systems	1 735	6 150	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Emerging research areas	61 129	–	81 451	97 697	16.9%	0.9%	112 672	118 869	123 981	8.3%	1.5%
Various institutions: Technology transfer offices for support of research units	–	–	5 034	–	–	–	–	–	–	–	–
Various institutions: Global science: International multilateral agreements	5 338	2 115	1 680	–	-100.0%	–	–	–	–	–	–
Various institutions: Global science: African multilateral agreements	3 138	2 200	3 110	–	-100.0%	–	–	–	–	–	–
Various institutions: Strategic science platforms for research and development	4 500	4 611	5 215	–	-100.0%	0.1%	–	–	–	–	–
Various institutions: Advanced manufacturing technology strategy implementation	–	43 146	51 215	53 678	–	0.5%	59 542	62 817	67 301	7.8%	0.8%
Council for Scientific and Industrial Research	–	–	3 953	–	–	–	–	–	–	–	–
Various institutions: Innovative research and development	12 343	19 295	5 182	–	-100.0%	0.1%	–	–	–	–	–
Various institutions: Information and Communication Technology	26 144	21 827	45 790	28 634	3.1%	0.4%	38 533	40 652	44 435	15.8%	0.5%
Various institutions: Local manufacturing capacity research and technical support	143 101	141 925	–	–	-100.0%	1.0%	–	–	–	–	–
Council for Scientific and Industrial Research: Mining research and development	–	–	24 093	63 000	–	0.3%	60 000	63 300	68 239	2.7%	0.8%

**Table 30.6 Vote transfers and subsidies trends and estimates**

	Audited outcome			Adjusted appropriation	Average growth rate (%)		Medium-term expenditure estimate			Average growth rate (%)	
	2015/16	2016/17	2017/18		2015/16 - 2018/19	Average: Expenditure/Total (%)	2019/20	2020/21	2021/22	2018/19 - 2021/22	Average: Expenditure/Total (%)
R thousand											
Various institutions: Local systems of innovation for the cold chain technologies project	104 840	54 413	—	—	-100.0%	0.6%	—	—	—	—	—
Various institutions: Resource-based industries research and development	45 193	41 100	97 872	48 443	2.3%	0.8%	53 652	56 603	61 331	8.2%	0.7%
Various institutions: Environmental innovation	4 914	13 675	—	—	-100.0%	0.1%	—	—	—	—	—
<b>Capital</b>	<b>486 184</b>	<b>424 380</b>	<b>413 273</b>	<b>236 339</b>	<b>-21.4%</b>	<b>5.5%</b>	<b>251 686</b>	<b>265 529</b>	<b>280 820</b>	<b>5.9%</b>	<b>3.3%</b>
Council for Scientific and Industrial Research: Cyber-infrastructure research and development	213 479	214 546	413 273	236 339	3.4%	3.8%	251 686	265 529	280 820	5.9%	3.3%
Various institutions: Infrastructure projects for research and development	272 705	209 834	—	—	-100.0%	1.7%	—	—	—	—	—
<b>Public corporations and private enterprises</b>											
<b>Subsidies on products and production</b>											
<b>Current</b>	<b>820 204</b>	<b>872 043</b>	<b>915 645</b>	<b>963 164</b>	<b>5.5%</b>	<b>12.7%</b>	<b>965 823</b>	<b>1 018 900</b>	<b>1 052 338</b>	<b>3.0%</b>	<b>12.9%</b>
Council for Scientific and Industrial Research	820 204	872 043	915 645	963 164	5.5%	12.7%	965 823	1 018 900	1 052 338	3.0%	12.9%
<b>Total</b>	<b>6 956 058</b>	<b>6 860 077</b>	<b>6 954 524</b>	<b>7 343 539</b>	<b>1.8%</b>	<b>100.0%</b>	<b>7 513 025</b>	<b>8 004 347</b>	<b>8 251 030</b>	<b>4.0%</b>	<b>100.0%</b>

## Personnel information

**Table 30.7 Vote personnel numbers and cost by salary level and programme<sup>1</sup>**

Programmes																			
1. Administration																			
2. Technology Innovation																			
3. International Cooperation and Resources																			
4. Research, Development and Support																			
5. Socioeconomic Innovation Partnerships																			
Number of posts estimated for 31 March 2019			Number and cost <sup>2</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 (%)	Average: Salary level/Total (%)				
		2017/18			2018/19			2019/20		2020/21		2021/22				2018/19 - 2021/22			
		Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost		Unit cost		
Science and Technology			Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost		
Salary level	483	–	433	323.8	0.7	444	352.4	0.8	447	380.5	0.9	448	408.4	0.9	446	435.0	1.0	0.1%	100.0%
1 – 6	75	–	60	11.7	0.2	64	13.1	0.2	65	14.3	0.2	65	15.4	0.2	65	16.6	0.3	0.5%	14.5%
7 – 10	144	–	126	44.4	0.4	130	49.4	0.4	130	53.2	0.4	131	57.6	0.4	130	61.3	0.5	–	29.2%
11 – 12	138	–	135	123.8	0.9	137	134.4	1.0	138	144.8	1.0	138	155.2	1.1	138	166.0	1.2	0.2%	30.9%
13 – 16	126	–	110	139.5	1.3	111	150.7	1.4	112	163.1	1.5	112	174.8	1.6	111	185.3	1.7	–	25.0%
Other	–	–	2	4.5	2.2	2	4.8	2.4	2	5.1	2.6	2	5.5	2.7	2	5.9	2.9	–	0.4%
Programme	483	–	433	323.8	0.7	444	352.4	0.8	447	380.5	0.9	448	408.4	0.9	446	435.0	1.0	0.1%	100.0%
Programme 1	265	–	217	148.1	0.7	222	160.7	0.7	224	174.0	0.8	224	186.8	0.8	223	199.1	0.9	0.1%	50.0%
Programme 2	65	–	55	46.6	0.8	60	53.0	0.9	60	56.7	0.9	60	60.9	1.0	60	65.2	1.1	–	13.4%
Programme 3	64	–	64	50.4	0.8	65	54.4	0.8	65	58.5	0.9	66	62.7	1.0	65	65.8	1.0	–	14.6%
Programme 4	44	–	42	36.4	0.9	42	39.1	0.9	43	42.6	1.0	43	45.8	1.1	43	49.0	1.1	0.8%	9.6%
Programme 5	45	–	55	42.4	0.8	55	45.2	0.8	55	48.6	0.9	55	52.2	0.9	55	55.9	1.0	–	12.3%

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

2. Rand million.

## Departmental receipts

**Table 30.8 Departmental receipts by economic classification**

	Audited outcome			Adjusted estimate	Revised estimate	Average growth rate (%)	Average: Receipt item/ Total (%)	Medium-term receipts estimate			Average growth rate (%)	Average: Receipt item/ Total (%)
	2015/16	2016/17	2017/18					2019/20	2020/21	2021/22		
R thousand												
<b>Departmental receipts</b>	<b>514</b>	<b>8 199</b>	<b>10 298</b>	<b>9 644</b>	<b>35 061</b>	<b>308.6%</b>	<b>100.0%</b>	<b>545</b>	<b>545</b>	<b>560</b>	<b>-74.8%</b>	<b>100.0%</b>
Sales of goods and services produced by department	51	57	60	55	35	-11.8%	0.4%	35	35	40	4.6%	0.4%
Other sales	51	57	60	55	35	-11.8%	0.4%	35	35	40	4.6%	0.4%
of which:												
Services rendered: Commission on insurance	51	57	60	55	35	-11.8%	0.4%	35	35	40	4.6%	0.4%
Interest, dividends and rent on land	6	9	34	20	26	63.0%	0.1%	10	10	20	-8.4%	0.2%
Interest	6	9	34	20	26	63.0%	0.1%	10	10	20	-8.4%	0.2%
Sales of capital assets	–	45	430	217	–	–	0.9%	–	–	–	–	–
Transactions in financial assets and liabilities	457	8 088	9 774	9 352	35 000	324.7%	98.6%	500	500	500	-75.7%	99.4%
<b>Total</b>	<b>514</b>	<b>8 199</b>	<b>10 298</b>	<b>9 644</b>	<b>35 061</b>	<b>308.6%</b>	<b>100.0%</b>	<b>545</b>	<b>545</b>	<b>560</b>	<b>-74.8%</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 30.9 Administration expenditure trends and estimates by subprogramme and economic classification**

Subprogramme	Audited outcome			Adjusted appropriation	Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
	2015/16	2016/17	2017/18				2019/20	2020/21	2021/22		
R thousand											
Ministry	4 332	4 213	4 381	5 145	5.9%	1.4%	5 496	5 886	6 072	5.7%	1.5%
Institutional Planning and Support	140 700	151 075	141 680	118 116	-5.7%	42.7%	166 354	168 406	179 822	15.0%	43.3%
Corporate Services	134 089	152 146	167 362	251 220	23.3%	54.6%	145 117	162 978	168 240	-12.5%	49.7%
Office Accommodation	–	4 381	7 548	5 033	–	1.3%	63 315	5 607	5 787	4.8%	5.5%
<b>Total</b>	<b>279 121</b>	<b>311 815</b>	<b>320 971</b>	<b>379 514</b>	<b>10.8%</b>	<b>100.0%</b>	<b>380 282</b>	<b>342 877</b>	<b>359 921</b>	<b>-1.8%</b>	<b>100.0%</b>
Change to 2018				(4 288)			56 499	(200)	(100)		
Budget estimate											
<b>Economic classification</b>											
<b>Current payments</b>	<b>247 686</b>	<b>278 811</b>	<b>283 237</b>	<b>353 034</b>	<b>12.5%</b>	<b>90.0%</b>	<b>362 523</b>	<b>324 141</b>	<b>340 777</b>	<b>-1.2%</b>	<b>94.4%</b>
Compensation of employees	135 836	145 046	148 064	160 921	5.8%	45.7%	173 998	186 845	199 138	7.4%	49.3%
Goods and services <sup>1</sup>	111 850	133 765	135 173	192 113	19.8%	44.4%	188 525	137 296	141 639	-9.7%	45.1%
of which:											
Advertising	8 935	11 964	10 665	8 615	-1.2%	3.1%	10 067	12 115	12 498	13.2%	3.0%
Consultants: Business and advisory services	12 082	15 017	3 719	16 580	11.1%	3.7%	15 376	15 672	16 167	-0.8%	4.4%
Agency and support/outsourced services	2 935	6 854	5 672	9 113	45.9%	1.9%	7 624	7 153	7 379	-6.8%	2.1%
Property payments	–	10 455	16 037	23 040	–	3.8%	70 585	13 277	13 700	-15.9%	8.2%
Travel and subsistence	37 470	37 935	26 015	32 601	-4.5%	10.4%	29 344	32 028	33 040	0.4%	8.7%
Operating payments	7 412	8 724	8 762	6 096	-6.3%	2.4%	6 437	6 791	7 006	4.7%	1.8%
<b>Transfers and subsidies<sup>1</sup></b>	<b>14 874</b>	<b>17 474</b>	<b>16 982</b>	<b>14 286</b>	<b>-1.3%</b>	<b>4.9%</b>	<b>15 086</b>	<b>15 916</b>	<b>16 233</b>	<b>4.4%</b>	<b>4.2%</b>
Non-profit institutions	14 760	17 021	16 642	14 286	-1.1%	4.9%	15 086	15 916	16 233	4.4%	4.2%
Households	114	453	340	–	-100.0%	0.1%	–	–	–	–	–
<b>Payments for capital assets</b>	<b>16 467</b>	<b>15 434</b>	<b>20 649</b>	<b>12 194</b>	<b>-9.5%</b>	<b>5.0%</b>	<b>2 673</b>	<b>2 820</b>	<b>2 911</b>	<b>-38.0%</b>	<b>1.4%</b>
Machinery and equipment	16 467	15 434	20 649	12 194	-9.5%	5.0%	2 673	2 820	2 911	-38.0%	1.4%
<b>Payments for financial assets</b>	<b>94</b>	<b>96</b>	<b>103</b>	<b>–</b>	<b>-100.0%</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>
<b>Total</b>	<b>279 121</b>	<b>311 815</b>	<b>320 971</b>	<b>379 514</b>	<b>10.8%</b>	<b>100.0%</b>	<b>380 282</b>	<b>342 877</b>	<b>359 921</b>	<b>-1.8%</b>	<b>100.0%</b>
<b>Proportion of total programme expenditure to vote expenditure</b>	<b>3.8%</b>	<b>4.2%</b>	<b>4.3%</b>	<b>4.8%</b>	<b>–</b>	<b>–</b>	<b>4.7%</b>	<b>4.0%</b>	<b>4.0%</b>	<b>–</b>	<b>–</b>

Table 30.9 Administration expenditure trends and estimates by subprogramme and economic classification

Details of transfers and subsidies				Adjusted appropriation	Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
Audited outcome											
R thousand	2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
Households											
Social benefits											
Current	114	453	340	–	-100.0%	0.1%	–	–	–	–	–
Households	114	453	340	–	-100.0%	0.1%	–	–	–	–	–
Non-profit institutions											
Current	14 760	17 021	16 642	14 286	-1.1%	4.9%	15 086	15 916	16 233	4.4%	4.2%
Various institutions: Institutional and programme support research	14 760	17 021	16 642	14 286	-1.1%	4.9%	15 086	15 916	16 233	4.4%	4.2%

1. Estimates of National Expenditure data tables are available and can be downloaded from [www.treasury.gov.za](http://www.treasury.gov.za). These data tables contain detailed information by goods and services, and transfers and subsidies item by programme.

## Personnel information

**Table 30.10 Administration personnel numbers and cost by salary level<sup>1</sup>**

Administration		Number of posts estimated for 31 March 2019		Number and cost <sup>2</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 (%)	Average: Salary level/Total (%)
				2017/18		2018/19		2019/20		2020/21		2021/22		2018/19 - 2021/22							
				Number	Unit cost	Number	Unit cost	Number	Unit cost	Number	Unit cost	Number	Unit cost								
Salary level	265	—	217	148.1	0.7	222	160.7	0.7	224	174.0	0.8	224	186.8	0.8	223	199.1	0.9	0.1%	100.0%		
1 – 6	55	—	42	7.9	0.2	45	9.0	0.2	46	9.8	0.2	46	10.6	0.2	46	11.5	0.2	0.7%	20.5%		
7 – 10	92	—	76	27.1	0.4	78	29.9	0.4	78	32.2	0.4	78	34.7	0.4	77	36.6	0.5	-0.4%	34.8%		
11 – 12	61	—	53	50.3	0.9	53	54.3	1.0	53	58.1	1.1	53	62.3	1.2	53	66.5	1.3	—	23.7%		
13 – 16	57	—	44	58.3	1.3	44	62.7	1.4	45	68.8	1.5	45	73.7	1.6	45	78.7	1.7	0.8%	20.0%		
Other	—	—	2	4.5	2.2	2	4.8	2.4	2	5.1	2.6	2	5.5	2.7	2	5.9	2.9	—	0.9%		

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

1. Data has been
2. 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 resource strategic investments in space science and technology, energy, the bioeconomy, nanotechnology, robotics, photonics, indigenous knowledge systems, intellectual property management, technology transfer and technology commercialisation by 31 March 2022, by:
  - funding and/or maintaining 59 instruments to support the use of knowledge
  - generating 360 knowledge products (including peer reviewed scientific articles published in scientific publications, and filings/applications or the registration/granting of intellectual property rights)
  - developing and approving 9 science, technology and innovation strategic policy directives to enhance understanding and analyses that support the implementation of relevant interventions
  - developing and/or maintaining 6 decision support interventions to improve the delivery of government services or functions
  - providing recommendations for 100 per cent of genetically modified organism permit applications received to support decision-making by government.
- Oversee, monitor and regulate key policy initiatives in the strategic areas of space science and technology, energy, bio-innovation, nanotechnology, robotics and photonics by 31 March 2022, by overseeing 610 new disclosures reported by publicly funded institutions.

- Coordinate and support high-level skills development by supporting 525 masters and doctoral students, and 710 trainees through department-funded research and development initiatives by 31 March 2022.
- Support, promote and advocate the development and translation of scientific research and development outputs into commercial products, processes and services that will contribute towards economic growth and better quality of life by 31 March 2022, by:
  - supporting 20 knowledge application products, including prototypes, technology demonstrators and pilots
  - supporting 14 commercial outputs, including licences, assignments, options, new companies, products, processes and services.

### Subprogrammes

- *Space Science* supports the creation of an environment conducive to the implementation of the national space strategy and South African earth observation strategy, and that addresses the development of innovative applications and human capital to respond to national priorities and support socioeconomic development.
- *Hydrogen and Energy* provides policy leadership in research, development and innovation initiatives in the energy sector. This subprogramme plays a key role in developing a sustainable and globally competitive South African energy knowledge base and industry.
- *Bio-innovation* 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 and development, and the commercialisation of publicly funded research and development initiatives.
- *National Intellectual Property Management Office* is the implementing agency established to provide for the effective use of intellectual property emanating from publicly financed research and development.
- *Office of the Deputy Director-General: Technology Innovation* provides management and administrative support to the programme and the deputy director-general.

### Expenditure trends and estimates

**Table 30.11 Technology Innovation expenditure trends and estimates by subprogramme and economic classification**

Subprogramme	Audited outcome			Adjusted appropriation	Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
	2015/16	2016/17	2017/18				2019/20	2020/21	2021/22		
R thousand											
Space Science	209 103	167 803	187 990	161 875	-8.2%	16.8%	189 361	199 565	208 925	8.9%	15.2%
Hydrogen and Energy	147 687	143 594	147 468	167 813	4.4%	14.0%	178 526	188 520	197 649	5.6%	14.6%
Bio-innovation	136 051	220 205	162 464	178 423	9.5%	16.1%	193 262	204 194	218 821	7.0%	15.9%
Innovation Priorities and Instruments	518 056	442 047	535 581	572 744	3.4%	47.7%	605 388	638 805	664 218	5.1%	49.6%
National Intellectual Property Management Office	52 400	42 211	78 845	50 868	-1.0%	5.2%	53 607	56 762	60 062	5.7%	4.4%
Office of the Deputy Director-General: Technology Innovation	4 094	3 923	5 632	–	-100.0%	0.3%	4 161	5 316	5 333	–	0.3%
<b>Total</b>	<b>1 067 391</b>	<b>1 019 783</b>	<b>1 117 980</b>	<b>1 131 723</b>	<b>2.0%</b>	<b>100.0%</b>	<b>1 224 305</b>	<b>1 293 162</b>	<b>1 355 008</b>	<b>6.2%</b>	<b>100.0%</b>
Change to 2018				–			(4 220)	(4 926)	(7 190)		
Budget estimate											
<b>Economic classification</b>											
<b>Current payments</b>	<b>55 659</b>	<b>59 575</b>	<b>60 223</b>	<b>71 867</b>	<b>8.9%</b>	<b>5.7%</b>	<b>78 807</b>	<b>84 698</b>	<b>89 748</b>	<b>7.7%</b>	<b>6.5%</b>
Compensation of employees	42 838	45 785	46 607	49 317	7.4%	4.3%	56 744	60 866	65 160	7.1%	4.7%
Goods and services <sup>1</sup>	12 821	13 790	13 616	22 550	13.7%	1.4%	22 063	23 832	24 588	9.3%	1.8%
of which:											
Communication	702	1 001	941	912	9.1%	0.1%	1 054	1 106	1 137	7.6%	0.1%
Consultants: Business and advisory services	219	2 098	1 695	1 733	99.3%	0.1%	1 659	1 831	1 888	2.9%	0.1%
Agency and support/outsourced services	975	211	4 046	6 717	72.6%	0.2%	6 597	6 893	7 151	12.5%	0.5%

**Table 30.11 Technology Innovation expenditure trends and estimates by subprogramme and economic classification**

Economic classification				Adjusted appropriation	Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
Audited outcome											
R thousand	2015/16	2016/17	2017/18	2018/19	2015/16	2018/19	2019/20	2020/21	2021/22	2018/19	2021/22
Entertainment	25	24	193	3 873	386.2%	0.1%	3 357	3 540	3 652	8.3%	0.3%
Travel and subsistence	963	7 374	2 946	5 416	66.1%	0.4%	5 250	5 938	6 097	11.4%	0.4%
Venues and facilities	136	1 973	2 076	2 110	149.4%	0.1%	2 298	2 571	2 649	7.9%	0.2%
Transfers and subsidies <sup>1</sup>	1 011 717	960 164	1 057 700	1 059 856	1.6%	94.3%	1 145 498	1 208 464	1 265 260	6.1%	93.5%
Departmental agencies and accounts	732 534	656 302	695 376	687 332	-2.1%	63.9%	737 962	778 514	812 737	5.7%	60.3%
Higher education institutions	147 068	143 626	—	—	-100.0%	6.7%	—	—	—	—	—
Public corporations and private enterprises	99 443	114 676	103 090	97 697	-0.6%	9.6%	112 672	118 869	123 981	8.3%	9.1%
Non-profit institutions	32 672	45 374	259 146	274 827	103.4%	14.1%	294 864	311 081	328 542	6.1%	24.2%
Households	—	186	88	—	—	—	—	—	—	—	—
Payments for capital assets	—	44	—	—	—	—	—	—	—	—	—
Machinery and equipment	—	44	—	—	—	—	—	—	—	—	—
Payments for financial assets	15	—	57	—	-100.0%	—	—	—	—	—	—
Total	1 067 391	1 019 783	1 117 980	1 131 723	2.0%	100.0%	1 224 305	1 293 162	1 355 008	6.2%	100.0%
Proportion of total programme expenditure to vote expenditure	14.4%	13.8%	14.9%	14.2%	—	—	15.0%	15.0%	15.2%	—	—
Details of transfers and subsidies											
Households											
Social benefits											
Current	—	186	88	—	—	—	—	—	—	—	—
Households	—	186	88	—	—	—	—	—	—	—	—
Departmental agencies and accounts											
Departmental agencies (non-business entities)											
Current	732 534	656 302	695 376	687 332	-2.1%	63.9%	737 962	778 514	812 737	5.7%	60.3%
Various institutions: Biofuels	6 000	—	—	—	-100.0%	0.1%	—	—	—	—	—
Various institutions: Technology transfer offices: Support of research units	4 411	687	6 901	—	-100.0%	0.3%	—	—	—	—	—
Various institutions: Implementation of bioeconomy strategy	9 500	9 500	—	—	-100.0%	0.4%	—	—	—	—	—
Various institutions: Energy grand challenge research	26 373	22 316	17 501	37 049	12.0%	2.4%	40 946	43 198	45 411	7.0%	3.3%
Various institutions: Health innovation research	37 568	37 500	—	—	-100.0%	1.7%	—	—	—	—	—
Various institutions: HIV and AIDS prevention and treatment technologies research	24 535	23 800	55 007	24 588	0.1%	2.9%	27 866	29 399	31 684	8.8%	2.3%
Various institutions: Hydrogen strategy research	16 984	4 007	—	—	-100.0%	0.5%	—	—	—	—	—
Various institutions: Innovation projects research	12 000	10 000	25 750	38 529	47.5%	2.0%	35 318	37 260	39 285	0.6%	3.0%
International Centre for Genetic Engineering and Biotechnology	—	—	12 795	13 537	—	0.6%	14 295	15 081	16 914	7.7%	1.2%
Various institutions: Space science research: Economic competitiveness and support package	71 978	—	44 860	9 200	-49.6%	2.9%	30 000	31 650	34 006	54.6%	2.1%
National Research Foundation: Indigenous knowledge systems	1 840	—	—	—	-100.0%	—	—	—	—	—	—
Technology Innovation Agency	385 188	382 364	396 732	420 322	3.0%	36.5%	440 929	465 161	481 018	4.6%	36.1%
South African National Space Agency	124 355	154 630	131 226	138 036	3.5%	12.6%	143 464	151 338	157 427	4.5%	11.8%
Various institutions: Emerging research areas	11 802	11 498	—	—	-100.0%	0.5%	—	—	—	—	—
National Research Foundation: Research and development in indigenous knowledge systems	—	—	4 604	6 071	—	0.2%	5 144	5 427	6 992	4.8%	0.5%
Public corporations and private enterprises											
Public corporations											
Other transfers to public corporations											
Current	99 443	114 676	100 623	97 697	-0.6%	9.5%	112 672	118 869	123 981	8.3%	9.1%
Various institutions: Technology transfer offices: support for research units	6 592	5 680	—	—	-100.0%	0.3%	—	—	—	—	—
Various institutions: Implementation of bioeconomy strategy	6 850	76 620	11 973	—	-100.0%	2.2%	—	—	—	—	—
Various institutions: Energy grand challenge research	—	15 923	2 165	—	—	0.4%	—	—	—	—	—
Various institutions: Health innovation research	5 900	2 853	—	—	-100.0%	0.2%	—	—	—	—	—
Various institutions: Hydrogen strategy research	2 580	—	—	—	-100.0%	0.1%	—	—	—	—	—
Various institutions: Innovation projects research	14 657	7 450	—	—	-100.0%	0.5%	—	—	—	—	—



**Table 30.11 Technology Innovation expenditure trends and estimates by subprogramme and economic classification**

R thousand	Audited outcome			Adjusted appropriation	Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
	2015/16	2016/17	2017/18				2019/20	2020/21	2021/22		
National Research Foundation: Indigenous knowledge systems	1 735	6 150	–	–	-100.0%	0.2%	–	–	–	–	–
Various institutions: Emerging research areas	61 129	–	81 451	97 697	16.9%	5.5%	112 672	118 869	123 981	8.3%	9.1%
Various institutions: Technology transfer offices for support of research units	–	–	5 034	–	–	0.1%	–	–	–	–	–
<b>Higher education institutions</b>											
<b>Current</b>	<b>83 500</b>	<b>143 626</b>	<b>–</b>	<b>–</b>	<b>-100.0%</b>	<b>5.2%</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>
Various institutions: Biofuels	490	2 000	–	–	-100.0%	0.1%	–	–	–	–	–
Various institutions: Technology transfer offices: Support for research units	31 744	23 313	–	–	-100.0%	1.3%	–	–	–	–	–
Various institutions: Implementation of bioeconomy strategy	8 515	995	–	–	-100.0%	0.2%	–	–	–	–	–
Various institutions: Energy grand challenge research	7 360	5 250	–	–	-100.0%	0.3%	–	–	–	–	–
Various institutions: Health innovation research	150	463	–	–	-100.0%	–	–	–	–	–	–
Various institutions: Hydrogen strategy research	16 448	81 438	–	–	-100.0%	2.3%	–	–	–	–	–
Various institutions: Innovation projects research	–	2 004	–	–	-100.0%	–	–	–	–	–	–
International Centre for Genetic Engineering and biotechnology	504	10 000	–	–	–	0.2%	–	–	–	4.8%	–
National Research Foundation: Indigenous knowledge systems	4 789	3 663	–	–	–	0.2%	–	–	–	–	–
Various institutions: Emerging research areas	13 500	14 500	–	–	–	0.6%	–	–	–	–	–
<b>Capital</b>	<b>63 568</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>-100.0%</b>	<b>1.5%</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>
Various institutions: Hydrogen strategy	63 568	–	–	–	-100.0%	1.5%	–	–	–	–	–
<b>Non-profit institutions</b>											
<b>Current</b>	<b>32 672</b>	<b>45 374</b>	<b>192 066</b>	<b>203 856</b>	<b>84.1%</b>	<b>10.9%</b>	<b>219 919</b>	<b>232 014</b>	<b>245 620</b>	<b>6.4%</b>	<b>18.0%</b>
Various institutions: Biofuels research	–	1 799	5 348	7 245	–	0.3%	7 651	8 072	9 683	10.2%	0.7%
Various institutions: Implementation of the biotechnology strategy	8 089	11 556	36 112	37 742	67.1%	2.2%	41 651	43 942	46 179	7.0%	3.4%
Various institutions: Energy grand challenge research	–	700	–	–	–	–	–	–	–	–	–
Various institutions: Health innovation research	–	300	6 029	75 747	–	1.9%	51 160	53 974	57 036	-9.0%	4.8%
Various institutions: Hydrogen strategy: Research	–	–	46 274	40 206	–	2.0%	42 458	44 793	45 312	4.1%	3.5%
Various institutions: Innovation projects research	2 955	1 000	–	–	-100.0%	0.1%	–	–	–	–	–
International Centre for Genetic Engineering and Biotechnology	11 621	22 186	–	–	-100.0%	0.8%	–	–	–	–	–
Various institutions: Space science research	–	–	3 595	–	–	0.1%	–	–	–	–	–
Various institutions: Technology transfer offices: Support for research units	–	1 833	55 125	39 000	–	2.2%	41 184	43 449	45 720	5.4%	3.4%
National Research Foundation: Indigenous knowledge systems	500	–	–	–	-100.0%	–	–	–	–	–	–
Southern African Association of Science and Technology Centres: Technology top 100 awards	3 507	–	24 583	3 916	3.7%	0.7%	4 135	4 362	5 856	14.4%	0.4%
South African National AIDS Council	–	–	15 000	–	–	0.3%	31 680	33 422	35 834	–	2.0%
Various institutions: Emerging research areas	6 000	6 000	–	–	-100.0%	0.3%	–	–	–	–	–
<b>Capital</b>	<b>–</b>	<b>–</b>	<b>67 080</b>	<b>70 971</b>	<b>–</b>	<b>3.2%</b>	<b>74 945</b>	<b>79 067</b>	<b>82 922</b>	<b>5.3%</b>	<b>6.2%</b>
Various institutions: Hydrogen strategy	–	–	67 080	70 971	–	3.2%	74 945	79 067	82 922	5.3%	6.2%
<b>Public corporations and private enterprises</b>											
<b>Private enterprises</b>											
<b>Other transfers to private enterprises</b>											
<b>Current</b>	<b>–</b>	<b>–</b>	<b>2 467</b>	<b>–</b>	<b>–</b>	<b>0.1%</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>
Various institutions: Technology transfer offices: Support of research units	–	–	1 417	–	–	–	–	–	–	–	–
South African Medical Research Council	–	–	1 000	–	–	–	–	–	–	–	–
Various institutions: Innovation projects research	–	–	50	–	–	0.1%	–	–	–	–	–

1. Estimates of National Expenditure data tables are available and can be downloaded from [www.treasury.gov.za](http://www.treasury.gov.za). These data tables contain detailed information by goods and services, and transfers and subsidies item by programme.

## Personnel information

**Table 30.12 Technology Innovation personnel numbers and cost by salary level<sup>1</sup>**

Number of posts estimated for 31 March 2019			Number and cost <sup>2</sup> of personnel posts filled/planned for on funded establishment												Number						
Salary level	Number of funded posts	Number of posts additional to the establishment	Actual			Revised estimate			Medium-term expenditure estimate						Average growth rate (%)	Average: Salary level/Total (%)					
			2017/18			2018/19			2019/20		2020/21		2021/22				2018/19 - 2021/22				
			Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost							
Technology Innovation			Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost							
Salary level 65			55	46.6	0.8	60	53.0	0.9	60	56.7	0.9	60	60.9	1.0	60	65.2	1.1	–	100.0%		
1 – 6			6	–	5	1.1	0.2	6	1.3	0.2	6	1.4	0.2	6	1.5	0.3	6	1.6	0.3	–	10.0%
7 – 10			8	–	8	2.6	0.3	9	3.1	0.3	9	3.4	0.4	9	3.6	0.4	9	3.9	0.4	–	15.0%
11 – 12			31	–	25	22.3	0.9	27	25.3	0.9	27	27.0	1.0	27	29.0	1.1	27	31.0	1.1	–	45.0%
13 – 16			20	–	17	20.7	1.2	18	23.3	1.3	18	24.9	1.4	18	26.7	1.5	18	28.6	1.6	–	30.0%

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

2. 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 departmental initiatives that require external investment, by securing international funding of R1.4 billion over the medium term.
- 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 2 080 South African researchers in international postgraduate training programmes by 31 March 2022.
- 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 through technical and financial support for 66 approved SADC and AU science, technology and innovation initiatives and programmes by 31 March 2022.
- 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 2022.

### Subprogrammes

- *Multilateral Cooperation and Africa* advances and facilitates South Africa's participation in bilateral science, technology and innovation cooperation initiatives with other African partners; in African multilateral programmes, especially those of the SADC and AU; and in broader multilateral science, technology and innovation partnerships, with a strategic focus on South-South cooperation.
- *International Resources* works to increase the flow of international funding into South African science, technology and innovation initiatives, as well as African regional and continental programmes, through concerted efforts to promote foreign investment and the fostering of strategic partnerships with partners such as the European Union, as well as foundations and philanthropic organisations and the multinational private sector.

- *Overseas Bilateral Cooperation* promotes and facilitates South Africa's bilateral science, technology and innovation cooperation with partners in Europe, the Americas, Asia and Australasia, especially for human capital development and collaborative research and innovation; and secures support for joint cooperation with other African partners.
- *Office of the Deputy Director-General: International Cooperation and Resources* provides management and administrative support to the programme and the deputy director-general.

## Expenditure trends and estimates

**Table 30.13 International Cooperation and Resources expenditure trends and estimates by subprogramme and economic classification**

Subprogramme	Audited outcome			Adjusted appropriation	Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
R thousand	2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
Multilateral Cooperation and Africa	25 668	30 408	30 753	32 867	8.6%	22.9%	32 724	34 875	36 057	3.1%	22.4%
International Resources	56 635	54 204	61 481	63 005	3.6%	45.0%	66 883	70 937	74 160	5.6%	45.1%
Overseas Bilateral Cooperation	32 665	33 854	37 764	42 027	8.8%	28.0%	43 798	46 633	49 120	5.3%	29.8%
Office of the Deputy Director-General: International Cooperation and Resources	9 384	7 372	5 186	–	-100.0%	4.2%	5 603	5 692	5 710	–	2.8%
<b>Total</b>	<b>124 352</b>	<b>125 838</b>	<b>135 184</b>	<b>137 899</b>	<b>3.5%</b>	<b>100.0%</b>	<b>149 008</b>	<b>158 137</b>	<b>165 047</b>	<b>6.2%</b>	<b>100.0%</b>
Change to 2018				1 500			–	–	(900)		
Budget estimate											
<b>Economic classification</b>											
<b>Current payments</b>	<b>65 025</b>	<b>64 941</b>	<b>70 967</b>	<b>69 774</b>	<b>4.3%</b>	<b>52.5%</b>	<b>77 033</b>	<b>82 204</b>	<b>85 906</b>	<b>5.2%</b>	<b>52.3%</b>
Compensation of employees	46 636	48 889	50 360	50 352	5.2%	38.3%	58 456	62 724	65 823	6.6%	39.6%
Goods and services <sup>1</sup>	18 389	16 052	20 607	19 422	1.8%	14.2%	18 577	19 480	20 083	1.1%	12.7%
of which:											
Communication	766	1 355	1 526	1 455	23.8%	1.0%	1 627	1 711	1 762	6.6%	1.1%
Agency and support/outsourced services	726	142	655	693	-1.5%	0.4%	732	772	797	4.8%	0.5%
Entertainment	313	218	783	826	38.2%	0.4%	875	924	953	4.9%	0.6%
Travel and subsistence	1 256	10 397	10 061	8 904	92.1%	5.9%	7 456	7 748	7 970	-3.6%	5.3%
Operating payments	1 564	394	1 110	1 173	-9.1%	0.8%	1 299	1 367	1 408	6.3%	0.9%
Venues and facilities	2 123	1 283	4 250	4 145	25.0%	2.3%	3 878	4 119	4 231	0.7%	2.7%
<b>Transfers and subsidies<sup>1</sup></b>	<b>59 327</b>	<b>60 897</b>	<b>64 214</b>	<b>68 125</b>	<b>2.6%</b>	<b>47.5%</b>	<b>71 975</b>	<b>75 933</b>	<b>79 141</b>	<b>7.3%</b>	<b>47.7%</b>
Departmental agencies and accounts	36 841	44 586	45 136	14 948	-26.0%	27.0%	15 952	16 829	17 664	5.7%	10.7%
Higher education institutions	13 124	8 532	–	–	-100.0%	4.1%	–	–	–	–	–
Public corporations and private enterprises	8 476	4 315	4 790	–	-100.0%	3.4%	–	–	–	–	–
Non-profit institutions	870	3 374	14 278	52 527	282.1%	12.8%	56 023	59 104	61 477	8.2%	36.9%
Households	16	90	10	650	243.8%	0.1%	–	–	–	-100.0%	0.1%
<b>Payments for financial assets</b>	<b>–</b>	<b>–</b>	<b>3</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>
<b>Total</b>	<b>124 352</b>	<b>125 838</b>	<b>135 184</b>	<b>137 899</b>	<b>3.5%</b>	<b>100.0%</b>	<b>149 008</b>	<b>158 137</b>	<b>165 047</b>	<b>6.2%</b>	<b>100.0%</b>
<b>Proportion of total programme expenditure to vote expenditure</b>	<b>1.7%</b>	<b>1.7%</b>	<b>1.8%</b>	<b>1.7%</b>	<b>–</b>	<b>–</b>	<b>1.8%</b>	<b>1.8%</b>	<b>1.9%</b>	<b>–</b>	<b>–</b>
<b>Details of transfers and subsidies</b>											
<b>Households</b>											
<b>Social benefits</b>											
<b>Current</b>	<b>16</b>	<b>90</b>	<b>10</b>	<b>650</b>	<b>243.8%</b>	<b>0.1%</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>-100.0%</b>	<b>0.1%</b>
Households	16	90	10	650	243.8%	0.1%	–	–	–	-100.0%	0.1%
<b>Departmental agencies and accounts</b>											
<b>Departmental agencies (non-business entities)</b>											
<b>Current</b>	<b>36 841</b>	<b>44 586</b>	<b>45 136</b>	<b>14 948</b>	<b>-26.0%</b>	<b>27.0%</b>	<b>15 952</b>	<b>16 829</b>	<b>17 664</b>	<b>5.7%</b>	<b>10.7%</b>
National Research Foundation: Bilateral cooperation for global science development	13 530	13 598	13 979	14 948	3.4%	10.7%	15 952	16 829	17 664	5.7%	10.7%
Various institutions: Global science: International multilateral agreements	22 353	28 088	27 857	–	-100.0%	15.0%	–	–	–	–	–
Various institutions: Global science: African multilateral agreements	958	2 900	3 300	–	-100.0%	1.4%	–	–	–	–	–
<b>Public corporations and private enterprises</b>											
<b>Public corporations</b>											
<b>Other transfers to public corporations</b>											
<b>Current</b>	<b>8 476</b>	<b>4 315</b>	<b>4 790</b>	<b>–</b>	<b>-100.0%</b>	<b>3.4%</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>
Various institutions: Global science: International multilateral agreements	5 338	2 115	1 680	–	-100.0%	1.7%	–	–	–	–	–
Various institutions: Global science: African multilateral agreements	3 138	2 200	3 110	–	-100.0%	1.6%	–	–	–	–	–

**Table 30.13 International Cooperation and Resources expenditure trends and estimates by subprogramme and economic classification**

Economic classification											
Details of transfers and subsidies				Adjusted appropriation	Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
Audited outcome											
R thousand	2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
Higher education institutions											
Current	13 124	8 532	–	–	-100.0%	4.1%	–	–	–	–	–
Various institutions: Global science: International multilateral agreements	11 187	8 332	–	–	-100.0%	3.7%	–	–	–	–	–
Various institutions: Global science: African multilateral agreements	1 937	200	–	–	-100.0%	0.4%	–	–	–	–	–
Non-profit institutions											
Current	870	3 374	14 278	52 527	282.1%	12.8%	56 023	59 104	61 477	8.2%	36.9%
Various institutions: Global science: International multilateral agreements	147	424	13 629	43 139	543.3%	10.2%	46 009	48 539	50 326	8.7%	30.2%
Various institutions: Global science: African multilateral agreements	723	2 950	649	9 388	135.0%	2.6%	10 014	10 565	11 151	5.9%	6.7%

1. Estimates of National Expenditure data tables are available and can be downloaded from [www.treasury.gov.za](http://www.treasury.gov.za). These data tables contain detailed information by goods and services, and transfers and subsidies item by programme.

## Personnel information

**Table 30.14 International Cooperation and Resources personnel numbers and cost by salary level<sup>1</sup>**

Number of posts estimated for 31 March 2019			Number and cost <sup>2</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 (%)	Average: Salary level/Total (%)			
			2017/18			2018/19			2019/20		2020/21		2021/22						
			Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost					
International Cooperation and Resources			64	50.4	0.8	65	54.4	0.8	65	58.5	0.9	66	62.7	1.0	65	65.8	1.0		
Salary level	64	–																–	100.0%
1 – 6	4	–	4	0.9	0.2	4	0.9	0.2	4	0.9	0.2	4	1.0	0.3	4	1.1	0.3	–	6.1%
7 – 10	25	–	24	8.9	0.4	25	10.2	0.4	25	11.0	0.4	26	12.1	0.5	26	13.0	0.5	1.3%	39.1%
11 – 12	18	–	16	14.6	0.9	16	15.6	1.0	16	16.8	1.0	16	17.9	1.1	16	19.3	1.2	–	24.5%
13 – 16	17	–	20	25.9	1.3	20	27.7	1.4	20	29.8	1.5	20	31.7	1.6	19	32.4	1.7	-1.7%	30.3%

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

2. 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 able to pursue locally relevant, globally competitive research and innovation activities over the medium term by:
  - awarding 9 300 bursaries to doctoral students
  - awarding 32 400 bursaries to postgraduate (BTech, honours and masters) students
  - placing 1 750 graduates and students in work preparation programmes funded by the department in science, engineering and technology institutions.
- Ensure the availability of and access to internationally comparable research and innovation infrastructure in order to generate new knowledge and train new researchers per year over the medium term by:
  - maintaining the number of research infrastructure grants at 20
  - maintaining the total available broadband capacity provided by the South African National Research Network to 3 500 Gbps.

- Support and promote research that develops basic sciences through the production of new knowledge and relevant training opportunities over the medium term by:
  - maintaining the total number of researchers awarded research grants through programmes managed by the National Research Foundation at 13 500 or above
  - maintaining the number of research articles published by researchers funded by the National Research Foundation and cited in the Thomson Reuters Web of Science citation database at 21 000.
- Develop strategic priority science areas in which South Africa enjoys a competitive advantage through promoting research and training activities and outputs by:
  - installing 8 large survey projects correlators in 2019/20, and 64 S-band science mode receivers on the MeerKAT telescope by 2020/21.

### Subprogrammes

- *Human Capital and Science Promotions* formulates and implements policies and strategies that address the availability of human capital for science, technology and innovation; provide fundamental support for research activities; and contribute to the development of a society that is knowledgeable about science, critically engaged and scientifically literate.
- *Science Missions* promotes the development of research, the production of scientific knowledge, and human capital in science areas in which South Africa enjoys a geographic advantage.
- *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 sustain innovation led by research and development.
- *Astronomy* supports the development of astronomical sciences around a new multiwavelength astronomy strategy, and provides strategic guidance and support to relevant astronomy institutions in the implementation of strategic astronomy programmes.
- *Office of the Deputy Director-General: Research, Development and Support* provides management and administrative support to the programme and the deputy director-general.

### Expenditure trends and estimates

**Table 30.15 Research, Development and Support expenditure trends and estimates by subprogramme and economic classification**

Subprogramme	Audited outcome			Adjusted appropriation	Average growth rate (%)	Average: Expenditure/Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/Total (%)
R thousand	2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
Human Capital and Science Promotions	2 331 826	2 354 551	2 384 852	2 457 111	1.8%	55.4%	2 608 661	2 739 484	2 869 913	5.3%	55.7%
Science Missions	177 004	213 070	201 731	225 755	8.4%	4.8%	235 532	248 933	264 315	5.4%	5.1%
Basic Science and Infrastructure	986 984	895 536	977 488	1 095 484	3.5%	23.0%	993 485	1 048 323	1 103 334	0.2%	22.1%
Astronomy	723 040	689 473	733 156	752 642	1.3%	16.8%	731 903	859 666	913 153	6.7%	17.0%
Office of the Deputy Director-General: Research, Development and Support	4 618	4 908	2 066	–	-100.0%	0.1%	3 354	4 485	4 660	–	0.1%
<b>Total</b>	<b>4 223 472</b>	<b>4 157 538</b>	<b>4 299 293</b>	<b>4 530 992</b>	<b>2.4%</b>	<b>100.0%</b>	<b>4 572 935</b>	<b>4 900 891</b>	<b>5 155 375</b>	<b>4.4%</b>	<b>100.0%</b>
Change to 2018				170 688			(91 828)	(22 202)	(10 860)		
Budget estimate											

**Table 30.15 Research, Development and Support expenditure trends and estimates by subprogramme and economic classification**

Economic classification				Adjusted appropriation	Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
Audited outcome							2019/20	2020/21	2021/22		
R thousand	2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
Current payments	48 367	53 245	50 898	55 353	6.4%	1.2%	58 565	62 558	66 433	4.5%	1.3%
Compensation of employees	34 734	38 320	36 385	36 211	4.0%	0.9%	42 640	45 779	49 020	7.8%	0.9%
Goods and services <sup>1</sup>	13 633	14 925	14 513	19 142	12.0%	0.4%	15 925	16 779	17 413	-3.1%	0.4%
of which:											
Administrative fees	241	315	589	558	32.3%	–	651	687	776	11.6%	–
Communication	270	701	694	684	36.3%	–	771	810	836	6.9%	
Consultants: Business and advisory services	405	2 264	1 005	4 233	118.6%	–	1 253	1 322	1 364	-31.4%	–
Agency and support/outsourced services	1 467	837	879	930	-14.1%	–	983	1 036	1 106	5.9%	–
Travel and subsistence	6 394	8 400	8 365	8 902	11.7%	0.2%	8 200	8 636	8 909	–	0.2%
Venues and facilities	1 146	1 035	1 352	2 127	22.9%	–	2 253	2 376	2 452	4.9%	–
Transfers and subsidies <sup>1</sup>	4 175 103	4 104 263	4 248 344	4 475 639	2.3%	98.8%	4 514 370	4 838 333	5 088 942	4.4%	98.7%
Departmental agencies and accounts	3 609 050	3 597 505	3 732 358	4 239 300	5.5%	88.2%	4 262 684	4 572 804	4 808 122	4.3%	93.3%
Higher education institutions	47 089	34 524	–	–	-100.0%	0.5%	–	–	–	–	–
Public corporations and private enterprises	490 684	428 991	418 488	236 339	-21.6%	9.1%	251 686	265 529	280 820	5.9%	5.4%
Non-profit institutions	28 039	42 778	97 114	–	-100.0%	1.0%	–	–	–	–	–
Households	241	465	384	–	-100.0%	–	–	–	–	–	–
Payments for financial assets	2	30	51	–	-100.0%	–	–	–	–	–	–
Total	4 223 472	4 157 538	4 299 293	4 530 992	2.4%	100.0%	4 572 935	4 900 891	5 155 375	4.4%	100.0%
Proportion of total programme expenditure to vote expenditure	56.8%	56.3%	57.4%	56.9%	–	–	56.1%	56.8%	57.9%	–	–
Details of transfers and subsidies											
Households											
Social benefits											
Current	116	235	104	–	-100.0%	–	–	–	–	–	–
Households	116	235	104	–	-100.0%	–	–	–	–	–	–
Departmental agencies and accounts											
Departmental agencies (non-business entities)											
Current	2 472 601	2 517 556	2 594 761	2 707 703	3.0%	59.8%	2 872 695	3 018 948	3 178 877	5.5%	61.5%
Academy of Science of South Africa	–	–	25 261	25 668	–	0.3%	26 983	28 467	36 647	12.6%	0.6%
Various institutions: Astronomy research and development	25 155	14 069	29 348	31 050	7.3%	0.6%	32 789	34 592	42 585	11.1%	0.7%
Various institutions: Policy development on human and social development dynamics	10 283	10 283	26 012	27 409	38.7%	0.4%	28 896	30 485	38 731	12.2%	0.7%
National Research Foundation: Human resources development for science and engineering	878 609	841 728	794 601	889 172	0.4%	19.8%	950 582	1 000 577	1 041 455	5.4%	20.3%
National Research Foundation: Human resources development for science and engineering: Economic competitiveness and support package	–	38 388	39 056	13 800	–	0.5%	22 000	23 210	19 505	12.2%	0.4%
National Research Foundation	878 399	882 805	925 964	904 752	1.0%	20.9%	943 385	985 813	1 033 741	4.5%	20.2%
Various institutions: Science awareness, research and initiatives to encourage youth participation in science	57 766	66 221	73 018	77 253	10.2%	1.6%	81 579	86 066	96 069	7.5%	1.8%
National Research Foundation: Square Kilometre Array: Research and development	2 000	–	–	–	-100.0%	–	–	–	–	–	–
National Research Foundation: South African research chairs initiative to develop human resources in science	470 446	482 243	500 875	530 274	4.1%	11.5%	566 305	597 452	623 614	5.6%	12.1%
Various institutions: Strategic science platforms for research and development	149 943	181 819	180 626	208 325	11.1%	4.2%	220 176	232 286	246 530	6.3%	4.7%

**Table 30.15 Research, Development and Support expenditure trends and estimates by subprogramme and economic classification**

Details of transfers and subsidies					Average growth rate (%)	Average: Expenditure/ Total (%)				Average growth rate (%)	Average: Expenditure/ Total (%)
	Audited outcome			Adjusted appropriation			Medium-term expenditure estimate				
R thousand	2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
Capital	1 136 449	1 079 949	1 137 597	1 531 597	10.5%	28.4%	1 389 989	1 553 856	1 629 245	2.1%	31.9%
Various institutions: Infrastructure projects for research and development	449 034	413 312	443 666	822 185	22.3%	12.4%	703 015	741 717	772 438	-2.1%	15.9%
National Research Foundation: Square Kilometre Array: Research	687 415	666 637	693 931	709 412	1.1%	16.0%	686 974	812 139	856 807	6.5%	16.0%
Households											
Other transfers to households											
Current	125	230	280	—	-100.0%	—	—	—	—	—	—
Households	—	—	280	—	—	—	—	—	—	—	—
Various institutions: Policy development on human and social development dynamics	125	200	—	—	-100.0%	—	—	—	—	—	—
Various institutions: Strategic science platforms for research and development	—	30	—	—	—	—	—	—	—	—	—
Public corporations and private enterprises											
Public corporations											
Other transfers to public corporations											
Current	4 500	4 611	5 215	—	-100.0%	0.1%	—	—	—	—	—
Various institutions: Strategic science platforms for research and development	4 500	4 611	5 215	—	-100.0%	0.1%	—	—	—	—	—
Capital	486 184	424 380	413 273	236 339	-21.4%	9.1%	251 686	265 529	280 820	5.9%	5.4%
Council for Scientific and Industrial Research: Cyber-infrastructure research and development	213 479	214 546	413 273	236 339	3.4%	6.3%	251 686	265 529	280 820	5.9%	5.4%
Various institutions: Infrastructure projects for research and development	272 705	209 834	—	—	-100.0%	2.8%	—	—	—	—	—
Higher education institutions											
Current	14 914	7 444	—	—	-100.0%	0.1%	—	—	—	—	—
Various institutions: Science awareness	8 118	200	—	—	-100.0%	—	—	—	—	—	—
Various institutions: Strategic science platforms for research and development	6 796	7 244	—	—	-100.0%	0.1%	—	—	—	—	—
Capital	32 175	27 080	—	—	-100.0%	0.3%	—	—	—	—	—
Various institutions: Infrastructure projects for research and development	32 175	27 080	—	—	-100.0%	0.3%	—	—	—	—	—
Non-profit institutions											
Current	28 039	31 477	12 480	—	-100.0%	0.4%	—	—	—	—	—
Academy of Science of South Africa	23 229	25 106	12 480	—	-100.0%	0.4%	—	—	—	—	—
Various institutions: Science awareness	3 310	3 060	—	—	-100.0%	—	—	—	—	—	—
Various institutions: Strategic science platforms for research and development	1 500	3 311	—	—	-100.0%	—	—	—	—	—	—
Capital	—	11 301	84 634	—	—	0.6%	—	—	—	—	—
Various institutions: Infrastructure projects for research and development	—	11 301	84 634	—	—	0.6%	—	—	—	—	—

1. Estimates of National Expenditure data tables are available and can be downloaded from [www.treasury.gov.za](http://www.treasury.gov.za). These data tables contain detailed information by goods and services, and transfers and subsidies item by programme.

## Personnel information

**Table 30.16 Research, Development and Support personnel numbers and cost by salary level<sup>1</sup>**

Number of posts estimated for 31 March 2019		Number and cost <sup>2</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 (%)	Average: Salary level/Total (%)				
		2017/18			2018/19			2019/20		2020/21		2021/22							
		Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost						
Research, Development and Support		Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	2018/19 - 2021/22					
Salary level	44	–	42	36.4	0.9	42	39.1	0.9	43	42.6	1.0	43	45.8	1.1	43	49.0	1.1	0.8%	100.0%
1 – 6	4	–	4	0.8	0.2	4	0.9	0.2	4	0.9	0.2	4	1.0	0.3	4	1.1	0.3	–	9.4%
7 – 10	8	–	7	2.0	0.3	7	2.2	0.3	7	2.3	0.3	7	2.5	0.4	7	2.7	0.4	–	16.4%
11 – 12	17	–	18	17.2	1.0	18	18.5	1.0	19	20.6	1.1	19	22.1	1.2	19	23.6	1.2	1.8%	43.9%
13 – 16	15	–	13	16.4	1.3	13	17.6	1.4	13	18.8	1.4	13	20.2	1.6	13	21.6	1.7	–	30.4%

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

2. Rand million.

## Programme 5: Socioeconomic Innovation Partnerships

### Programme purpose

Enhance the growth and development priority areas 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 science and technology can be used to achieve inclusive development through knowledge, evidence and learning over the medium term by:
  - publishing 26 knowledge products on innovation for inclusive development
  - maintaining and improving 10 decision support systems
  - generating 45 learning interventions.
- Identify, grow and sustain niche, high-potential science, technology and innovation capabilities for sustainable development and the greening of society and the economy by fully funding and co-funding 375 honours, masters and doctoral students, and adding 22 knowledge and innovation products to the intellectual property portfolio over the medium term.
- Identify, grow and sustain niche, high-potential science, technology and innovation capabilities that improve the competitiveness of existing industries with growth potential in aerospace, advanced manufacturing, chemicals, advanced metals, mining, ICT and sector innovation funds; and facilitate the development of new targeted industries over the medium term by:
  - fully funding or co-funding 1 454 masters and doctoral students, and 590 interns
  - adding 137 new knowledge and innovation products to the intellectual property portfolio
  - funding 9 instruments in support of increased localisation, competitiveness
  - researching and developing the development-led industry.
- Strengthen provincial and rural innovation and production systems through analysis and catalytic interventions over the medium term by funding or co-funding 12 interventions that strengthen provincial or rural innovation systems.
- Enhance understanding and analysis that support improvements in the functioning and performance of the national system of innovation through executive committee approval by publishing 29 reports and policy briefings on the national system of innovation and innovation policy over the medium term.



- 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 of the date of receipt of applications, for the research and development tax incentive over the medium term.

### Subprogrammes

- *Sector Innovation and Green Economy* provides policy, strategy and direction for research and the 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 the creation of sustainable jobs and 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, the performance of the national system of innovation, and 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 service delivery.
- *Office of the Deputy Director-General: Socioeconomic Innovation Partnerships* provides management and administrative support to the programme and the deputy director-general.

### Expenditure trends and estimates

**Table 30.17 Socioeconomic Innovation Partnerships expenditure trends and estimates by subprogramme and economic classification**

Subprogramme	Audited outcome			Adjusted appropriation	Average growth rate (%)		Average: Expenditure/ Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
	2015/16	2016/17	2017/18		2015/16 - 2018/19	2018/19		2019/20	2020/21	2021/22		
R thousand												
Sector Innovation and Green Economy	873 866	932 049	996 030	1 036 797	5.9%	55.6%	1 046 003	1 103 717	1 145 926		3.4%	58.6%
Innovation for Inclusive Development	334 480	344 505	356 729	354 814	2.0%	20.1%	367 768	390 746	408 502		4.8%	20.6%
Science and Technology Investment	32 309	22 158	22 198	27 327	-5.4%	1.5%	34 923	37 115	44 166		17.4%	1.9%
Technology Localisation, Beneficiation and Advanced Manufacturing	497 692	465 297	236 988	359 322	-10.3%	22.6%	372 287	393 068	265 639		-9.6%	18.8%
Office of the Deputy Director General: Socioeconomic Innovation Partnership	4 779	4 611	4 172	–	-100.0%	0.2%	3 458	3 529	3 641		–	0.1%
<b>Total</b>	<b>1 743 126</b>	<b>1 768 620</b>	<b>1 616 117</b>	<b>1 778 260</b>	<b>0.7%</b>	<b>100.0%</b>	<b>1 824 439</b>	<b>1 928 175</b>	<b>1 867 874</b>		<b>1.7%</b>	<b>100.0%</b>
Change to 2018 Budget estimate				–			(57 883)	(58 582)	(62 391)			
<b>Economic classification</b>												
<b>Current payments</b>	<b>48 089</b>	<b>51 341</b>	<b>48 828</b>	<b>52 627</b>	<b>4.5%</b>	<b>2.9%</b>	<b>58 343</b>	<b>62 474</b>	<b>66 420</b>		<b>6.6%</b>	<b>3.3%</b>
Compensation of employees	41 043	40 997	42 390	42 968	3.2%	2.5%	48 628	52 230	55 852		7.3%	2.7%
Goods and services <sup>1</sup>	7 046	10 344	6 438	9 659	11.1%	0.5%	9 715	10 244	10 568		3.0%	0.5%
of which:												
Advertising	6	5	206	219	231.7%	–	232	245	252		4.8%	–
Catering: Departmental activities	134	72	299	297	30.4%	–	331	347	358		6.4%	–
Communication	358	800	955	1 036	42.5%	–	1 162	1 223	1 262		6.8%	0.1%
Consultants: Business and advisory services	16	398	697	3 660	511.6%	0.1%	2 840	3 050	3 148		-4.9%	0.2%
Travel and subsistence	3 311	3 085	2 854	3 003	-3.2%	0.2%	3 667	3 817	3 938		9.5%	0.2%
Venues and facilities	500	31	883	899	21.6%	–	890	939	966		2.4%	–

**Table 30.17 Socioeconomic Innovation Partnerships expenditure trends and estimates by subprogramme and economic classification**

Economic classification				Adjusted appropriation	Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
Audited outcome							2019/20	2020/21	2021/22		
R thousand	2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
Transfers and subsidies <sup>1</sup>	1 695 037	1 717 279	1 567 284	1 725 633	0.6%	97.1%	1 766 096	1 865 701	1 801 454	1.5%	96.7%
Departmental agencies and accounts	424 954	444 160	384 413	568 714	10.1%	26.4%	588 546	623 429	507 810	-3.6%	30.9%
Higher education institutions	14 647	14 623	—	—	-100.0%	0.4%	—	—	—	—	—
Public corporations and private enterprises	1 198 966	1 207 424	1 157 095	1 156 919	-1.2%	68.4%	1 177 550	1 242 272	1 293 644	3.8%	65.8%
Non-profit institutions	56 338	50 988	25 753	—	-100.0%	1.9%	—	—	—	—	—
Households	132	84	23	—	-100.0%	—	—	—	—	—	—
Payments for financial assets	—	—	5	—	—	—	—	—	—	—	—
Total	1 743 126	1 768 620	1 616 117	1 778 260	0.7%	100.0%	1 824 439	1 928 175	1 867 874	1.7%	100.0%
Proportion of total programme expenditure to vote expenditure	23.4%	24.0%	21.6%	22.3%	—	—	22.4%	22.4%	21.0%	—	—
Details of transfers and subsidies											
Households											
Social benefits											
Current	132	84	23	—	-100.0%	—	—	—	—	—	—
Households	132	84	23	—	-100.0%	—	—	—	—	—	—
Departmental agencies and accounts											
Departmental agencies (non-business entities)											
Current	424 954	444 160	384 413	568 714	10.1%	26.4%	588 546	623 429	507 810	-3.6%	30.9%
Various institutions: Economic competitiveness and support package (local manufacturing capacity research and technical support)	—	—	—	80 000	—	1.2%	80 000	84 400	—	-100.0%	3.3%
Various institutions: Economic competitiveness and support package (Local systems of innovation for the cold chain technologies project)	—	—	—	62 000	—	0.9%	62 000	65 410	—	-100.0%	2.6%
Various institutions: Innovative research and development	13 786	6 866	35 049	39 890	42.5%	1.4%	41 955	46 683	50 656	8.3%	2.4%
Human Sciences Research Council	288 706	290 149	304 656	303 733	1.7%	17.2%	313 855	331 209	344 145	4.3%	17.5%
Various institutions: Local manufacturing capacity research and technical support	42 000	70 739	3 311	25 864	-14.9%	2.1%	28 689	30 267	34 162	9.7%	1.6%
Various institutions: Local systems of innovation for the cold chain technologies project	60 000	64 000	30 689	10 632	-43.8%	2.4%	11 793	12 442	15 774	14.1%	0.7%
Various institutions: Resource-based industries research and development	1 304	1 000	—	—	-100.0%	—	—	—	—	—	—
National Research Foundation: Research information management system	12 240	7 201	—	4 000	-31.1%	0.3%	8 448	8 913	11 693	43.0%	0.4%
Human Sciences Research Council: Develop and monitor science and technology indicators	5 445	—	6 953	9 984	22.4%	0.3%	12 404	13 086	16 439	18.1%	0.7%
Various institutions: Environmental innovation	1 473	4 205	3 755	32 611	174.3%	0.6%	29 402	31 019	34 941	4.7%	1.7%
Public corporations and private enterprises											
Public corporations											
Other transfers to public corporations											
Current	336 535	335 381	228 105	193 755	-16.8%	15.8%	211 727	223 372	241 306	7.6%	11.8%
Various institutions: Advanced manufacturing technology strategy implementation	—	43 146	51 215	53 678	—	2.1%	59 542	62 817	67 301	7.8%	3.3%

**Table 30.17 Socioeconomic Innovation Partnerships expenditure trends and estimates by subprogramme and economic classification**

Details of transfers and subsidies					Average growth rate (%)	Average: Expenditure/ Total (%)				Average growth rate (%)	Average: Expenditure/ Total (%)
	Audited outcome			Adjusted appropriation			Medium-term expenditure estimate				
R thousand	2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
Council for Scientific and Industrial Research	—	—	3 953	—	—	0.1%	—	—	—	—	—
Various institutions: Innovative research and development	12 343	19 295	5 182	—	-100.0%	0.5%	—	—	—	—	—
Various institutions: ICT	26 144	21 827	45 790	28 634	3.1%	1.8%	38 533	40 652	44 435	15.8%	2.1%
Various institutions: Local manufacturing capacity research and technical support	143 101	141 925	—	—	-100.0%	4.1%	—	—	—	—	—
Council for Scientific and Industrial Research: Mining research and development	—	—	24 093	63 000	—	1.3%	60 000	63 300	68 239	2.7%	3.4%
Various institutions: Local systems of innovation for the cold chain technologies project	104 840	54 413	—	—	-100.0%	2.3%	—	—	—	—	—
Various institutions: Resource-based industries research and development	45 193	41 100	97 872	48 443	2.3%	3.4%	53 652	56 603	61 331	8.2%	3.0%
Various institutions: Environmental innovation	4 914	13 675	—	—	-100.0%	0.3%	—	—	—	—	—
Higher education institutions											
Current	14 647	14 623	—	—	-100.0%	0.4%	—	—	—	—	—
Various institutions: Advanced manufacturing technology strategy implementation	2 892	330	—	—	-100.0%	—	—	—	—	—	—
Various institutions: Innovative research and development	4 498	8 000	—	—	-100.0%	0.2%	—	—	—	—	—
Various institutions: Local manufacturing capacity research and technical support	2 407	1 974	—	—	-100.0%	0.1%	—	—	—	—	—
Various institutions: Local systems of innovation for the cold chain technologies project	3 545	4 319	—	—	-100.0%	0.1%	—	—	—	—	—
Various institutions: Resource-based industries research and development	1 305	—	—	—	-100.0%	—	—	—	—	—	—
Non-profit institutions											
Current	56 338	50 988	25 753	—	-100.0%	1.9%	—	—	—	—	—
Various institutions: Advanced manufacturing technology strategy implementation	100	100	8 080	—	-100.0%	0.1%	—	—	—	—	—
Various institutions: Innovative research and development	8 105	8 920	—	—	-100.0%	0.2%	—	—	—	—	—
Various institutions: Local systems of innovation for the cold chain technologies project	36 351	30 291	—	—	-100.0%	1.0%	—	—	—	—	—
Various institutions: Resource-based industries research and development	1 706	1 697	—	—	-100.0%	—	—	—	—	—	—
Various institutions: Environmental innovation	10 076	9 980	17 673	—	-100.0%	0.5%	—	—	—	—	—
Public corporations and private enterprises											
Private enterprises											
Other transfers to private enterprises											
Current	42 227	—	13 345	—	-100.0%	0.8%	—	—	—	—	—
Various institutions: Advanced manufacturing technology strategy implementation	42 227	—	13 345	—	-100.0%	0.8%	—	—	—	—	—
Public corporations and private enterprises											
Public corporations											
Public corporations (subsidies on products and production)											
Current	820 204	872 043	915 645	963 164	5.5%	51.7%	965 823	1 018 900	1 052 338	3.0%	54.1%
Council for Scientific and Industrial Research	820 204	872 043	915 645	963 164	5.5%	51.7%	965 823	1 018 900	1 052 338	3.0%	54.1%

1. Estimates of National Expenditure data tables are available and can be downloaded from [www.treasury.gov.za](http://www.treasury.gov.za). These data tables contain detailed information by goods and services, and transfers and subsidies item by programme.

## Personnel information

**Table 30.18 Socioeconomic Innovation Partnerships personnel numbers and cost by salary level<sup>1</sup>**

Number of posts estimated for 31 March 2019		Number and cost <sup>2</sup> of personnel posts filled/planned for on funded establishment														Number			
		Actual			Revised estimate			Medium-term expenditure estimate						Average growth rate (%)	Average: Salary level/Total (%)				
								2019/20		2020/21		2021/22							
Number of funded posts	Number of posts additional to the establishment	2017/18			2018/19			2019/20			2020/21			2021/22			2018/19 - 2021/22		
		Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost			
Socioeconomic Innovation Partnerships																			
Salary level	45	–	55	42.4	0.8	55	45.2	0.8	55	48.6	0.9	55	52.2	0.9	55	55.9	1.0	–	100.0%
1 – 6	6	–	5	1.1	0.2	5	1.1	0.2	5	1.2	0.2	5	1.3	0.3	5	1.4	0.3	–	9.1%
7 – 10	11	–	11	3.7	0.3	11	4.0	0.4	11	4.3	0.4	11	4.6	0.4	11	5.0	0.5	–	20.0%
11 – 12	11	–	23	19.4	0.8	23	20.7	0.9	23	22.3	1.0	23	23.9	1.0	23	25.6	1.1	–	41.8%
13 – 16	17	–	16	18.2	1.1	16	19.4	1.2	16	20.9	1.3	16	22.4	1.4	16	23.9	1.5	–	29.1%

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

1. Data has been
2. Rand million.

## Entities

**Council for Scientific and Industrial Research**

### ***Mandate***

The Council for Scientific and Industrial Research was established in 1945 and is governed in terms of the Scientific Research Council Act (1988). The council fosters industrial and scientific development in the national interest through multidisciplinary research and technological innovation.

### ***Selected performance indicators***

**Table 30.19 Council for Scientific and Industrial Research performance indicators by programme/objective/activity and related outcome**

Indicator	Programme/Objective/Activity	MTSF outcome	Past			Current	Projections		
			2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Number of journal articles published per year	Council for Scientific and Industrial Research science, engineering and technology operating units and centres	Outcome 5: A skilled and capable workforce to support an inclusive growth path	300	300	317	310	310	320	340
Number of conference papers delivered per year	Council for Scientific and Industrial Research science, engineering and technology operating units and centres		290	290	325	335	340	345	350
Number of new technology demonstrators per year	Council for Scientific and Industrial Research science, engineering and technology operating units and centres	Outcome 4: Decent employment through inclusive growth	30	40	60	50	55	55	55
Amount of contract research and development income per year	Council for Scientific and Industrial Research science, engineering and technology operating units and centres		R1.9bn	R1.9bn	R1.8bn	R2bn	R2.1bn	R 2.2bn	R 2.4bn
Number of science, engineering and technology staff per year	Council for Scientific and Industrial Research science, engineering and technology operating units and centres	Outcome 5: A skilled and capable workforce to support an inclusive growth path	1 850	1 966	1 850	1 860	1 860	1 950	2 150
Percentage of black science, engineering and technology staff per year	Council for Scientific and Industrial Research science, engineering and technology operating units and centres		57% (1 055/ 1 850)	60% (1 180/ 1 966)	61% (1 129/ 1 850)	62% (1 153/ 1 860)	63% (1 172/ 1 860)	64% (1 248/ 1 950)	72% (1 398/ 1 950)
Number of science, engineering and technology staff with doctorates per year	Council for Scientific and Industrial Research science, engineering and technology operating units and centres		330	351	339	369	390	430	510
Number of new patents granted per year	Council for Scientific and Industrial Research science, engineering and technology operating units and centres	Outcome 4: Decent employment through inclusive growth	15	15	19	15	15	15	15

### Expenditure analysis

Over the medium term, the Council for Scientific and Industrial Research will focus on conducting high-quality and relevant research, and pursuing technological innovation to foster industrial and scientific development. In its continuing effort to develop, renew and transform the science, engineering and technology base, the council plans to provide knowledge solutions for the inclusive and sustainable advancement of industry and society, and foster strategic partnerships for the development of innovative and technological capabilities for local industries. In addition, the council expects to build on current industrial development opportunities such as

pharmaceutical innovation and agro-processing. As part of its strategic intent for innovation, the council will focus on striking the right balance between scientific development and industrial development.

To achieve these objectives, over the period ahead, the council plans to implement a range of research, development and innovation programmes in areas such as health, energy, defence and security. Spending on these activities is expected to amount to R2.5 billion over the MTEF period.

As the nature of the council's work requires highly specialised skills and is labour intensive, spending on compensation of employees accounts for 56.5 per cent (R5.4 billion) of total expenditure over the medium term. Spending on compensation of employees is projected to increase at an average annual rate of 5.7 per cent, from R1.6 billion in 2018/19 to R1.9 billion in 2021/22, as the council capacitates the newly launched biorefinery industry development and photonics prototyping facilities.

Total revenue is projected to be R9.8 billion over the medium term, of which 40.2 per cent (R4 billion) is derived from transfers from the department. Transfers from the department are expected to increase at an average annual rate of 3.5 per cent, from R1.3 billion in 2018/19 to R1.4 billion in 2021/22. The remaining revenue is generated from services rendered and other revenue streams, which include contract research and development income from local and international public and private sectors, income from intellectual property, and proceeds from technology transfer proceeds. The council expects to achieve a net profit of R267 million over the MTEF period, which it plans to invest in property, plant and equipment.

### Programmes/objectives/activities

**Table 30.20 Council for Scientific and Industrial Research expenditure trends and estimates programme/objective/activity**

	Audited outcome			Revised estimate	Average growth rate (%)	Average: Expenditure/Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/Total (%)
R thousand	2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
Administration	372 747	391 149	374 768	432 285	5.1%	14.5%	544 701	567 833	598 812	11.5%	17.2%
Council for Scientific and Industrial Research science, engineering and technology operating units and centres	2 323 569	2 277 372	2 182 431	2 471 239	2.1%	85.5%	2 481 416	2 586 799	2 727 924	3.3%	82.8%
<b>Total</b>	<b>2 696 316</b>	<b>2 668 521</b>	<b>2 557 199</b>	<b>2 903 524</b>	<b>2.5%</b>	<b>100.0%</b>	<b>3 026 117</b>	<b>3 154 632</b>	<b>3 326 736</b>	<b>4.6%</b>	<b>100.0%</b>

### Statements of historical financial performance and position

**Table 30.21 Council for Scientific and Industrial Research statements of historical financial performance and position**

Statement of financial performance										Average: Outcome/Budget (%)
	Budget	Audited outcome	Budget	Audited outcome	Budget	Audited outcome	Budget estimate	Revised estimate		
R thousand	2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19					
<b>Revenue</b>										
<b>Non-tax revenue</b>	<b>1 878 606</b>	<b>2 067 191</b>	<b>2 039 565</b>	<b>2 031 709</b>	<b>2 185 376</b>	<b>1 821 484</b>	<b>2 348 683</b>	<b>2 134 766</b>		<b>95.3%</b>
Sale of goods and services other than capital assets	1 832 438	1 970 256	1 998 568	1 937 058	2 143 886	1 776 113	2 308 003	1 973 524		92.4%
of which:										
Sales by market establishment	1 832 438	1 970 256	1 998 568	1 937 058	2 143 886	1 776 113	2 308 003	1 973 524		92.4%
Other non-tax revenue	46 168	96 935	40 997	94 651	41 490	45 371	40 680	161 242		235.2%
<b>Transfers received</b>	<b>794 968</b>	<b>680 485</b>	<b>815 629</b>	<b>714 105</b>	<b>835 717</b>	<b>722 373</b>	<b>879 694</b>	<b>1 262 503</b>		<b>101.6%</b>
<b>Total revenue</b>	<b>2 673 575</b>	<b>2 747 676</b>	<b>2 855 194</b>	<b>2 745 814</b>	<b>3 021 094</b>	<b>2 543 857</b>	<b>3 228 376</b>	<b>3 397 269</b>		<b>97.1%</b>
<b>Expenses</b>										
<b>Current expenses</b>	<b>2 610 365</b>	<b>2 694 762</b>	<b>2 793 129</b>	<b>2 668 480</b>	<b>2 958 916</b>	<b>2 557 199</b>	<b>3 159 181</b>	<b>2 903 524</b>		<b>93.9%</b>
Compensation of employees	1 455 036	1 468 201	1 541 195	1 487 899	1 671 313	1 538 913	1 787 162	1 624 285		94.8%
Goods and services	1 103 758	1 163 676	1 194 162	1 109 875	1 222 153	952 385	1 302 642	1 195 910		91.7%
Depreciation	51 571	54 514	57 772	61 745	65 450	65 901	69 377	83 329		108.7%
Interest, dividends and rent on land	—	8 371	—	8 961	—	—	—	—		—
<b>Total expenses</b>	<b>2 610 365</b>	<b>2 696 316</b>	<b>2 793 129</b>	<b>2 668 521</b>	<b>2 958 916</b>	<b>2 557 199</b>	<b>3 159 181</b>	<b>2 903 524</b>		<b>94.0%</b>
<b>Surplus/(Deficit)</b>	<b>63 210</b>	<b>51 360</b>	<b>62 065</b>	<b>77 293</b>	<b>62 178</b>	<b>(13 342)</b>	<b>69 195</b>	<b>493 745</b>		

**Table 30.21 Council for Scientific and Industrial Research statements of historical financial performance and position**

Statement of financial position								Average: Outcome/ Budget (%)	
	Budget	Audited outcome	Budget	Audited outcome	Budget	Audited outcome	Budget estimate	Revised estimate	
R thousand	2015/16		2016/17		2017/18		2018/19		2015/16 - 2018/19
Carrying value of assets	784 370	753 737	813 420	762 908	841 250	784 364	873 847	791 862	93.4%
of which:									
Acquisition of assets	(99 909)	(100 543)	(117 455)	(71 987)	(143 792)	(87 380)	(101 973)	(106 064)	79.0%
Investments	16 489	7 615	18 142	20 216	20 689	9 105	25 144	19 011	69.5%
Inventory	103 589	105 966	106 856	85 359	107 896	113 652	118 698	113 595	95.8%
Receivables and prepayments	247 944	252 455	264 397	281 923	280 161	224 670	299 772	294 947	96.5%
Cash and cash equivalents	810 721	1 012 879	793 673	1 106 474	797 963	1 100 609	806 870	815 628	125.7%
Non-current assets held for sale	—	27 550	—	—	—	—	—	—	—
Total assets	1 963 113	2 160 202	1 996 488	2 256 880	2 047 959	2 232 400	2 124 331	2 035 043	106.8%
Accumulated surplus/(deficit)	942 357	930 507	992 572	1 007 800	1 088 268	994 458	1 157 463	985 792	93.7%
Deferred income	—	23 526	—	4 248	—	11 234	—	—	—
Trade and other payables	1 009 146	1 195 474	991 261	1 234 068	945 898	1 215 745	952 109	1 038 379	120.1%
Provisions	11 610	10 695	12 655	10 764	13 793	10 963	14 759	10 872	82.0%
Total equity and liabilities	1 963 113	2 160 202	1 996 488	2 256 880	2 047 959	2 232 400	2 124 331	2 035 043	106.8%

**Statements of estimates of financial performance and position****Table 30.22 Council for Scientific and Industrial Research statements of estimates of financial performance and position**

Statement of financial performance		Average growth rate (%)	Average: Expen- diture/ Total (%)	Medium-term estimate			Average growth rate (%)	Average: Expen- diture/ Total (%)
	Revised estimate							
R thousand	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
<b>Revenue</b>								
<b>Non-tax revenue</b>	<b>2 134 766</b>	<b>1.1%</b>	<b>70.9%</b>	<b>2 225 361</b>	<b>2 309 835</b>	<b>2 438 751</b>	<b>4.5%</b>	<b>63.3%</b>
Sale of goods and services other than capital assets	1 973 524	0.1%	67.5%	2 049 481	2 126 380	2 245 164	4.4%	58.3%
of which:								
Sales by market establishment	1 973 524	0.1%	67.5%	2 049 481	2 126 380	2 245 164	4.4%	58.3%
Other non-tax revenue	161 242	18.5%	3.4%	175 880	183 455	193 587	6.3%	5.0%
<b>Transfers received</b>	<b>1 262 503</b>	<b>22.9%</b>	<b>29.1%</b>	<b>1 277 509</b>	<b>1 347 729</b>	<b>1 401 397</b>	<b>3.5%</b>	<b>36.7%</b>
<b>Total revenue</b>	<b>3 397 269</b>	<b>7.3%</b>	<b>100.0%</b>	<b>3 502 870</b>	<b>3 657 564</b>	<b>3 840 148</b>	<b>4.2%</b>	<b>100.0%</b>
<b>Expenses</b>								
<b>Current expenses</b>	<b>2 903 524</b>	<b>2.5%</b>	<b>100.0%</b>	<b>3 026 117</b>	<b>3 154 632</b>	<b>3 326 736</b>	<b>4.6%</b>	<b>100.0%</b>
Compensation of employees	1 624 285	3.4%	56.6%	1 677 298	1 793 038	1 918 551	5.7%	56.5%
Goods and services	1 195 910	0.9%	40.8%	1 261 157	1 291 013	1 333 934	3.7%	41.0%
Depreciation	83 329	15.2%	2.4%	87 662	70 581	74 251	-3.8%	2.6%
<b>Total expenses</b>	<b>2 903 524</b>	<b>2.5%</b>	<b>100.0%</b>	<b>3 026 117</b>	<b>3 154 632</b>	<b>3 326 736</b>	<b>4.6%</b>	<b>100.0%</b>
<b>Surplus/(Deficit)</b>	<b>493 745</b>			<b>476 753</b>	<b>502 932</b>	<b>513 412</b>		
<b>Statement of financial position</b>								
Carrying value of assets	791 862	1.7%	35.7%	819 577	848 262	886 434	3.8%	38.6%
of which:								
Acquisition of assets	(106 064)	1.8%	-4.2%	(74 044)	(151 729)	(160 833)	14.9%	-5.6%
Investments	19 011	35.7%	0.6%	19 011	19 011	19 011	—	0.9%
Inventory	113 595	2.3%	4.8%	120 760	128 267	137 887	6.7%	5.8%
Receivables and prepayments	294 947	5.3%	12.2%	313 551	333 043	358 021	6.7%	15.0%
Cash and cash equivalents	815 628	-7.0%	46.3%	839 610	881 007	916 247	4.0%	39.8%
<b>Total assets</b>	<b>2 035 043</b>	<b>-2.0%</b>	<b>100.0%</b>	<b>2 112 509</b>	<b>2 209 590</b>	<b>2 317 600</b>	<b>4.4%</b>	<b>100.0%</b>
Accumulated surplus/(deficit)	985 792	1.9%	45.2%	985 792	985 792	993 293	0.3%	45.6%
Trade and other payables	1 038 379	-4.6%	53.9%	1 115 736	1 212 707	1 313 105	8.1%	53.8%
Provisions	10 872	0.5%	0.5%	10 981	11 091	11 202	1.0%	0.5%
<b>Total equity and liabilities</b>	<b>2 035 043</b>	<b>-2.0%</b>	<b>100.0%</b>	<b>2 112 509</b>	<b>2 209 590</b>	<b>2 317 600</b>	<b>4.4%</b>	<b>100.0%</b>

## Personnel information

**Table 30.23 Council for Scientific and Industrial Research personnel numbers and cost by salary level**

Number of posts estimated for 31 March 2019			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 (%)	Average: Salary level/Total (%)			
			2017/18			2018/19			2019/20		2020/21		2021/22				2018/19 - 2021/22		
			Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost		
Council for Scientific and Industrial Research			3 170	1 538.9	0.5	3 170	1 624.3	0.5	3 170	1 677.3	0.5	3 323	1 793.0	0.5	3 323	1 918.6	0.6	5.7%	100.0%
Salary level		3 170	695	63.4	0.1	695	66.9	0.1	695	69.1	0.1	736	73.8	0.1	736	79.0	0.1	5.7%	22.0%
1 – 6	64 356	695	1 531	572.9	0.4	1 531	604.7	0.4	1 531	624.4	0.4	1 603	667.5	0.4	1 603	714.3	0.4	5.7%	48.3%
7 – 10	587 180	1 531	453	326.6	0.7	453	344.7	0.8	453	356.0	0.8	475	380.5	0.8	475	407.2	0.9	5.7%	14.3%
11 – 12	336 769	453	470	531.1	1.1	470	560.5	1.2	470	578.8	1.2	488	618.8	1.3	488	662.1	1.4	5.7%	14.8%
13 – 16	547 983	470	21	45.0	2.1	21	47.5	2.3	21	49.0	2.3	21	52.4	2.5	21	56.1	2.7	5.7%	0.6%
17 – 22	46 939	21																	

1. 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 National Research Foundation Amendment Bill (2016), the organisation is mandated to support research through funding, human resource development and the provision of research facilities to enable knowledge creation, innovation and development in all fields of science and technology, and promote indigenous knowledge.

### Selected performance indicators

**Table 30.24 National Research Foundation performance indicators by programme/objective/activity and related outcome**

Indicator	Programme/Objective/Activity	MTSF outcome	Past			Current	Projections		
			2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Number of members of the public reached through interactions focusing on science awareness activities per year	Science engagement	Entity mandate	1 013 716	1 084 760	1 191 892	1 080 000	680 300 <sup>1</sup>	682 150 <sup>1</sup>	683 300
Number of black researchers funded per year	Research and innovation support and advancement		1 355	1 563	1 698	2 182	2 154	2 295	2 368
Number of female researchers funded per year	Research and innovation support and advancement		1 610	1 699	1 698	1 520	1 478	2 423	2 496
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	8 980	10 747	11 328	9 350	9 418	9 941	10 079
Number of female postgraduate students funded per year	Research and innovation support and advancement		7 032	8 017	8 266	7 119	6 479	6 969	7 064
Number of masters students supported per year	Research and innovation support and advancement		4 853	4 995	5 435	4 582	3 706	3 892	3 938
Number of doctoral students supported per year	Research and innovation support and advancement		3 181	3 363	3 519	3 066	2 941	3 075	3 110
Number of researchers rated through the National Research Foundation system per year	Research and innovation support and advancement	Entity mandate	3 369	3 663	3 885	3 750	3 900	4 050	4 200
Number of active grants emanating from binational, multinational and agency-to-agency agreements per year	Research and innovation support and advancement		1 161	1 008	996	990	945	950	955
Number of users of equipment funded by the national equipment programme and national nanotechnology programme per year	Research and innovation support and advancement		2 360	2 937	2 881	2 641	593 <sup>2</sup>	1 843 <sup>2</sup>	884
Number of publications emanating from the usage of equipment funded by the national equipment programme and national nanotechnology programme per year	Research and innovation support and advancement	Outcome 6: An efficient, competitive and responsive economic infrastructure network	1 105	779	908	695	593 <sup>3</sup>	485 <sup>3</sup>	233
Number of Web of Science publications in nuclear, biodiversity, conservation and environment at the National Research Foundation's facilities per year	National research infrastructure platforms	Entity mandate	275	321	574	397	558 <sup>1</sup>	583 <sup>1</sup>	624 <sup>1</sup>

1. Targets decrease in line with available budget.

2. Due to a significant change in the budget allocation for new equipment grants, the foundation will service only 41 per cent of the demand for equipment support over the medium term.

3. Decrease in the number of publications emanating from the usage of national equipment programme due to a change in budget allocation.

### Expenditure analysis

The National Research Foundation executes its mandate through the National Research Foundation Strategy 2020, a five-year plan in its final year of implementation. Over the medium term, the foundation plans to continue striving to become a globally competitive institution by focusing on research and development in support of human capacity, knowledge generation and innovation.

The foundation provides support across the full spectrum of current and future knowledge workers' careers, particularly for highly qualified technicians. This is achieved through a human capacity development pipeline, which informs the support for next-generation researchers, emerging researchers and established researchers. Accordingly, the foundation expects to invest 36 per cent (R2.8 billion) of its total human capital development budget over the MTEF period in developing the next generation of researchers. It intends to do this by awarding scholarships and bursaries; and offering academic development programmes to honours, masters, doctoral and postdoctoral students. R880.6 million has been earmarked for this purpose in 2019/20, when the foundation expects to support 3 706 masters and 2 941 doctoral students.

Advanced infrastructure is a key enabler of globally competitive research, development and innovation. As such, an estimated R4.6 billion over the MTEF period will provide unique national research facilities in the nuclear sciences, biodiversity, astronomy and geosciences fields that require highly qualified technicians. A further R2.4 billion over the period has been earmarked for the Square Kilometre Array, which will be the world's largest and most sensitive radio telescope.

Over the medium term, the foundation expects to receive an estimated 79 per cent (R11.2 billion) of its revenue through a parliamentary grant; and the remainder through contract funding from the Department of Science and Technology, and other government departments and entities. The parliamentary funding includes an additional R167.9 million set aside for maintaining and enhancing the research and training activities of iThemba Laboratories in 2018/19.

### Programmes/objectives/activities

**Table 30.25 National Research Foundation expenditure trends and estimates by programme/objective/activity**

R thousand	Audited outcome			Revised estimate	Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
	2015/16	2016/17	2017/18				2019/20	2020/21	2021/22		
Administration	82 249	85 007	89 658	126 600	15.5%	2.4%	126 726	133 919	142 042	3.9%	3.0%
Science engagement	163 946	169 509	169 925	125 190	-8.6%	3.9%	118 427	118 507	132 501	1.9%	2.8%
Research and innovation support and advancement	2 645 156	2 690 504	2 793 780	2 504 185	-1.8%	66.4%	2 799 378	2 846 455	2 805 128	3.9%	61.9%
National research infrastructure platforms	394 746	430 026	1 140 839	1 272 435	47.7%	20.0%	1 413 087	1 467 043	1 586 203	7.6%	32.4%
National research facilities: Astronomy	514 031	637 930	–	–	-100.0%	7.4%	–	–	–	–	–
<b>Total</b>	<b>3 800 128</b>	<b>4 012 976</b>	<b>4 194 202</b>	<b>4 028 410</b>	<b>2.0%</b>	<b>100.0%</b>	<b>4 457 618</b>	<b>4 565 924</b>	<b>4 665 874</b>	<b>5.0%</b>	<b>100.0%</b>

### Statements of historical financial performance and position

**Table 30.26 National Research Foundation statements of historical financial performance and position**

Statement of financial performance								Average: Outcome/ Budget (%)	
	Budget	Audited outcome	Budget	Audited outcome	Budget	Audited outcome	Budget estimate	Revised estimate	
R thousand	2015/16		2016/17		2017/18		2018/19		2015/16 - 2018/19
Revenue									
Non-tax revenue	1 307 477	1 487 106	1 241 612	1 382 965	1 237 537	1 416 777	630 274	1 011 450	120.0%
Sale of goods and services other than capital assets	121 969	127 550	130 500	106 657	129 746	115 335	65 789	65 789	92.7%
of which:									
Sales by market establishment	69 143	72 137	76 577	67 968	81 748	80 607	63 645	63 645	97.7%
Other sales	52 826	55 413	53 923	38 689	47 998	34 728	2 144	2 144	83.5%
Other non-tax revenue	1 185 508	1 359 556	1 111 112	1 276 308	1 107 791	1 301 442	564 485	945 661	123.0%
Transfers received	2 877 081	2 675 486	3 197 817	3 118 154	3 378 083	3 309 766	3 691 441	3 478 165	95.7%
Total revenue	4 184 558	4 162 592	4 439 429	4 501 119	4 615 620	4 726 543	4 321 715	4 489 615	101.8%



**Table 30.26 National Research Foundation statements of historical financial performance and position**

Statement of financial performance									
	Budget	Audited outcome	Budget	Audited outcome	Budget	Audited outcome	Budget estimate	Revised estimate	Average: Outcome/Budget (%)
R thousand	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>1 243 400</b>	<b>1 362 159</b>	<b>1 414 962</b>	<b>1 459 584</b>	<b>1 474 116</b>	<b>1 579 213</b>	<b>1 577 782</b>	<b>100.0%</b>
Compensation of employees	666 440	577 904	678 757	627 097	749 962	717 782	791 892	792 038	94.0%
Goods and services	563 093	573 795	585 517	663 105	596 903	601 518	637 538	635 961	103.8%
Depreciation	79 039	91 560	97 854	124 713	112 686	154 773	149 783	149 783	118.5%
Interest, dividends and rent on land	35	141	31	47	33	43	—	—	233.3%
<b>Transfers and subsidies</b>	<b>2 394 538</b>	<b>2 556 728</b>	<b>2 460 484</b>	<b>2 598 014</b>	<b>2 504 598</b>	<b>2 720 086</b>	<b>2 509 205</b>	<b>2 450 628</b>	<b>104.6%</b>
<b>Total expenses</b>	<b>3 703 145</b>	<b>3 800 128</b>	<b>3 822 643</b>	<b>4 012 976</b>	<b>3 964 182</b>	<b>4 194 202</b>	<b>4 088 418</b>	<b>4 028 410</b>	<b>102.9%</b>
<b>Surplus/(Deficit)</b>	<b>481 413</b>	<b>362 464</b>	<b>616 786</b>	<b>488 143</b>	<b>651 438</b>	<b>532 341</b>	<b>233 297</b>	<b>461 205</b>	
<b>Statement of financial position</b>									
Carrying value of assets	1 862 028	1 708 293	2 353 563	2 209 717	2 873 031	2 745 436	3 106 325	3 216 145	96.9%
<i>of which:</i>									
<i>Acquisition of assets</i>	<i>(565 884)</i>	<i>(440 047)</i>	<i>(741 738)</i>	<i>(630 046)</i>	<i>(776 000)</i>	<i>(694 088)</i>	<i>(383 078)</i>	<i>(620 492)</i>	<i>96.7%</i>
Investments	25 763	22 795	20 000	18 447	17 000	16 133	15 000	15 000	93.1%
Inventory	6 500	6 180	6 500	7 080	6 300	6 129	3 350	3 350	100.4%
Receivables and prepayments	1 000 832	1 500 380	986 418	1 512 990	945 707	1 080 755	874 053	890 053	130.9%
Cash and cash equivalents	648 404	671 475	589 069	494 775	510 000	463 408	505 000	505 000	94.8%
Defined benefit plan assets	500	1 459	1 300	3 701	1 150	3 996	1 000	4 200	338.1%
<b>Total assets</b>	<b>3 544 027</b>	<b>3 910 582</b>	<b>3 956 850</b>	<b>4 246 710</b>	<b>4 353 188</b>	<b>4 315 857</b>	<b>4 504 728</b>	<b>4 633 748</b>	<b>104.6%</b>
Accumulated surplus/(deficit)	—	4 110	—	431	—	2 561	—	—	—
Capital and reserves	97 721	104 112	78 329	94 513	83 068	89 011	82 068	82 068	108.4%
Capital reserve fund	1 862 028	1 708 296	2 353 563	2 209 717	2 873 031	2 745 430	3 106 325	3 216 145	96.9%
Finance lease	600	220	240	175	150	87	190	83	47.9%
Deferred income	1 478 805	1 972 022	1 420 430	1 798 739	1 294 439	1 335 866	1 225 095	1 231 952	117.0%
Trade and other payables	95 998	103 727	94 862	134 761	94 500	107 714	82 550	95 000	119.9%
Provisions	8 875	18 095	9 426	8 374	8 000	35 188	8 500	8 500	201.6%
<b>Total equity and liabilities</b>	<b>3 544 027</b>	<b>3 910 582</b>	<b>3 956 850</b>	<b>4 246 710</b>	<b>4 353 188</b>	<b>4 315 857</b>	<b>4 504 728</b>	<b>4 633 748</b>	<b>104.6%</b>

**Statements of estimates of financial performance and position****Table 30.27 National Research Foundation statements of estimates of financial performance and position**

Statement of financial performance									
	Revised estimate	Average growth rate (%)	Average: Expenditure/Total (%)	Medium-term estimate			Average growth rate (%)	Average: Expenditure/Total (%)	
R thousand	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22		
<b>Revenue</b>									
<b>Non-tax revenue</b>	<b>1 011 450</b>	<b>-12.1%</b>	<b>29.7%</b>	<b>1 010 716</b>	<b>919 091</b>	<b>956 438</b>	<b>-1.8%</b>	<b>21.0%</b>	
Sale of goods and services other than capital assets	65 789	-19.8%	2.3%	67 902	70 805	76 222	5.0%	1.5%	
<i>of which:</i>									
<i>Sales by market establishment</i>	<i>63 645</i>	<i>-4.1%</i>	<i>1.6%</i>	<i>66 196</i>	<i>68 616</i>	<i>73 887</i>	<i>5.1%</i>	<i>1.5%</i>	
<i>Other sales</i>	<i>2 144</i>	<i>-66.2%</i>	<i>0.7%</i>	<i>1 706</i>	<i>2 189</i>	<i>2 335</i>	<i>2.9%</i>	<i>0.0%</i>	
Other non-tax revenue	945 661	-11.4%	27.4%	942 814	848 286	880 216	-2.4%	19.5%	
<b>Transfers received</b>	<b>3 478 165</b>	<b>9.1%</b>	<b>70.3%</b>	<b>3 605 533</b>	<b>3 765 754</b>	<b>3 826 128</b>	<b>3.2%</b>	<b>79.0%</b>	
<b>Total revenue</b>	<b>4 489 615</b>	<b>2.6%</b>	<b>100.0%</b>	<b>4 616 249</b>	<b>4 684 845</b>	<b>4 782 566</b>	<b>2.1%</b>	<b>100.0%</b>	
<b>Expenses</b>									
<b>Current expenses</b>	<b>1 577 782</b>	<b>8.3%</b>	<b>35.6%</b>	<b>1 727 441</b>	<b>1 799 026</b>	<b>1 923 185</b>	<b>6.8%</b>	<b>39.4%</b>	
Compensation of employees	792 038	11.1%	16.9%	870 596	936 825	995 427	7.9%	20.1%	
Goods and services	635 961	3.5%	15.4%	675 454	670 433	724 480	4.4%	15.2%	
Depreciation	149 783	17.8%	3.2%	181 391	191 768	203 278	10.7%	4.1%	
<b>Transfers and subsidies</b>	<b>2 450 628</b>	<b>-1.4%</b>	<b>64.4%</b>	<b>2 730 177</b>	<b>2 766 898</b>	<b>2 868 554</b>	<b>5.4%</b>	<b>60.6%</b>	
<b>Total expenses</b>	<b>4 028 410</b>	<b>2.0%</b>	<b>100.0%</b>	<b>4 457 618</b>	<b>4 565 924</b>	<b>4 791 739</b>	<b>6.0%</b>	<b>100.0%</b>	
<b>Surplus/(Deficit)</b>	<b>461 205</b>			<b>158 631</b>	<b>118 921</b>	<b>(9 173)</b>			
<b>Statement of financial position</b>									
Carrying value of assets	3 216 145	23.5%	57.2%	3 365 064	3 474 641	3 454 343	2.4%	72.5%	
<i>of which:</i>									
<i>Acquisition of assets</i>	<i>(620 492)</i>	<i>12.1%</i>	<i>-13.9%</i>	<i>(330 310)</i>	<i>(301 345)</i>	<i>(182 981)</i>	<i>-33.4%</i>	<i>-7.7%</i>	
Investments	15 000	-13.0%	0.4%	14 000	12 000	11 000	-9.8%	0.3%	
Inventory	3 350	-18.5%	0.1%	3 300	3 200	3 250	-1.0%	0.1%	
Receivables and prepayments	890 053	-16.0%	29.6%	842 053	827 753	820 000	-2.7%	18.2%	
Cash and cash equivalents	505 000	-9.1%	12.6%	406 000	388 000	350 000	-11.5%	8.9%	
Defined benefit plan assets	4 200	42.3%	0.1%	4 300	4 000	4 000	-1.6%	0.1%	
<b>Total assets</b>	<b>4 633 748</b>	<b>5.8%</b>	<b>100.0%</b>	<b>4 634 717</b>	<b>4 709 594</b>	<b>4 642 593</b>	<b>0.1%</b>	<b>100.0%</b>	

**Table 30.28 National Research Foundation statements of estimates of financial performance and position**

Statement of financial position			Average growth rate (%)	Average: Expenditure/Total (%)	Medium-term estimate			Average growth rate (%)	Average: Expenditure/Total (%)
	Revised estimate								
R thousand	2018/19	2015/16 - 2018/19			2019/20	2020/21	2021/22	2018/19 - 2021/22	
Capital and reserves	82 068	-7.6%	2.2%		80 800	78 158	77 158	-2.0%	1.7%
Capital reserve fund	3 216 145	23.5%	57.2%		3 365 064	3 474 641	3 454 343	2.4%	72.5%
Finance lease	83	-27.7%	0.0%		75	75	70	-5.5%	0.0%
Deferred income	1 231 952	-14.5%	37.6%		1 090 078	1 059 720	1 016 822	-6.2%	23.6%
Trade and other payables	95 000	-2.9%	2.6%		90 000	88 000	85 000	-3.6%	1.9%
Provisions	8 500	-22.3%	0.4%		8 700	9 000	9 200	2.7%	0.2%
<b>Total equity and liabilities</b>	<b>4 633 748</b>	<b>5.8%</b>	<b>100.0%</b>		<b>4 634 717</b>	<b>4 709 594</b>	<b>4 642 593</b>	<b>0.1%</b>	<b>100.0%</b>

## Personnel information

**Table 30.29 National Research Foundation personnel numbers and cost by salary level**

Number of posts estimated for 31 March 2019			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	Number of posts on approved establishment	Actual			Revised estimate			Medium-term expenditure estimate						Average growth rate (%)	Average: Salary level/Total (%)			
			2017/18			2018/19			2019/20		2020/21		2021/22				2018/19 - 2021/22		
			Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost				Number	Cost
National Research Foundation			Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost		
Salary level	1 302	1 302	1 193	717.8	0.6	1 302	792.0	0.6	1 211	880.6	0.7	1 211	946.8	0.8	1 211	1 006.6	0.8	8.3%	100.0%
1 – 6	176	176	159	32.1	0.2	176	35.5	0.2	161	37.3	0.2	161	40.1	0.2	161	42.6	0.3	6.3%	13.4%
7 – 10	802	802	725	349.1	0.5	802	385.0	0.5	741	423.7	0.6	741	455.6	0.6	741	484.3	0.7	7.9%	61.3%
11 – 12	185	185	175	147.4	0.8	185	162.6	0.9	173	182.4	1.1	173	196.2	1.1	173	208.5	1.2	8.6%	14.3%
13 – 16	131	131	126	166.6	1.3	131	183.8	1.4	128	208.1	1.6	128	223.7	1.7	128	237.9	1.9	9.0%	10.4%
17 – 22	8	8	8	22.6	2.8	8	25.2	3.1	8	29.0	3.6	8	31.2	3.9	8	33.2	4.1	9.7%	0.6%

1. Rand million.

## 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. Its 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 30.30 Academy of Science of South Africa performance indicators by programme/objective/activity and related outcome**

Indicator	Programme/Objective/Activity	MTSF outcome	Past			Current	Projections		
			2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Number of media releases per year	Administration	Outcome 12: An efficient, effective and development-oriented public service	29	39	20 <sup>1</sup>	20	20	20	20
Number of issues of electronic Science for Society newsletter per year	Administration		4	4	4	4	4	4	4
Number of new journal titles on the Scientific Electronic Library Online open access platform per year	Scholarly publishing programme		11	3 <sup>2</sup>	7	7	7	7	7
Number of issues of South African Journal of Science published 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

1. Targets decrease in line with available budget.

2. Due to funding constraints in 2016/17, the number of new journals on Scientific Electronic Library Online had to be reduced.

### Expenditure analysis

Over the medium term, the Academy of Science of South Africa plans to deliver on its mandate of promoting outstanding achievements in all fields of scientific enquiry, granting recognition for excellence and dispensing

evidence-based advice. Spending on compensation of employees accounts for 60.2 per cent (R71.3 million) of the academy's total budget over the MTEF period, with the remaining 39.8 per cent (R39.2 million) spent on goods and services, mainly for conferencing and related travel.

Transfers from the department are expected to account for 96.1 per cent (R106 million) of the academy's revenue over the MTEF period, with the remaining revenue derived from commercial activities. Transfers from the department decrease at an average annual rate of 8.1 per cent, from R47.3 million in 2018/19 to R36.6 million in 2021/22, due to the erratic nature of scientific discoveries.

### Programmes/Objectives/Activities

**Table 30.31 Academy of Science of South Africa expenditure trends and estimates by programme/objective/activity**

	Audited outcome			Revised estimate	Average growth rate (%)	Average: Expenditure/Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/Total (%)
R thousand	2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
Administration	14 213	18 067	19 409	12 467	-4.3%	34.5%	10 139	10 366	18 051	13.1%	32.4%
Communication	1 381	—	—	—	-100.0%	0.8%	—	—	—	—	—
Liaison	7 930	10 511	10 859	15 845	26.0%	24.0%	10 797	9 504	4 682	-33.4%	25.2%
Science advisory programme	8 054	5 975	5 789	6 881	-5.1%	14.5%	4 190	4 128	4 354	-14.1%	12.1%
Publications	4 389	—	—	—	-100.0%	2.6%	—	—	—	—	—
Scholarly publishing programme	6 570	11 525	12 679	13 667	27.7%	23.6%	12 061	10 813	11 408	-5.8%	30.3%
<b>Total</b>	<b>42 537</b>	<b>46 078</b>	<b>48 736</b>	<b>48 860</b>	<b>4.7%</b>	<b>100.0%</b>	<b>37 187</b>	<b>34 811</b>	<b>38 495</b>	<b>-7.6%</b>	<b>100.0%</b>

### Statements of historical financial performance and position

**Table 30.32 Academy of Science of South Africa statements of historical financial performance and position**

Statement of financial performance										Average: Outcome/Budget (%)
	Budget	Audited outcome	Budget	Audited outcome	Budget	Audited outcome	Budget estimate	Revised estimate		
R thousand	2015/16		2016/17		2017/18		2018/19		2015/16 - 2018/19	
<b>Revenue</b>										
<b>Non-tax revenue</b>	<b>1 176</b>	<b>1 388</b>	<b>1 178</b>	<b>2 871</b>	<b>2 594</b>	<b>2 492</b>	<b>1 586</b>	<b>1 586</b>		<b>127.6%</b>
Sale of goods and services other than capital assets	586	468	588	1 326	1 354	670	346	346		97.8%
of which:										
Administrative fees	86	85	88	90	92	96	96	96		101.4%
Sales by market establishment	500	383	500	1 236	1 262	574	250	250		97.3%
Other non-tax revenue	590	920	590	1 545	1 240	1 822	1 240	1 240		151.0%
<b>Transfers received</b>	<b>33 813</b>	<b>34 899</b>	<b>26 686</b>	<b>43 841</b>	<b>42 502</b>	<b>46 418</b>	<b>30 858</b>	<b>47 274</b>		<b>128.8%</b>
<b>Total revenue</b>	<b>34 989</b>	<b>36 287</b>	<b>27 864</b>	<b>46 712</b>	<b>45 096</b>	<b>48 910</b>	<b>32 444</b>	<b>48 860</b>		<b>128.8%</b>
<b>Expenses</b>										
<b>Current expenses</b>	<b>34 989</b>	<b>42 537</b>	<b>27 864</b>	<b>46 078</b>	<b>45 096</b>	<b>48 736</b>	<b>32 195</b>	<b>48 860</b>		<b>132.9%</b>
Compensation of employees	16 876	17 393	17 567	25 181	19 472	24 470	20 998	22 881		120.0%
Goods and services	17 893	24 722	10 077	20 511	25 414	23 959	11 197	25 979		147.4%
Depreciation	220	422	220	386	210	307	—	—		171.5%
<b>Total expenses</b>	<b>34 989</b>	<b>42 537</b>	<b>27 864</b>	<b>46 078</b>	<b>45 096</b>	<b>48 736</b>	<b>32 195</b>	<b>48 860</b>		<b>132.9%</b>
<b>Surplus/(Deficit)</b>	<b>—</b>	<b>(6 250)</b>	<b>—</b>	<b>634</b>	<b>—</b>	<b>174</b>	<b>249</b>	<b>—</b>		
<b>Statement of financial position</b>										
Carrying value of assets	1 100	870	960	526	1 060	368	1 160	1 160		68.3%
of which:										
Acquisition of assets	(150)	(523)	(145)	(45)	(180)	(151)	(210)	(150)		126.9%
Investments	—	7 154	7 200	7 886	7 500	8 597	7 800	7 800		139.7%
Receivables and prepayments	500	1 551	1 800	1 895	1 500	4 436	1 790	1 790		173.0%
Cash and cash equivalents	19 200	8 007	7 000	18 660	8 000	16 222	8 500	8 500		120.3%
<b>Total assets</b>	<b>20 800</b>	<b>17 582</b>	<b>16 960</b>	<b>28 967</b>	<b>18 060</b>	<b>29 623</b>	<b>19 250</b>	<b>19 250</b>		<b>127.1%</b>
Capital and reserves	20 000	8 818	16 210	9 452	17 310	9 626	18 500	18 500		64.4%
Capital reserve fund	—	6 668	—	15 563	—	16 434	—	—		—
Accrued interest	—	486	—	—	—	—	—	—		—
Trade and other payables	100	503	110	1 134	110	571	110	110		539.1%
Provisions	700	1 107	640	2 818	640	2 992	640	640		288.4%
<b>Total equity and liabilities</b>	<b>20 800</b>	<b>17 582</b>	<b>16 960</b>	<b>28 967</b>	<b>18 060</b>	<b>29 623</b>	<b>19 250</b>	<b>19 250</b>		<b>127.1%</b>

## Statements of estimates of financial performance and position

**Table 30.33 Academy of Science of South Africa statements of estimates of financial performance and position**

Statement of financial performance		Average growth rate (%)	Average: Expenditure/Total (%)	Medium-term estimate			Average growth rate (%)	Average: Expenditure/Total (%)
	Revised estimate							
R thousand	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
<b>Revenue</b>								
<b>Non-tax revenue</b>	<b>1 586</b>	<b>4.5%</b>	<b>4.6%</b>	<b>1 340</b>	<b>1 344</b>	<b>1 848</b>	<b>5.2%</b>	<b>3.9%</b>
Sale of goods and services other than capital assets	346	-9.6%	1.6%	100	104	108	-32.2%	0.4%
of which:								
Administrative fees	96	4.1%	0.2%	100	104	108	4.0%	0.3%
Sales by market establishment	250	-13.3%	1.3%	–	–	–	-100.0%	0.1%
Other non-tax revenue	1 240	10.5%	3.0%	1 240	1 240	1 740	12.0%	3.5%
<b>Transfers received</b>	<b>47 274</b>	<b>10.6%</b>	<b>95.4%</b>	<b>35 847</b>	<b>33 467</b>	<b>36 647</b>	<b>-8.1%</b>	<b>96.1%</b>
<b>Total revenue</b>	<b>48 860</b>	<b>10.4%</b>	<b>100.0%</b>	<b>37 187</b>	<b>34 811</b>	<b>38 495</b>	<b>-7.6%</b>	<b>100.0%</b>
<b>Expenses</b>								
<b>Current expenses</b>	<b>48 860</b>	<b>4.7%</b>	<b>100.0%</b>	<b>37 187</b>	<b>34 811</b>	<b>38 495</b>	<b>-7.6%</b>	<b>100.0%</b>
Compensation of employees	22 881	9.6%	48.1%	23 376	24 200	23 699	1.2%	60.2%
Goods and services	25 979	1.7%	51.2%	13 811	10 611	14 796	-17.1%	39.8%
<b>Total expenses</b>	<b>48 860</b>	<b>4.7%</b>	<b>100.0%</b>	<b>37 187</b>	<b>34 811</b>	<b>38 495</b>	<b>-7.6%</b>	<b>100.0%</b>
<b>Surplus/(Deficit)</b>	<b>–</b>			<b>–</b>	<b>–</b>	<b>–</b>		
<b>Statement of financial position</b>								
Carrying value of assets	1 160	10.1%	3.5%	1 000	140	100	-55.8%	10.9%
of which:								
Acquisition of assets	(150)	-34.1%	-1.1%	(200)	(200)	(200)	10.1%	-14.4%
Investments	7 800	2.9%	34.4%	8 190	169	60	-80.3%	28.7%
Receivables and prepayments	1 790	4.9%	9.9%	1 300	345	250	-48.1%	24.1%
Cash and cash equivalents	8 500	2.0%	52.2%	7 500	258	185	-72.1%	36.3%
<b>Total assets</b>	<b>19 250</b>	<b>3.1%</b>	<b>100.0%</b>	<b>17 990</b>	<b>912</b>	<b>595</b>	<b>-68.6%</b>	<b>100.0%</b>
Capital and reserves	18 500	28.0%	52.8%	17 198	–	–	-100.0%	47.9%
Trade and other payables	110	-39.8%	2.3%	116	134	80	-10.1%	7.3%
Provisions	640	-16.7%	7.4%	676	778	515	-7.0%	44.7%
<b>Total equity and liabilities</b>	<b>19 250</b>	<b>3.1%</b>	<b>100.0%</b>	<b>17 990</b>	<b>912</b>	<b>595</b>	<b>-68.6%</b>	<b>100.0%</b>

## Personnel information

**Table 30.34 Academy of Science of South Africa personnel numbers and cost by salary level**

Number of posts estimated for 31 March 2019			Number and cost <sup>1</sup> of personnel posts filled/planned for on funded establishment															Number	
Academy of Science of South Africa	Number of funded posts	Number of posts on approved establishment	Actual			Revised estimate			Medium-term expenditure estimate									Average growth rate (%)	Average: Salary level/Total (%)
			2017/18			2018/19			2019/20			2020/21			2021/22				
			Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	2018/19 - 2021/22	
Salary level	40	40	47	24.5	0.5	40	22.9	0.6	38	23.4	0.6	38	24.2	0.6	37	23.7	0.6	1.2%	100.0%
1 – 6	5	5	5	0.3	0.1	5	0.6	0.1	2	0.3	0.2	2	0.3	0.2	2	0.3	0.2	-18.9%	7.1%
7 – 10	27	27	31	12.5	0.4	27	13.5	0.5	20	8.0	0.4	19	8.6	0.5	18	8.2	0.5	-15.2%	54.7%
11 – 12	2	2	3	2.2	0.7	2	1.2	0.6	9	6.4	0.7	11	7.7	0.7	11	7.6	0.7	83.5%	21.8%
13 – 16	6	6	8	9.4	1.2	6	7.6	1.3	7	8.7	1.2	6	7.6	1.3	6	7.6	1.3	0.0%	16.4%

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. In terms of the Human Sciences Research Council Act (2008), the entity 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 abroad by gathering, analysing and publishing relevant data, especially by means of projects linked to collaborative programmes that are public sector oriented

- inform the effective formulation and monitoring of policy, and evaluate its implementation
- stimulate public debate through the effective dissemination of fact-based findings
- help build research capacity and infrastructure for the human sciences
- foster research collaboration, networks and institutional linkages
- respond to the needs of vulnerable and marginalised groups through research and analysis of developmental issues, thus contributing to the improvement of the quality of their lives
- develop publicly available data sets to underpin the research and public discussion of developmental issues, and inform the development of related policy
- develop new and improved methodologies for use in the development of such data sets.

### Selected performance indicators

**Table 30.35 Human Sciences Research Council performance indicators by programme/objective/activity and related outcome**

Indicator	Programme/Objective/Activity	MTSF outcome	Past			Current	Projections		
			2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Number of interns (research trainees) enrolled in a masters programme appointed at the Human Sciences Research Council per year	Research, development and innovation	Outcome 5: A skilled and capable workforce to support an inclusive growth path	42	52	41	35	35	35	35
Number of interns (research trainees) enrolled in a PhD programme appointed at the Human Sciences Research Council per year	Research, development and innovation		49	52	51	45	45	45	45
Number of postdoctoral fellows appointed at the Human Sciences Research Council per year	Research, development and innovation		28	29	23	20	20	20	20
Number of unique downloads of Human Sciences Research Council curated data sets per year	Administration	Entity mandate	— <sup>1</sup>	— <sup>1</sup>	507	472	496	520	520
Number of public dialogues on poverty and inequality hosted per year	Administration	Outcome 12: An efficient, effective and development-oriented public service	— <sup>1</sup>	4	4	4	4	4	4
Number of recognised book chapters with at least 1 Human Sciences Research Council researcher listed as author or co-author published per year	Research, development and innovation	Outcome 5: A skilled and capable workforce to support an inclusive growth path	53	64	42	54	54	55	55
Number of Human Sciences Research Council humanities and social sciences research seminars hosted per year	Research, development and innovation	Outcome 12: An efficient, effective and development-oriented public service	62	60	69	40	40	40	40
Number of policy briefs produced by Human Sciences Research Council researchers and published by the council per year	Research, development and innovation		16 <sup>2</sup>	25 <sup>2</sup>	19 <sup>2</sup>	10 <sup>2</sup>	10	10	10
Number of historically disadvantaged institutions with which the Human Sciences Research Council has actively collaborated per year	Research, development and innovation		— <sup>1</sup>	— <sup>1</sup>	6	5	6	6	6
Number of peer reviewed journal articles published in acknowledged scientific journals per Human Sciences Research Council researcher per year	Africa Institute of South Africa	Outcome 5: A skilled and capable workforce to support an inclusive growth path	— <sup>1</sup>	1.8	0.8	0.9	1.0	1.1	1.2

1. No historical data available.

2. Targets fluctuate in line with available budget.

### Expenditure analysis

Over the medium term, the Human Sciences Research Council plans to fund research that serves the public, contributes to good governance and appropriate service delivery, and helps address the challenges of poverty and inequality. In targeting research work that is innovative and collaborative, the council intends to support larger-scale longitudinal and cross-sectional studies. This entails developing research infrastructure and activities aimed at improving inter-institutional collaboration and capacity enhancement locally and globally. The council's research findings are widely disseminated and play a vital role in supporting policy development

at the national, provincial and local levels. Spending on research is expected to account for 55.9 per cent (R1.1 billion) of the council's total projected expenditure over the MTEF period.

Human resources are central to the council's operations. As such, spending on compensation of employees accounts for an estimated 51.8 per cent (R984.7 million) of total projected expenditure over the medium term. The council's number of personnel is expected to remain constant at 552 over the period.

The council expects to receive an estimated 21 per cent (R1 billion) of its revenue over the medium term through transfers from the department. The remaining revenue is derived from research contracts and grants from national and international agencies, government departments and private sector foundations.

### Programmes/Objectives/Activities

**Table 30.36 Human Sciences Research Council expenditure trends and estimates by programme/objective/activity**

	Audited outcome			Revised estimate	Average growth rate (%)	Average Expenditure/ Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average Expenditure/ Total (%)
R thousand	2015/16	2016/17	2017/18	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
Administration	165 408	168 648	165 920	208 215	8.0%	34.8%	214 184	226 301	238 748	4.7%	35.9%
Research, development and innovation	245 990	284 226	357 634	315 488	8.6%	58.7%	336 081	354 365	373 855	5.8%	55.9%
Africa Institute of South Africa	26 195	27 805	32 678	46 545	21.1%	6.5%	49 676	51 663	54 504	5.4%	8.2%
<b>Total</b>	<b>437 593</b>	<b>480 679</b>	<b>556 233</b>	<b>570 249</b>	<b>9.2%</b>	<b>100.0%</b>	<b>599 941</b>	<b>632 329</b>	<b>667 107</b>	<b>5.4%</b>	<b>100.0%</b>

### Statements of historical financial performance and position

**Table 30.37 Human Sciences Research Council statements of historical financial performance and position**

Statement of financial performance										Average: Outcome/ Budget (%)
	Budget	Audited outcome	Budget	Audited outcome	Budget	Audited outcome	Budget estimate	Revised estimate		
R thousand	2015/16		2016/17		2017/18		2018/19			2015/16 - 2018/19
<b>Revenue</b>										
<b>Non-tax revenue</b>	<b>193 168</b>	<b>198 529</b>	<b>220 375</b>	<b>204 942</b>	<b>235 459</b>	<b>289 494</b>	<b>266 515</b>	<b>256 532</b>		<b>103.7%</b>
Sale of goods and services other than capital assets	163 239	164 159	186 290	168 172	196 633	246 532	222 258	212 275		103.0%
of which:										
Administrative fees	192	–	204	204	216	–	228	228		51.5%
Sales by market establishment	159 247	161 246	182 051	165 749	192 148	246 532	217 512	207 529		104.0%
Other sales	3 800	2 913	4 036	2 219	4 270	–	4 517	4 517		58.1%
Other non-tax revenue	29 929	34 369	34 084	36 770	38 826	42 962	44 257	44 257		107.7%
<b>Transfers received</b>	<b>288 706</b>	<b>270 610</b>	<b>290 149</b>	<b>254 517</b>	<b>304 656</b>	<b>267 242</b>	<b>305 495</b>	<b>313 717</b>		<b>93.0%</b>
<b>Total revenue</b>	<b>481 874</b>	<b>469 139</b>	<b>510 524</b>	<b>459 459</b>	<b>540 115</b>	<b>556 736</b>	<b>572 010</b>	<b>570 249</b>		<b>97.7%</b>
<b>Expenses</b>										
<b>Current expenses</b>	<b>446 419</b>	<b>437 593</b>	<b>473 360</b>	<b>480 679</b>	<b>501 052</b>	<b>556 233</b>	<b>530 682</b>	<b>530 631</b>		<b>102.7%</b>
Compensation of employees	253 535	236 986	254 546	271 009	274 259	282 656	293 608	293 608		100.8%
Goods and services	182 462	192 393	207 520	196 670	214 863	259 062	224 452	224 400		105.2%
Depreciation	9 270	6 995	10 070	11 250	10 654	13 045	11 272	11 272		103.1%
Interest, dividends and rent on land	1 152	1 218	1 223	1 750	1 276	1 469	1 350	1 350		115.7%
<b>Transfers and subsidies</b>	<b>35 455</b>	<b>–</b>	<b>37 164</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>41 328</b>	<b>39 617</b>		<b>34.8%</b>
<b>Total expenses</b>	<b>481 874</b>	<b>437 593</b>	<b>510 523</b>	<b>480 679</b>	<b>501 052</b>	<b>556 233</b>	<b>572 011</b>	<b>570 248</b>		<b>99.0%</b>
<b>Surplus/(Deficit)</b>	<b>–</b>	<b>31 546</b>	<b>–</b>	<b>(21 220)</b>	<b>39 062</b>	<b>503</b>	<b>–</b>	<b>1</b>		
<b>Statement of financial position</b>										
Carrying value of assets	198 926	223 688	211 259	237 842	223 512	438 265	236 476	423 938		152.1%
of which:										
Acquisition of assets	(2 968)	(19 177)	(3 132)	(27 157)	(3 288)	(7 562)	(3 479)	(3 479)		445.9%
Inventory	5 910	5 355	6 277	6 094	6 641	4 944	7 026	7 026		90.6%
Receivables and prepayments	45 104	34 493	47 900	50 016	50 679	52 424	53 618	53 618		96.6%
Cash and cash equivalents	56 516	111 148	60 020	61 307	63 501	43 755	67 184	67 184		114.6%
Taxation	879	4 122	933	5 781	987	382	1 045	1 045		294.7%
<b>Total assets</b>	<b>307 335</b>	<b>378 806</b>	<b>326 390</b>	<b>361 040</b>	<b>345 320</b>	<b>539 770</b>	<b>365 349</b>	<b>552 811</b>		<b>136.3%</b>
Accumulated surplus/(deficit)	17 832	82 019	18 938	60 437	20 036	60 940	21 198	21 198		287.9%
Capital and reserves	172 762	184 283	183 474	184 283	194 115	392 836	205 374	392 836		152.7%
Finance lease	573	–	609	–	644	–	681	681		27.2%
Deferred income	61 249	55 991	65 046	57 366	68 819	38 761	72 810	72 810		84.0%
Trade and other payables	27 044	32 305	28 721	32 471	30 387	38 758	32 149	32 149		114.7%
Provisions	27 874	24 208	29 602	26 483	31 319	8 475	33 136	33 136		75.7%
<b>Total equity and liabilities</b>	<b>307 335</b>	<b>378 806</b>	<b>326 390</b>	<b>361 040</b>	<b>345 320</b>	<b>539 770</b>	<b>365 349</b>	<b>552 811</b>		<b>136.3%</b>

## Statements of estimates of financial performance and position

**Table 30.38 Human Sciences Research Council statements of estimates of financial performance and position**

Statement of financial performance		Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
	Revised estimate							
R thousand	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
<b>Revenue</b>								
<b>Non-tax revenue</b>	<b>256 532</b>	<b>8.9%</b>	<b>46.0%</b>	<b>3 278 802</b>	<b>293 098</b>	<b>311 865</b>	<b>6.7%</b>	<b>57.1%</b>
Sale of goods and services other than capital assets	212 275	8.9%	38.3%	3 226 775	238 991	254 782	6.3%	50.5%
of which:								
Administrative fees	228	–	0.0%	241	251	264	5.0%	0.0%
Sales by market establishment	207 529	8.8%	37.8%	3 221 764	233 779	249 284	6.3%	49.9%
Other sales	4 517	15.7%	0.5%	4 770	4 961	5 234	5.0%	0.6%
Other non-tax revenue	44 257	8.8%	7.7%	52 026	54 107	57 083	8.9%	6.5%
<b>Transfers received</b>	<b>313 717</b>	<b>5.1%</b>	<b>54.0%</b>	<b>326 259</b>	<b>344 295</b>	<b>360 584</b>	<b>4.8%</b>	<b>42.9%</b>
<b>Total revenue</b>	<b>570 249</b>	<b>6.7%</b>	<b>100.0%</b>	<b>3 605 061</b>	<b>637 393</b>	<b>672 450</b>	<b>5.6%</b>	<b>100.0%</b>
<b>Expenses</b>								
<b>Current expenses</b>	<b>530 631</b>	<b>6.6%</b>	<b>98.3%</b>	<b>558 195</b>	<b>588 286</b>	<b>620 643</b>	<b>5.4%</b>	<b>93.0%</b>
Compensation of employees	293 608	7.4%	53.2%	312 911	326 884	344 862	5.5%	51.8%
Goods and services	224 400	5.3%	42.7%	231 977	247 366	260 971	5.2%	39.1%
Depreciation	11 272	17.2%	2.1%	11 882	12 472	13 159	5.3%	2.0%
Interest, dividends and rent on land	1 350	3.5%	0.3%	1 426	1 564	1 650	6.9%	0.2%
<b>Transfers and subsidies</b>	<b>39 617</b>	<b>–</b>	<b>1.7%</b>	<b>41 746</b>	<b>44 042</b>	<b>46 465</b>	<b>5.5%</b>	<b>7.0%</b>
<b>Total expenses</b>	<b>570 248</b>	<b>9.2%</b>	<b>100.0%</b>	<b>599 941</b>	<b>632 329</b>	<b>667 107</b>	<b>5.4%</b>	<b>100.0%</b>
<b>Surplus/(Deficit)</b>	<b>1</b>			<b>3 005 120</b>	<b>5 064</b>	<b>5 342</b>		
<b>Statement of financial position</b>								
Carrying value of assets	423 938	23.8%	70.7%	425 680	426 993	450 478	2.0%	75.7%
of which:								
Acquisition of assets	(3 479)	-43.4%	-3.7%	(3 674)	(3 821)	(4 031)	5.0%	-0.7%
Inventory	7 026	9.5%	1.3%	7 419	7 716	8 140	5.0%	1.3%
Receivables and prepayments	53 618	15.8%	10.6%	56 621	58 885	62 124	5.0%	10.1%
Cash and cash equivalents	67 184	-15.4%	16.6%	70 947	73 785	77 843	5.0%	12.7%
Taxation	1 045	-36.7%	0.7%	1 103	1 147	1 210	5.0%	0.2%
<b>Total assets</b>	<b>552 811</b>	<b>13.4%</b>	<b>100.0%</b>	<b>561 769</b>	<b>568 527</b>	<b>599 796</b>	<b>2.8%</b>	<b>100.0%</b>
Accumulated surplus/(deficit)	21 198	-36.3%	13.4%	22 385	23 281	24 561	5.0%	4.0%
Capital and reserves	392 836	28.7%	60.9%	392 836	392 836	414 442	1.8%	69.8%
Finance lease	681	–	0.0%	720	748	789	5.0%	0.1%
Deferred income	72 810	9.2%	12.8%	76 888	79 963	84 361	5.0%	13.7%
Trade and other payables	32 149	-0.2%	7.6%	33 950	35 308	37 250	5.0%	6.1%
Provisions	33 136	11.0%	5.3%	34 991	36 391	38 392	5.0%	6.3%
<b>Total equity and liabilities</b>	<b>552 811</b>	<b>13.4%</b>	<b>100.0%</b>	<b>561 769</b>	<b>568 527</b>	<b>599 796</b>	<b>2.8%</b>	<b>100.0%</b>

## Personnel information

**Table 30.39 Human Sciences Research Council personnel numbers and cost by salary level**

Number of posts estimated for 31 March 2019			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 (%)	Average: Salary level/Total (%)			
			2017/18			2018/19			2019/20		2020/21		2021/22				2018/19 - 2021/22		
			Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost					
Human Sciences Research Council			832	282.7	0.3	552	293.6	0.5	552	312.9	0.6	552	326.9	0.6	552	344.9	0.6	5.5%	100.0%
Salary level	552	552																	
1 – 6	162	162	216	25.7	0.1	162	26.6	0.2	162	28.4	0.2	162	29.6	0.2	162	31.2	0.2	5.4%	29.3%
7 – 10	254	254	406	112.9	0.3	254	117.3	0.5	254	124.1	0.5	254	129.6	0.5	254	136.6	0.5	5.2%	46.0%
11 –12	81	81	137	69.1	0.5	81	71.8	0.9	81	76.9	0.9	81	80.4	1.0	81	84.8	1.0	5.7%	14.7%
13 –16	53	53	71	69.7	1.0	53	72.4	1.4	53	77.5	1.5	53	81.0	1.5	53	85.5	1.6	5.7%	9.6%
17 –22	2	2	2	5.3	2.6	2	5.5	2.7	2	6.0	3.0	2	6.3	3.2	2	6.7	3.3	6.9%	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 conducive to space technology and industrial development.

### Selected performance indicators

**Table 30.40 South African National Space Agency performance indicators by programme/objective/activity and related outcome**

Indicator	Programme/Objective/Activity	MTSF outcome	Past			Current	Projections		
			2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Number of high-impact products and applications in national geospatial decision support data products per year	Earth observation	Outcome 7: Comprehensive rural development and land reform	— <sup>1</sup>	50 000	50 000	50 000	50 000	50 000	50 000
Total commercial income generated per year from space operations activities	Space operation	Outcome 6: An efficient, competitive and responsive economic infrastructure network	R77m	R66.7m	R44m	R65m	R58m	R66m	R71m
Number of government decisions or policy support tools per year	Space science	Outcome 12: An efficient, effective and development-oriented public service	2	3	3	3	3	3	3
National research productivity score for space supported research and development per year	Space science	Outcome 10: Protect and enhance our environmental assets and natural resources	1 992	1 656	1 200	1 600	1 000 <sup>2</sup>	1 000	1 000
Number of students supported for formalised training per year	Space science	Outcome 5: A skilled and capable workforce to support an inclusive growth path	53	87	70	20 <sup>2</sup>	22	22	22

1. No historical information available.

2. Target decreases in line with available budget.

### Expenditure analysis

Over the medium term, the South African National Space Agency will focus on ensuring that space services, which entail the acquisition and archiving of satellite data, are integrated into service delivery. Knowledge generated from this data helps address challenges in industries such as agriculture, water, energy, health, and safety and security. More than 40 government departments and entities use national geospatial data for efficient planning, monitoring and decision-making. As such, 27.7 per cent (R197.2 million) of the agency's total budget over the medium term is allocated to the earth observation programme in support of these objectives.

Spending on compensation of employees accounts for 57.3 per cent (R424.6 million) of the agency's total budget, increasing at an average annual rate of 5.5 per cent, from R124 million in 2018/19 to R145.7 million in 2021/22. This enables the agency to source scientists, engineers and researchers to support its mandate and the satellite build programme. The agency's number of personnel is expected to remain constant over the medium term due to a moratorium on the filling of vacancies as part of measures to contain costs.

Revenue decreases at an average annual rate of 4.3 per cent, from R284.3 million in 2018/19 to R248.9 million in 2021/22. Transfers from the department account for 66.6 per cent (R470.9 million) of the agency's total projected revenue over the medium term. The remaining revenue over the period is expected to be generated from services rendered to government institutions and other organisations.



**Programmes/Objectives/Activities****Table 30.41 South African National Space Agency expenditure trends and estimates by programme/objective/activity**

R thousand	Audited outcome			Revised estimate	Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
	2015/16	2016/17	2017/18				2019/20	2020/21	2021/22		
Administration	34 239	38 522	51 336	44 561	9.2%	18.4%	61 814	45 550	48 056	2.5%	20.9%
Earth observation	82 625	74 061	94 318	67 277	-6.6%	34.7%	57 491	69 484	70 190	1.4%	27.7%
Space operation	62 493	62 511	55 583	62 313	-0.1%	26.6%	67 207	71 574	79 673	8.5%	29.3%
Space science	36 211	38 872	41 472	37 360	1.0%	16.8%	45 632	41 983	44 148	5.7%	17.7%
Space engineering	9 762	10 925	–	10 055	1.0%	3.4%	10 534	10 751	11 342	4.1%	4.5%
<b>Total</b>	<b>225 330</b>	<b>224 891</b>	<b>242 710</b>	<b>221 564</b>	<b>-0.6%</b>	<b>100.0%</b>	<b>242 678</b>	<b>239 343</b>	<b>253 409</b>	<b>4.6%</b>	<b>100.0%</b>

**Statements of historical financial performance and position****Table 30.42 South African National Space Agency statements of historical financial performance and position**

Statement of financial performance									
R thousand	Audited outcome		Budget	Audited outcome	Budget	Audited outcome	Budget estimate	Revised estimate	Average: Outcome/ Budget (%)
	2015/16	2016/17							
<b>Revenue</b>									
<b>Non-tax revenue</b>	<b>63 270</b>	<b>110 397</b>	<b>131 478</b>	<b>83 180</b>	<b>81 127</b>	<b>100 897</b>	<b>69 980</b>	<b>79 657</b>	<b>108.2%</b>
Sale of goods and services other than capital assets	62 820	96 829	90 816	71 766	70 596	87 810	69 980	76 287	113.1%
of which:									
Sales by market establishment	62 820	96 829	90 816	71 766	70 596	87 810	69 980	76 287	113.1%
Other non-tax revenue	449	13 569	40 662	11 414	10 532	13 087	–	3 370	80.2%
<b>Transfers received</b>	<b>217 741</b>	<b>232 441</b>	<b>231 115</b>	<b>227 233</b>	<b>280 862</b>	<b>218 951</b>	<b>153 494</b>	<b>204 596</b>	<b>100.0%</b>
<b>Total revenue</b>	<b>281 011</b>	<b>342 838</b>	<b>362 593</b>	<b>310 413</b>	<b>361 989</b>	<b>319 848</b>	<b>223 474</b>	<b>284 252</b>	<b>102.3%</b>
<b>Expenses</b>									
<b>Current expenses</b>	<b>277 684</b>	<b>219 215</b>	<b>359 889</b>	<b>215 703</b>	<b>255 153</b>	<b>237 089</b>	<b>220 711</b>	<b>214 384</b>	<b>79.6%</b>
Compensation of employees	104 545	96 046	111 986	110 406	120 106	110 475	129 433	123 983	94.6%
Goods and services	150 047	98 062	247 903	81 394	135 047	101 214	91 278	90 401	59.4%
Depreciation	23 092	25 097	–	23 878	–	25 400	–	–	322.1%
Interest, dividends and rent on land	–	10	–	24	–	–	–	–	–
<b>Transfers and subsidies</b>	<b>3 327</b>	<b>6 115</b>	<b>2 704</b>	<b>9 189</b>	<b>8 320</b>	<b>5 621</b>	<b>2 763</b>	<b>7 180</b>	<b>164.2%</b>
<b>Total expenses</b>	<b>281 011</b>	<b>225 330</b>	<b>362 593</b>	<b>224 891</b>	<b>263 473</b>	<b>242 709</b>	<b>223 474</b>	<b>221 564</b>	<b>80.9%</b>
<b>Surplus/(Deficit)</b>	<b>–</b>	<b>117 508</b>	<b>–</b>	<b>85 521</b>	<b>98 516</b>	<b>77 139</b>	<b>–</b>	<b>62 688</b>	
<b>Statement of financial position</b>									
Carrying value of assets	142 809	279 597	150 663	364 813	459 236	447 518	462 623	462 623	127.9%
of which:									
Acquisition of assets	(56 988)	(113 533)	(50 523)	(110 124)	(84 253)	(109 114)	(69 052)	(2 967)	128.7%
Inventory	453	352	478	463	463	508	463	463	96.1%
Receivables and prepayments	24 519	20 587	25 867	20 801	20 801	25 395	20 801	20 801	95.2%
Cash and cash equivalents	134 405	178 459	141 797	150 758	61 511	97 223	180 996	180 996	117.1%
<b>Total assets</b>	<b>302 186</b>	<b>478 994</b>	<b>318 806</b>	<b>536 835</b>	<b>542 011</b>	<b>570 644</b>	<b>664 883</b>	<b>664 883</b>	<b>123.2%</b>
Accumulated surplus/(deficit)	188 214	321 783	198 566	407 303	496 550	484 443	489 987	489 987	124.0%
Capital reserve fund	21 639	34 047	22 829	20 927	23 971	22 109	25 361	25 361	109.2%
Borrowings	–	27 975	–	9 270	1 010	–	1 010	1 010	1 893.8%
Finance lease	729	–	769	–	–	–	–	–	–
Deferred income	85 896	82 336	90 620	86 815	12 835	58 087	140 880	140 880	111.5%
Trade and other payables	21 639	34 047	22 829	20 927	23 971	22 109	25 361	25 361	109.2%
Provisions	5 708	6 962	6 022	7 645	7 645	6 005	7 645	7 645	104.6%
Derivatives financial instruments	–	5 892	–	4 876	–	–	–	–	–
<b>Total equity and liabilities</b>	<b>323 825</b>	<b>513 041</b>	<b>341 635</b>	<b>557 762</b>	<b>565 982</b>	<b>592 753</b>	<b>690 244</b>	<b>690 244</b>	<b>122.5%</b>

## Statements of estimates of financial performance and position

**Table 30.43 South African National Space Agency statements of estimates of financial performance and position**

Statement of financial performance		Average growth rate (%)	Average: Expenditure/Total (%)	Medium-term estimate			Average growth rate (%)	Average: Expenditure/Total (%)
Revised estimate	2018/19			2019/20	2020/21	2021/22		
R thousand	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
<b>Revenue</b>								
<b>Non-tax revenue</b>	79 657	-10.3%	29.6%	85 340	82 602	88 046	3.4%	33.4%
Sale of goods and services other than capital assets	76 287	-7.6%	26.4%	81 172	82 215	88 046	4.9%	32.6%
of which:								
Sales by market establishment	76 287	-7.6%	26.4%	81 172	82 215	88 046	4.9%	32.6%
Other non-tax revenue	3 370	-37.1%	3.2%	4 167	387	–	-100.0%	0.8%
<b>Transfers received</b>	204 596	-4.2%	70.4%	155 349	154 626	160 895	-7.7%	66.6%
<b>Total revenue</b>	284 252	-6.1%	100.0%	240 689	237 228	248 942	-4.3%	100.0%
<b>Expenses</b>								
<b>Current expenses</b>	214 384	-0.7%	96.9%	235 301	236 380	253 409	5.7%	98.1%
Compensation of employees	123 983	8.9%	48.3%	140 790	138 088	145 683	5.5%	57.3%
Goods and services	90 401	-2.7%	40.6%	94 511	98 292	107 726	6.0%	40.8%
<b>Transfers and subsidies</b>	7 180	5.5%	3.1%	7 376	2 963	–	-100.0%	1.9%
<b>Total expenses</b>	221 564	-0.6%	100.0%	242 677	239 343	253 409	4.6%	100.0%
<b>Surplus/(Deficit)</b>	62 688			(1 989)	(2 115)	(4 467)		
<b>Statement of financial position</b>								
Carrying value of assets	462 623	18.3%	68.6%	464 534	466 620	–	-100.0%	–
of which:								
Acquisition of assets	(2 967)	-70.3%	-15.9%	(2 091)	(2 086)	(2 201)	-9.5%	–
Inventory	463	9.6%	0.1%	463	463	–	-100.0%	–
Receivables and prepayments	20 801	0.3%	3.9%	20 801	20 801	–	-100.0%	–
Cash and cash equivalents	180 996	0.5%	27.4%	166 497	151 157	–	-100.0%	–
<b>Total assets</b>	664 883	11.6%	100.0%	652 295	639 041	–	-100.0%	–
Accumulated surplus/(deficit)	489 987	15.0%	72.1%	481 305	472 127	–	-100.0%	–
Capital reserve fund	25 361	-9.4%	4.4%	25 361	25 361	–	-100.0%	–
Borrowings	1 010	-66.9%	1.8%	1 010	1 010	–	-100.0%	–
Deferred income	140 880	19.6%	15.5%	136 974	132 898	–	-100.0%	–
Trade and other payables	25 361	-9.4%	4.4%	25 361	25 361	–	-100.0%	–
Provisions	7 645	3.2%	1.2%	7 645	7 645	–	-100.0%	–
<b>Total equity and liabilities</b>	690 244	10.4%	100.0%	677 656	664 402	–	-100.0%	–

## Personnel information

**Table 30.44 South African National Space Agency personnel numbers and cost by salary level**

Number of posts estimated for 31 March 2019			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 (%)	Average: Salary level/Total (%)						
			2017/18			2018/19			2019/20		2020/21		2021/22				2018/19 - 2021/22					
			Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost								
South African National Space Agency			201	203	204	110.5	0.5	203	124.0	0.6	204	140.8	0.7	204	138.1	0.7	204	145.7	0.7	5.5%	100.0%	
1 – 6	26	26	27	3.5	0.1	26	4.4	0.2	27	5.5	0.2	27	5.2	0.2	27	5.7	0.2	27	5.7	0.2	8.7%	13.1%
7 – 10	125	127	127	53.7	0.4	127	62.2	0.5	127	70.9	0.6	127	69.0	0.5	127	72.6	0.6	127	72.6	0.6	5.3%	62.3%
11 – 12	19	19	19	16.7	0.9	19	16.8	0.9	19	19.0	1.0	19	18.8	1.0	19	19.8	1.0	19	19.8	1.0	5.5%	9.3%
13 – 16	30	30	30	34.4	1.1	30	38.3	1.3	30	43.1	1.4	30	42.6	1.4	30	44.9	1.5	30	44.9	1.5	5.5%	14.7%
17 – 22	1	1	1	2.2	2.2	1	2.3	2.3	1	2.4	2.4	1	2.5	2.5	1	2.7	2.7	1	2.7	2.7	5.5%	0.5%

1. Rand million.

## Technology Innovation Agency

### Mandate

The Technology Innovation Agency draws its mandate from the Technology Innovation Agency Act (2008), as amended. The agency serves as the key institutional intervention to bridge the innovation gap between research and development outcomes from higher education institutions, science councils, public entities and private companies, thus intensifying the effect of technological innovation in the economy.

### Selected performance indicators

**Table 30.45 Technology Innovation Agency performance indicators by programme/objective/activity and related outcome**

Indicator	Programme/Objective/Activity	MTSF outcome	Past			Current	Projections		
			2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Number of technologies, processes or services advancing by 1 or more technology readiness levels per year	Provide technology development funding and support in strategic high-impact areas	Outcome 5: A skilled and capable workforce to support an inclusive growth path	6	12	13	14	15	15	15
Number of innovation project outputs taken up in the market per year	Provide technology development funding and support in strategic high-impact areas		4	14	10	7	8	9	9
Amount of additional funding attracted to agency's portfolio per year	Provide technology development funding and support in strategic high-impact areas		R75m	R59m	R66m	R94m	R100m	R110m	R120m
Income received per year	Provide technology development funding and support in strategic high-impact areas		R98m	R124m	R141.8m	R116.3m	R145m	R190m	R200.5m
Number of knowledge innovation products as a result of agency funding and support programmes per year	Provide an enabling environment for technology innovation		— <sup>1</sup>	— <sup>1</sup>	83	87	96	113	113
Number of knowledge innovation products produced by agency supported programmes receiving additional funding per year	Provide an enabling environment for technology innovation		— <sup>1</sup>	— <sup>1</sup>	27	30	33	36	40
Number of SMMEs receiving technology support per year	Provide an enabling environment for technology innovation		— <sup>1</sup>	— <sup>1</sup>	2 800	3 360	3 840	4 000	4 000
SMMEs owned by historically disadvantaged individuals assisted as a percentage of total SMMEs supported, receiving funding, and receiving support and/or technology services from the agency per year	Provide an enabling environment for technology innovation	Outcome 6: An efficient, competitive and responsive economic infrastructure network	— <sup>1</sup>	— <sup>1</sup>	65% (1 820/ 2 800)	67% (2 251/ 3 360)	69% (2 650/ 3 840)	75% (3 000/ 4 000)	75% (3 000/ 4 000)
Number of technology innovation initiatives undertaken by the agency, consisting of conference papers, presentations and posters, policy recommendations, panel discussions, position papers, publications, think tanks, and keynote addresses per year	Provide an enabling environment for technology innovation		— <sup>1</sup>	— <sup>1</sup>	31	32	34	41	41

1. No historical data available.

### Expenditure analysis

Over the medium term, the Technology Innovation Agency will focus on: bridging the innovation gap between research and development goals; supporting technologies within the national system of innovation; and scaling up all strategic programmes by increasing the pace at which applications and internal processes occur, and creating a conducive environment for engaging with innovators, stakeholders and suppliers. To bridge the innovation gap, between 2010/11 and 2017/18, the agency assisted in developing more than 218 innovation products, and disbursed R2.9 billion to support the development of technological innovations and more than 10 850 small, medium and micro enterprises (SMMEs).

Over the medium term, the agency plans to continue supporting technologies within the national system of innovation by ensuring the visibility of its project portfolio to various stakeholders. It plans to do this by ensuring that at least 26 technologies, products, and/or processes and services are taken up in the market by 2021/22. This is also expected to allow the agency to address issues of national importance, particularly poverty alleviation, job creation and reducing the burden of disease, through technological innovation.

In scaling up all its strategic programmes, the agency expects to form strategic partnerships to ensure that there is a seamless progression of ideas across the innovation value chain. It will also extend its services to other national departments and the private sector with the view of unlocking additional funding to achieve broader socioeconomic development.

Transfers from the department constitute an estimated 72.8 per cent (R1.4 billion) of the agency's revenue over the medium term. Other sources of revenue include income from co-funding partnerships, and interest, royalties and dividends received on investments.

**Programmes/Objectives/Activities****Table 30.46 Technology Innovation Agency expenditure trends and estimates by programme/objective/activity**

R thousand	Audited outcome			Revised estimate	Average growth rate (%)	Average: Expenditure/Total (%)	Medium-term expenditure estimate			Average growth rate (%)	Average: Expenditure/Total (%)
	2015/16	2016/17	2017/18				2019/20	2020/21	2021/22		
Administration	175 825	154 583	151 294	189 694	2.6%	32.1%	197 525	209 376	220 892	5.2%	32.9%
Provide customer-centric early stage commercialisation for technology development	124 834	108 942	92 435	123 676	-0.3%	21.4%	135 002	153 115	161 537	9.3%	22.9%
Provide an enabling environment for technology innovation	210 285	335 890	216 688	223 235	2.0%	46.5%	257 231	306 757	323 132	13.1%	44.2%
<b>Total</b>	<b>510 944</b>	<b>599 415</b>	<b>460 417</b>	<b>536 605</b>	<b>1.6%</b>	<b>100.0%</b>	<b>589 758</b>	<b>669 248</b>	<b>705 561</b>	<b>9.6%</b>	<b>100.0%</b>

**Statements of historical financial performance and position****Table 30.47 Technology Innovation Agency statements of historical financial performance and position**

Statement of financial performance										Average: Outcome/Budget (%)
	Budget	Audited outcome	Budget	Audited outcome	Budget	Audited outcome	Budget estimate	Revised estimate		
R thousand	2015/16		2016/17		2017/18		2018/19		2015/16 - 2018/19	
Revenue										
Non-tax revenue	51 122	79 458	114 044	110 091	102 751	88 694	116 283	116 283	102.7%	
Sale of goods and services other than capital assets	6 150	44 122	—	83 413	—	—	—	—	2 073.7%	
of which:										
Administrative fees	6 150	—	—	—	—	—	—	—	—	
Sales by market establishment	—	44 122	—	83 413	—	—	—	—	—	
Other non-tax revenue	44 972	35 336	114 044	26 678	102 751	88 694	116 283	116 283	70.6%	
Transfers received	385 188	385 188	382 364	382 364	396 732	396 732	420 322	420 322	100.0%	
Total revenue	436 310	464 646	496 408	492 455	499 483	485 426	536 605	536 605	100.5%	
Expenses										
Current expenses	141 659	175 825	146 675	154 583	154 351	151 294	189 694	189 694	106.2%	
Compensation of employees	92 729	83 557	90 569	88 674	99 899	98 717	118 644	118 644	97.0%	
Goods and services	42 957	85 936	48 336	62 585	47 752	46 931	63 680	63 680	127.8%	
Depreciation	5 973	6 332	7 770	3 324	6 700	5 646	7 370	7 370	81.5%	
Transfers and subsidies	371 651	335 119	463 033	444 832	345 132	309 123	346 911	346 911	94.1%	
Total expenses	513 310	510 944	609 708	599 415	499 483	460 417	536 605	536 605	97.6%	
Surplus/(Deficit)	(77 000)	(46 298)	(113 300)	(106 960)	—	25 009	—	—		
Statement of financial position										
Carrying value of assets	19 178	13 346	13 346	15 892	16 923	14 133	15 674	15 674	90.7%	
of which:										
Acquisition of assets	(8 000)	(7 317)	(7 000)	(7 051)	(7 000)	(6 906)	(7 000)	(7 000)	97.5%	
Investments	45 068	29 313	29 313	29 313	26 300	26 300	26 300	26 300	87.6%	
Loans	34 081	19 226	18 362	5 029	—	5 734	—	—	57.2%	
Receivables and prepayments	3 607	16 118	4 080	6 995	4 865	4 313	4 962	4 962	184.9%	
Cash and cash equivalents	11 176	132 333	12 176	64 567	62 357	126 664	60 000	60 000	263.2%	
Total assets	113 110	210 336	77 277	121 796	110 445	177 144	106 936	106 936	151.1%	
Accumulated surplus/(deficit)	21 572	144 865	24 708	37 905	39 232	62 914	39 915	39 915	227.7%	
Capital reserve fund	13 431	44 086	20 000	54 443	45 700	88 272	40 320	40 320	190.1%	
Finance lease	188	194	194	61	150	134	135	135	78.6%	
Trade and other payables	74 749	21 116	30 131	28 891	25 013	25 824	26 263	26 263	65.4%	
Taxation	2 169	—	2 169	—	—	—	—	—	—	
Derivatives financial instruments	1 001	75	75	496	350	—	302	302	50.5%	
Total equity and liabilities	113 110	210 336	77 277	121 796	110 445	177 144	106 935	106 935	151.1%	

**Statements of estimates of financial performance and position****Table 30.48 Technology Innovation Agency statements of estimates of financial performance and position**

Statement of financial performance								
	Revised estimate	Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
R thousand	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
Revenue								
Non-tax revenue	116 283	13.5%	19.8%	153 000	208 000	212 357	22.2%	27.2%
Other non-tax revenue	116 283	48.7%	13.2%	153 000	208 000	212 357	22.2%	27.2%
Transfers received	420 322	3.0%	80.2%	440 929	465 161	481 018	4.6%	72.8%
Total revenue	536 605	4.9%	100.0%	593 929	673 161	693 375	8.9%	100.0%

**Table 30.48 Technology Innovation Agency statements of estimates of financial performance and position**

Statement of financial performance								
	Revised estimate	Average growth rate (%)	Average: Expenditure/ Total (%)	Medium-term estimate			Average growth rate (%)	Average: Expenditure/ Total (%)
R thousand	2018/19	2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
<b>Expenses</b>								
<b>Current expenses</b>	<b>189 694</b>	<b>2.6%</b>	<b>32.1%</b>	<b>197 524</b>	<b>209 376</b>	<b>220 892</b>	<b>5.2%</b>	<b>32.9%</b>
Compensation of employees	118 644	12.4%	18.7%	123 987	131 426	138 655	5.3%	20.6%
Goods and services	63 680	-9.5%	12.3%	65 430	69 357	73 171	4.7%	10.9%
Depreciation	7 370	5.2%	1.1%	8 107	8 593	9 066	7.1%	1.3%
<b>Transfers and subsidies</b>	<b>346 911</b>	<b>1.2%</b>	<b>67.9%</b>	<b>392 233</b>	<b>459 872</b>	<b>484 669</b>	<b>11.8%</b>	<b>67.1%</b>
<b>Total expenses</b>	<b>536 605</b>	<b>1.6%</b>	<b>100.0%</b>	<b>589 757</b>	<b>669 248</b>	<b>705 561</b>	<b>9.6%</b>	<b>100.0%</b>
<b>Surplus/(Deficit)</b>	<b>-</b>			<b>4 172</b>	<b>3 913</b>	<b>(12 186)</b>		
<b>Statement of financial position</b>								
Carrying value of assets	15 674	5.5%	10.5%	16 549	17 376	18 439	5.6%	15.1%
of which:								
Acquisition of assets	(7 000)	-1.5%	-4.9%	(7 000)	(7 000)	(6 466)	-2.6%	-6.1%
Investments	26 300	-3.6%	19.4%	26 300	26 300	26 300	-	23.5%
Receivables and prepayments	4 962	-32.5%	5.1%	5 220	5 538	5 650	4.4%	4.8%
Cash and cash equivalents	60 000	-23.2%	60.9%	58 000	62 000	75 000	7.7%	56.6%
<b>Total assets</b>	<b>106 936</b>	<b>-20.2%</b>	<b>100.0%</b>	<b>106 069</b>	<b>111 215</b>	<b>125 389</b>	<b>5.4%</b>	<b>100.0%</b>
Accumulated surplus/(deficit)	39 915	-34.9%	43.2%	32 839	33 468	35 476	-3.9%	31.7%
Capital reserve fund	40 320	-2.9%	38.3%	45 000	47 983	55 374	11.2%	41.9%
Finance lease	135	-11.4%	0.1%	102	168	134	-0.2%	0.1%
Trade and other payables	26 263	7.5%	18.2%	27 839	29 231	34 000	9.0%	26.1%
Derivatives financial instruments	302	59.1%	0.2%	289	365	405	10.3%	0.3%
<b>Total equity and liabilities</b>	<b>106 935</b>	<b>-20.2%</b>	<b>100.0%</b>	<b>106 069</b>	<b>111 215</b>	<b>125 389</b>	<b>5.4%</b>	<b>100.0%</b>

**Personnel information****Table 30.49 Technology Innovation Agency personnel numbers and cost by salary level**

Number of posts estimated for 31 March 2019			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 (%)	Average: Salary level/Total (%)			
			2017/18			2018/19			2019/20		2020/21		2021/22				2018/19 - 2021/22		
			Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost	Number	Cost	Unit cost					
Technology Innovation Agency																			
Salary level	174	174	166	98.7	0.6	172	118.6	0.7	172	24.0	0.7	172	131.4	0.8	172	138.7	0.8	5.3%	100.0%
1 – 6	17	17	20	3.4	0.2	17	2.8	0.2	13	2.0	0.2	13	2.1	0.2	13	2.2	0.2	-7.4%	8.1%
7 – 10	92	92	96	39.1	0.4	92	44.2	0.5	61	23.6	0.4	61	24.9	0.4	61	26.3	0.4	-15.9%	40.0%
11 – 12	30	30	25	21.4	0.9	28	23.3	0.8	59	45.2	0.8	59	48.3	0.8	59	51.0	0.9	29.9%	29.8%
13 – 16	33	33	23	29.8	1.3	33	43.0	1.3	37	47.6	1.3	37	50.3	1.4	37	53.0	1.4	7.2%	20.9%
17 – 22	2	2	2	5.1	2.5	2	5.4	2.7	2	5.6	2.8	2	5.8	2.9	2	6.2	3.1	4.5%	1.2%

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		
				2015/16	2016/17	2017/18		2018/19	2019/20	2020/21
R thousand										
Infrastructure transfers to other spheres, agencies and departments										
Mega projects (total project cost of at least R1 billion over the project life cycle)										
Square Kilometre Array	Construction of telescopes	Construction	10 021 173	687 415	652 756	693 931	709 412	686 974	812 139	856 807
Large projects (total project cost of at least R250 million but less than R1 billion over the project life cycle)										
Space infrastructure	Construction of satellite	Construction	210 755	31 386	29 653	44 860	9 200	30 000	31 650	34 006
Hydrogen strategy	Purchase of equipment	Various	1 087 478	63 568	63 886	67 080	70 971	74 945	77 654	81 536
National nanotechnology centres	Equipping of centres	Various	246 065	50 429	50 681	81 451	–	–	–	–
Cyber-infrastructure	Creation of broadband network connectivity and high-performance computing	Various	2 822 059	213 479	214 546	413 273	236 339	251 686	260 782	273 821
Total			14 387 530	1 046 277	1 011 522	1 300 595	1 025 922	1 043 605	1 182 225	1 246 170

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

Donor	Project	Programme	Period of commitment	Amount committed	Main economic classification	Spending focus	Audited outcome			Estimate	Medium-term expenditure estimate		
							2015/16	2016/17	2017/18		2018/19	2019/20	2020/21
R thousand													
Foreign In cash													
European Union	Argentinean bureau for enhancing cooperation with the European community in the science, technology and innovation area (phase 2)	Technology Innovation	3 years	259	Goods and services	Enhance science, technology and innovation cooperation between Africa and the EU	–	–	31	–	–	–	–
European Union	Information society and technology Africa	International Cooperation and Resources	3 years	696	Goods and services	Improve overall ICT policies and create systems for each African country to ensure a consolidated, effective regional impact through an information society in Africa	113	10	–	–	–	–	–
European Union	General budget support: ICT innovation programme to support development and government delivery	Socioeconomic Innovation Partnerships	3 years	120 000	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	42 391	27 220	–	–	–	–	–
European Union	EU support for South Africa’s research and innovation programmes	International Cooperation and Resources	3 years	585	Goods and services	Support European researchers to access South African innovation programmes and collaborate with South African researchers	208	–	253	–	–	–	–

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

Donor	Project	Programme	Period of commitment	Amount committed	Main economic classification	Spending focus	Audited outcome			Estimate	Medium-term expenditure estimate		
							2015/16	2016/17	2017/18		2018/19	2019/20	2020/21
R thousand													
European Union	African-European research and innovation funding partnership	International Cooperation and Resources	2 years	2 346	Foreign governments and international organisations	Implement wide dialogue with the aim of reaching consensus among EU and African programme owners	208	–	253	–	–	–	–
European Union	Technology, research and innovation cooperation between Europe and South Africa	Socioeconomic Innovation Partnerships	4 years	2 735	Departmental agencies and accounts	Advancement of South Africa-EU collaboration	1 620	1 125	960	1 200	–	–	
European Union	CAAST-Net Plus	Technology Innovation	4 years	2 055	Departmental agencies and accounts	Promote mutual understanding of Africa-EU cooperation in critical science and technology areas of mutual interest	252	–	–	–	–	–	–
European Union	General budget support: Innovation for rural development	Socioeconomic Innovation Partnerships	3 years	100 000	Goods and services	Establish a link for science and technology opportunities for practical policy influence	64 452	–	3 006	–	–	–	–
European Union	Sector budget support: Science and technology for poverty eradication	Socioeconomic Innovation Partnerships	3 years	300 000	Goods and services	Contribute to South Africa's harmonious and sustainable economic and social development through programmes and measures designed to reduce poverty and encourage economic growth that benefits the poor	24 875	–	–	–	–	–	–
European Union	Research and innovation network for Europe and Africa programme	International Cooperation and Resources	3 years	3 136	Goods and services	Provide strategic support to the Africa-EU high-level policy dialogue and implement the outcomes of decisions from meetings of senior officials	149	429	–	–	–	–	–
Finland	Biosciences support to Southern African Development Community between Finland and South Africa	Technology Innovation	4 years	80 000	Goods and services	Strengthen the Southern Africa Network for Biosciences secretariat; develop an operating environment for the network; develop capacity; create and disseminate the network; and identify, develop and implement projects	17 145	–	20 000	14 176	20 000	–	–
United States	Feasibility study for the establishment of a virtual research, development and innovation network for the information society	Socioeconomic Innovation Partnerships	3 years	1 478	Goods and services	Determine the possibility of the establishment of a virtual network to include rural areas in South Africa and Tanzania	1 285	293	–	–	–	–	–
United States	Indigenous knowledge systems standards	International Cooperation and Resources	3 years	2 940	Goods and services	Build capacity within indigenous knowledge systems industries in South Africa and the rest of the Southern African Development Community to develop norms and standards for the industries and incorporate innovation in the way the industry operates	1 585	–	1 355	–	–	–	–

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

Donor	Project	Programme	Period of commitment	Amount committed	Main economic classification	Spending focus	Audited outcome			Estimate	Medium-term expenditure estimate		
							2015/16	2016/17	2017/18		2019/20	2020/21	2021/22
R thousand													
European Union	Green economy for development	Socioeconomic Innovation Partnerships	3 years	100 000	Goods and services	Green the economy by facilitating the uptake of emerging and proven water and waste technologies by partnering SMMEs with municipalities to demonstrate, evaluate, develop skills and, where appropriate, localise suitable technologies. This, in turn, creates jobs and improves service delivery by government as a whole	–	–	–	30 000	36 000	34 000	–
European Union	Strengthening the smallholder value chain	International Cooperation and Resources	3 years	3 600	Goods and services	Essential oil research to achieve certification of model sites and production systems that lead to positive gross margins for crops and products, in demand. Create a frugal innovation system in parallel to the national system of innovation research programme and facilitate smallholder access loan finance	–	–	–	–	11 219	15 073	22 536
European Union	Sector budget support programme to the national system of innovation	Socioeconomic Innovation Partnerships	3 years	225 000	Goods and services	Strengthen policy regarding innovation and learning in the national system of innovation by ensuring wider and inclusive participation; develop policy and programme interventions through dialogue and consultations with non-conventional partners to stimulate investment; and support learning from models that have been successful in applying innovation and commercialisation of technologies arising from existing cooperation and other projects	–	–	–	60 000	60 000	52 500	52 500
European Union	General budget support: ICT innovation programme to support development and government delivery	Socioeconomic Innovation Partnerships	3 years	120 000	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	42 392	–	–	–	–	–	–
European Union	ER Africa	International Cooperation and Resources	2 years	2 346	Foreign governments and international organisations	Strengthen the Southern Africa Network for Biosciences secretariat; develop an operating environment for the network; develop capacity; create and disseminate the network; and identify, develop and implement projects	85	70	253	–	–	–	–
European Union	In Contact One World	Socioeconomic Innovation Partnerships	4 years	2 735	Departmental agencies and accounts	Build capacity in the Southern African Development Community in understanding information on climate change impact and risk in the context of early warning mechanisms	–	–	–	–	–	–	–



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

Donor	Project	Programme	Period of commitment	Amount committed	Main economic classification	Spending focus	Audited outcome			Estimate	Medium-term expenditure estimate		
							2015/16	2016/17	2017/18		2019/20	2020/21	2021/22
R thousand													
European Union	CAAST-Net Plus	Technology Innovation	4 years	2 055	Departmental agencies and accounts	Provide technical assistance to the Malawian government and higher education sector in the proposed project that aims to increase production of good quality seed of high-yielding potato varieties in Malawi	252	128	–	–	–	–	–
European Union	Sector Budget Support: Science and Technology for Poverty eradication	Socioeconomic Innovation Partnerships	3 years	300 000	Goods and services	Provide regional support for science and technology policy training and the development of a science and technology climate change framework	24 941	–	–	–	–	–	–
European Union	Research and innovation network for Europe and Africa programme	International Cooperation and Resources	3 years	3 136	Goods and services	Provide technical assistance to the Mozambican government and higher education sector in a proposed project that aims to achieve sustainable and competitive aquaculture in Mozambique	350	–	–	–	–	–	–
Finland	Biosciences support to Southern African Development Community between Finland and South Africa	Technology Innovation	4 years	80 000	Goods and services	Determine the extent to which water and air pollution might affect the health of two communities in the lower Olifants water catchment area	17 145	–	20 000	–	–	–	–
Ireland	Potato tissue culture project in Lesotho	Socioeconomic Innovation Partnerships	1.5 years	1 932	Goods and services	Cooperate with EU member states and developing countries on science and technology innovation	–	–	–	–	–	–	–
United States	Indigenous knowledge system standards	International Cooperation and Resources	3 years	3 600	Goods and services	Promote mutual understanding of Africa-EU cooperation in critical science and technology areas of mutual interest	1 585	–	–	–	–	–	–
European Union	Science and technology opportunities for practical public policy	Socioeconomic Innovation Partnerships	3 years	143 500	Foreign governments and international organisations	Establish link between science and technology opportunities for practical policy influence	–	–	–	–	–	–	–
European Union	CAAST-Net Plus (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	400	–	–	–	–	–	–
WWF South Africa	Energy access to rural communities	Socioeconomic 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	486	–	–	–	–	–	–
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	–	–	649	–	–	–	–
European Union	ICT innovation to support government service delivery	Socioeconomic Innovation Partnerships	3 years	120 000	Departmental agencies and accounts	Demonstrate newly developed local technologies and implement them with the aim of improving service delivery	48 100	29 200	2 985	–	–	–	–

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

Donor	Project	Programme	Period of commitment	Amount committed	Main economic classification	Spending focus	Audited outcome			Estimate	Medium-term expenditure estimate		
							2015/16	2016/17	2017/18		2019/20	2020/21	2021/22
R thousand													
<b>Foreign</b>													
<b>In kind</b>													
European Union	Promoting Africa-EU research infrastructure	Research, Development and Support	2 years	5 483	Goods and services	Develop a database of African research infrastructure and influence policy dialogue in the region	63	19	–	–	–	–	–
Portugal	Bridging actions for the Global Monitoring for Environment and Security programme	Technology Innovation	3 years	231 656	Foreign governments and international organisations	Support African engagement with the EU on earth observation activities	–	–	217	–	–	–	–
United States of America	Southern African Development Community capacity building in relation to the risk and vulnerability atlas	Technology Innovation	2 years	1 168	Higher education institutions	Build capacity in the Southern African Development Community to understand information on climate change impact and risk in the context of the Southern African Development Community early warning mechanism	–	815	–	–	–	–	–
European Union	Promoting Africa-EU research infrastructure	Research, Development and Support	2 years	5 483	Goods and services	3 Hitachi scholarships for South African engineers in the area of electricity generation and transmission	954	–	–	–	–	–	–
Portugal	Bridging actions for the Global Monitoring for Environment and Security programme	Technology Innovation	3 years	231 656	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	–	–	216	–	–	–	–
United States	Southern African Development Community capacity building in relation to the risk and vulnerability atlas	Technology Innovation	2 years	1 168	Higher education institutions	Build capacity in the Southern African Development Community in understanding information on climate change impact and risk in the context of the Southern African Development Community early warning mechanism	815	–	–	–	–	–	–
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	–	–	–	–	–	–
Japan	Observational study to mitigate seismic risks in mines	Socioeconomic Innovation Partnerships	5 years	16 000	Foreign governments and international organisations	Improve the accuracy of predicting and controlling seismicity and earthquakes	–	–	–	–	–	–	–
<b>Local</b>													
<b>In cash</b>													
European Union	Green economy for development	International Cooperation and Resources	3 years	–	Public corporations and private enterprises	Bridge the gap between the pre-commercialisation instruments for technology development created by the department, and full entry into the commercial market	–	–	–	–	–	–	–
<b>Total</b>				<b>2 232 248</b>			<b>293 851</b>	<b>59 309</b>	<b>50 178</b>	<b>105 376</b>	<b>127 219</b>	<b>101 573</b>	<b>75 036</b>





## 2019 BUDGET

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