Vote 18

Science and Technology

	2003/04	2004/05	2005/06			
	To be appropriated					
MTEF allocations	R1 030 525 000	R1 153 410 000	R1 363 983 000			
Statutory amounts	-	-	-			
Responsible Minister	Minister of Arts, Culture, So	cience and Technology				
Administering Department	Department of Science and Technology					
Accounting Officer	Director-General of Department of Science and Technology					

Aim

The Department of Science and Technology seeks to realise the full potential of science and technology in social and economic development, through the development of human resources, research and innovation.

Programme purpose and measurable objectives

Programme 1: Administration

Purpose: Provide policy leadership and advice as well as integrative and executive functions for science and technology and the Department, focused on the implementation of the national research and development strategy.

Programme 2: Technology for Development

Purpose: Improve quality of life through access to and the spread of technology, and by creating capacity and skills for innovation and the use of indigenous knowledge.

Measurable objective: To establish and operate programmes, instruments and partnerships for the transfer of knowledge and technologies as measured by internationally accepted technology diffusion assessment methods.

Programme 3: International Co-operation and Resources

Purpose: Take responsibility for the development of bilateral and multilateral co-operation in science and technology to strengthen the national system of innovation, and for a coherent strategic programme to access overseas development assistance for science and technology in South Africa and on the African continent.

Measurable objective: To increase flows of scientific knowledge and resources to South Africa through participation in joint programmes.

Programme 4: Government Science and Technology System

Purpose: Provide strategic direction, funding and support for the development and growth of the science and technology institutions of Government.

Measurable objective: To build, fund and monitor a cohesive national research system that is run efficiently and effectively as determined by the key performance indicators, in order to contribute to technology advancement and service delivery.

Programme 5: Science and Technology for Competitiveness

Purpose: Develop the technology missions, human capital and national science activities in support of the national system of innovation.

Measurable objectives:

- To establish and leverage enhanced innovation through the technology missions identified in the national research and development strategy as measured by innovation surveys;
- To establish and grow national scientific programmes to fund human capital programmes to ensure sufficient and growing science, engineering and technology human resources for economic growth as measured by widely accepted indicators.

Strategic overview and key policy developments: 1999/00 - 2005/06

Science and technology drives economic development and improvements in quality of life through, among others, new products and services, and improving existing products, services and production technologies. The Department of Science and Technology will provide strategic direction and support to scientific research and technology through the National System of Innovation (NSI).

The Department has two major focuses from a budget and resource allocation perspective. Firstly, it oversees and manages the Science Vote process leading to allocations to the science councils, both those reporting to the Department itself and those reporting to other departments, such as Health, Agriculture, Minerals and Energy, and Trade and Industry (See Table 18.16). This allows for re-prioritisation within and steering of the National System of Innovation. The second focus is the Department's operational budget.

The National System of Innovation

In the last three years the science system completed its initial transformation. The National System of Innovation was introduced as the key policy framework. It focuses on the role of technology in economic growth, and supports innovation and technology diffusion. Since 1994, appropriate institutions have been established, such as the National Advisory Council on Innovation, to advise the Minister on policy and the allocation of funding. There has also been substantial reform of the funding of Science Councils: core funding through parliamentary grants is complemented with allocations through a competitive bidding process from the Innovation Fund. The Innovation Fund focuses on the major themes of competitiveness, quality of life and environmental sustainability. Some of the funds allocated to the Science Councils were earmarked to address specific South African problems. While the establishment of institutions and realignment of funding mechanisms and processes received substantial attention, the National System of Innovation has already started delivering results.

The National Biotechnology Strategy

A key development was the adoption of the National Biotechnology Strategy in 2001, which received initial funding in 2002/03 and provides a framework to develop a national biotechnology industry through enhanced human resources development, biotechnology platforms, public awareness, legislation and finance. Implementation of the strategy will gain momentum in 2003

following the establishment of three Regional Innovation Centres, the National Bio-informatics facility, and a public awareness programme.

The National Research and Development Strategy

The National Research and Development Strategy, approved by Cabinet in 2002, will form the basis for further developing the National System of Innovation. Key challenges are:

- The decline in national research and development spending from 1,1 per cent of GDP in 1990 to about 0,7 per cent in 1994
- The need to find adequate responses to new diseases and new forms of old diseases, affecting humans and animals
- The need to renew the science and technology human resource base, whose average age has been increasing substantially in recent years and which is still predominantly white and male
- The absence, from a budget perspective, of an overall view of science and technology spending by Government.

The National Research and Development Strategy is focused on three broad areas:

- Generating enhanced innovation, primarily through technology missions (focusing on technological innovation, the demonstration of technology, the incubation of new businesses, and enhancing networks of knowledge workers and organisations in specific areas of technology).
- Strengthening science, engineering and technology (SET) human resources and transformation through: establishing centres of excellence; establishing and funding New Partnership for Africa's Development (NEPAD) and Southern African Development Community (SADC) networks; strengthening global science networks; providing new financing for research and development equipment; establishing science focus areas in the National Research Foundation; and increasing public understanding and the number of public engagement activities.
- Creating an effective government science and technology system by: providing a clear distinction between the roles of the line-function Departments and the integrative role of the Department of Science and Technology; generating three-year research and development plans for science councils in line with the MTEF process; developing standard reporting frameworks and a performance management system for all institutions; and giving the central responsibility for producing an integrative budget for all science and technology initiatives to the Department of Science and Technology.

Proposed technology missions include the key technology platforms of the modern age – biotechnology and information technology (IT). Three other missions are technology for manufacturing, technology to leverage knowledge, and technology from the natural resources sectors. Finally, a technology for poverty reduction mission will be established. The initial focus is on the National Biotechnology Strategy, but initial financing is also provided for the other technology missions.

Human resource development is rooted in the dual need to radically increase the number of women and people from previously disadvantaged communities entering and remaining in the sciences, and maximise the pursuit of excellence. National excellence can be achieved by focusing basic science on areas where success is most likely because of important natural or knowledge advantages. These include astronomy, human palaeontology and indigenous knowledge. The key institution for promoting science in this way is the National Research Foundation, linked to the higher education sector through the National Plan for Higher Education.

Expenditure estimates

Table 18.1: Science and Technology

Programme	Expe	nditure outco	ome			Medium-ter	m expenditure	e estimate
-	Audited	Audited	Preliminary	Adjusted	Revised			
			outcome	appropriation	estimate			
R thousand	1999/00	2000/01	2001/02	2002/0	3	2003/04	2004/05	2005/06
1 Administration	15 226	18 279	23 227	26 594	26 594	30 803	34 148	34 733
2 Technology for Development	68 039	130 482	174 423	115 206	115 206	196 937	203 197	232 206
3 International Co-operation and Resources	10 056	12 180	15 235	45 571	45 571	42 714	44 286	73 163
4 Government Science and Technology System	5 143	5 244	7 663	14 428	14 428	14 948	16 480	16 762
5 Science and Technology for Competitiveness	366 898	400 939	462 833	578 439	578 439	745 123	855 299	1 007 119
Total	465 362	567 124	683 381	780 238	780 238	1 030 525	1 153 410	1 363 983
Change to 2002 Budget Estimate				24 599	24 599	152 914	259 132	
Economic classification								
Current	465 159	566 184	679 554	776 736	776 736	1 029 661	1 152 395	1 363 116
Personnel	17 366	18 906	25 507	32 294	32 294	62 162	66 188	69 907
Transfer payments	433 758	532 854	637 345	714 878	714 878	953 572	1 069 730	1 278 619
Other current	14 035	14 424	16 702	29 564	29 564	13 927	16 477	14 590
Capital	203	940	3 827	3 502	3 502	864	1 015	867
Transfer payments	-	-	-	-	-	-	-	-
Acquisition of capital assets	203	940	3 827	3 502	3 502	864	1 015	867
Total	465 362	567 124	683 381	780 238	780 238	1 030 525	1 153 410	1 363 983
Standard items of expenditure								
Personnel	17 366	18 906	25 507	32 294	32 294	62 162	66 188	69 907
Administrative	6 636	8 572	12 132	15 537	15 537	7 379	8 727	7 712
Inventories	874	1 345	1 080	994	994	487	576	509
Equipment	1 868	1 710	3 827	3 502	3 502	982	1 161	1 026
Land and buildings	-	-	-	-	-	-	-	-
Professional and special services	4 581	3 528	3 378	13 021	13 021	5 943	7 028	6 210
Transfer payments	433 758	532 854	637 345	714 878	714 878	953 572	1 069 730	1 278 619
Miscellaneous	279	209	112	12	12	-	-	-
Total	465 362	567 124	683 381	780 238	780 238	1 030 525	1 153 410	1 363 983

Expenditure trends

The 2003 Budget, in addition to initial allocations for the Biotechnology Strategy in 2002, provides additional resources to launch the National Research and Development Strategy, and enables additional allocations to a range of institutions and programmes.

Allocations to the Department of Science and Technology have seen substantial growth at an annual average rate of 18,8 per cent between 1999/00 and 2002/03, and growth accelerates over the MTEF period to an average annual 20,5 per cent. High growth is possible because of additions to the 2002 Budget baseline (R153 million in 2003/04 and R259 million in 2004/05) mostly to allow the launch of the National Research and Development Strategy.

The *Science and Technology for Competitiveness* programme dominates the Department's budget at an average of 73,5 per cent over the medium term. The bulk of the expenditure under this programme (98 per cent) consists of transfer payments related to the National Biotechnology Strategy, the Innovation Fund and the National Research Foundation.

The Department's programmes involve targeted funding of the science councils, other science, engineering and technology institutions (SETIs), parastatals and the private sector to achieve specific outputs. Departmental activities relate to strategy development and execution, international relations (including NEPAD and key multilateral activities) and monitoring and evaluating the National System of Innovation.

The dominant priority over the medium term is the funding of the National Research and Development Strategy and the phasing of this expenditure to achieve coherent and integrated outputs. Key aspects of the phasing include:

- Targeted adjustments to the baseline of Science Vote institutions and programmes
- A wider range of funding instruments to be used by the Innovation Fund
- Financing of the national biotechnology mission, and stimulation of the technology and innovation missions for, among others, advanced manufacturing
- Strengthening the technology transfer and incubation initiatives
- Launching the Centres of Excellence programmes and science platform investments
- Prioritising the sourcing of new funding from partner Departments in South Africa as well as overseas development assistance.

Departmental receipts

Departmental receipts are mainly miscellaneous items such as debt repayments and private telephone calls. All receipts are deposited into the National Revenue Fund.

i	Re	Revenue outcome			Medium-te	Medium-term revenue estimate		
	Audited	Audited	Preliminary	Adjusted				
			outcome	appropriation				
R thousand	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	
Tax revenue	-	-	-	-	-	-	-	
Non-tax revenue	-	-	-	2	2	2	2	
Interest	-	-	-	1	1	1	1	
Dividends	-	-	-	-	-	-	-	
Rent	-	-	-	-	-	-	-	
Sales of goods and services	-	-	-	-	-	-	-	
Fines, penalties and forfeits	-	-	-	-	-	-	-	
Miscellaneous	-	-	-	1	1	1	1	
Sales of capital assets (capital revenue)	-	-	-	-	-	-	-	
Financial transactions (recovery of loans And advances)	-	-	-	1	1	1	1	
Total departmental receipts	-	_	-	3	3	3	3	

Table 18.2: Departmental receipts

Programme 1: Administration

Administration provides policy leadership and advice, integrative functions across the Department and the broader science and technology system, and services to the Minister, focused on the implementation of the National Research and Development Strategy. The programme includes funding the National Advisory Council on Innovation (NACI), which plays a key role in advising the Minister and the Department on the allocation of funding. In addition to subprogrammes for supporting the offices of the Minister, the Deputy Minister and top management, two subprogrammes support the activities of the Department:

• Core Support Services is responsible for communications, human resource management, legal services and internal auditing.

• Policy Support Services funds the National Advisory Council on Innovation, and co-ordinates interactions between the Ministry, the Department and the Council on key policy issues.

Expenditure estimates

Table 18.3: Administration

Subprogramme	Expe	nditure outco	ome		Medium-term expenditure estimation		
-	Audited	Audited	Preliminary	Adjusted			
			outcome	appropriation			
R thousand	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Minister ¹	625	730	753	691	746	791	835
Deputy Minister ²	498	571	622	562	607	643	679
Management	3 146	3 788	4 875	3 979	3 808	4 159	4 216
Core Support Services	9 272	11 162	14 367	21 362	19 386	21 009	21 314
Policy Support Services	1 685	2 028	2 610	-	6 256	7 546	7 689
Total	15 226	18 279	23 227	26 594	30 803	34 148	34 733
Change to 2002 Budget Estimate				1 400	8 245	11 162	

¹ Payable as from 1 April 2002. Salary: R552 984. Car allowance: R138 246.

² Payable as from 1 April 2002. Salary: R449 036. Car allowance: R112 365.

Economic classification

Current	15 134	17 959	22 115	26 178	30 503	33 794	34 433
Personnel	9 484	10 690	13 951	16 460	21 651	23 055	24 350
Transfer payments	-	-	-	-	4 000	5 000	5 000
Other current	5 650	7 269	8 164	9 718	4 852	5 739	5 083
Capital	92	320	1 112	416	300	354	300
Transfer payments	_	-	-	-	-	-	-
Acquisition of capital assets	92	320	1 112	416	300	354	300
Total	15 226	18 279	23 227	26 594	30 803	34 148	34 733
Standard items of expenditure							
Personnel	9 484	10 690	13 951	16 460	21 651	23 055	24 350
Administrative	2 874	4 364	6 313	8 198	2 570	3 040	2 686
Inventories	527	829	518	282	170	201	177
Equipment	1 032	866	1 112	416	342	404	357
Land and buildings	-	-	-	-	-	-	-
Professional and special services	1 125	1 383	1 222	1 238	2 070	2 448	2 163
Transfer payments	-	-	-	-	4 000	5 000	5 000
Miscellaneous	184	147	111	-	-	-	-
Total	15 226	18 279	23 227	26 594	30 803	34 148	34 733
Transfer payments per subprogramme							
Policy Support Services							
National Advisory Council on Innovation	-	-	-	-	4 000	5 000	5 000
Total	-	-	-	-	4 000	5 000	5 000

Expenditure trends

The bulk of *Administration* expenditure (62 per cent) in 2002/03 is on personnel, as is the case for most departments. Personnel expenditure grew strongly over the previous three years, but stabilises somewhat over the medium term. The average annual growth of 13,9 per cent is still high

in real terms, but it allows for the establishment of the new Department. Overall, *Administration* expenditure is projected to grow at an average annual rate of 9,3 per cent over the medium term.

Programme 2: Technology for Development

Technology for Development aims to improve quality of life through access to and the spread of technology, and by creating capacity and skills for innovation and the use of indigenous knowledge. A key focus is on using science and technology to reduce poverty and improve quality of life, including using labour intensive technologies, and on increasing access to and the use of IT to improve government procurement procedures. It is a responsibility of this programme to develop and support South Africa's indigenous knowledge systems through policy and legislative interventions.

- The Technology Transfer subprogramme is responsible for developing the institutional capacity for technology transfer in relation to local and provincial innovation initiatives, and for innovation in government procurement processes.
- Poverty Reduction is responsible for developing robust innovation planning involving the public, semi-public and private sectors in the area of poverty reduction.

Expenditure estimates

Table 18.4: Technology for Development

Subprogramme	Exper	nditure outcome			Medium-tern	n expenditure	estimate
	Audited	Audited	Preliminary	Adjusted			
			outcome	appropriation			
R thousand	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Technology Transfer	1 810	49 309	76 537	32 119	86 692	100 363	112 532
Poverty Reduction	66 229	81 173	97 886	83 087	110 245	102 834	119 674
Total	68 039	130 482	174 423	115 206	196 937	203 197	232 206
Change to 2002 Budget Estimate				1 677	68 472	72 292	
Economic classification							
Current	67 928	130 311	173 873	114 582	196 813	203 052	232 091
Personnel	1 628	1 697	2 387	3 337	8 811	9 381	9 909
Transfer payments	64 419	127 040	169 634	106 587	186 030	191 336	220 107
Other current	1 881	1 574	1 852	4 658	1 972	2 335	2 075
Capital	111	171	550	624	124	145	115
Transfer payments	-	-	-	_	-	-	-
Acquisition of capital assets	111	171	550	624	124	145	115
Total	68 039	130 482	174 423	115 206	196 937	203 197	232 206
Standard items of expenditure							
Personnel	1 628	1 697	2 387	3 337	8 811	9 381	9 909
Administrative	764	853	1 180	1 514	1 046	1 237	1 093
Inventories	70	104	114	144	69	82	72
Equipment	169	171	550	624	139	165	145
Land and buildings	-	-	-	_	-	-	-
Professional and special services	894	555	557	3 000	842	996	880
Transfer payments	64 419	127 040	169 634	106 587	186 030	191 336	220 107
Miscellaneous	95	62	1	_	-	-	-
Total	68 039	130 482	174 423	115 206	196 937	203 197	232 206

	Exper	nditure outco	ome		Medium-term expenditure estimate		
-	Audited	Audited	Preliminary	Adjusted			
			outcome	appropriation			
R thousand	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Transfer payments per subprogramme							
Technology Transfer							
Technology Planning and Diffusion	-	47 588	74 142	23 500	44 000	47 000	54 000
National Public Assets	-	-	-	-	30 000	35 000	40 000
Indigenous Knowledge Systems	-	-	-	-	5 000	10 000	10 000
Poverty Reduction							
Human Sciences Research Council	64 419	61 452	65 492	65 087	70 030	69 336	73 607
Technology for Poverty Alleviation	-	-	-	-	15 000	30 000	42 500
Poverty Relief Programmes	-	18 000	30 000	18 000	22 000	-	-
Total	64 419	127 040	169 634	106 587	186 030	191 336	220 107

Expenditure trends

Technology for Development makes provision for the core government funding to the Human Sciences Research Council (HSRC) which comprises about 56 per cent of expenditure in 2002/03. Over the medium term, the programme is expanded significantly through increased allocations to interventions related to the National Research and Development Strategy and which target poverty fairly directly.

The allocation of *Technology for Development* is expected to double between 2002/03 and 2005/06, going from R115 million to R232 million. Additional funding comes from 2003 baseline adjustments to support the implementation of the National Research and Development Strategy, demonstrating the priority attached to supporting the development of science and technology with a more direct impact on poverty relief. Additional allocations go to the existing science councils for specific projects, as well as to a range of poverty relief programmes. The Tshumisano and Godisa technology transfer programmes see a doubling of transfers. Funding is introduced for a new, focused initiative to develop skills in key technology domains in co-operation with the Department of Labour.

Service delivery objectives and indicators

Recent outputs

The existing departmental programmes to acquire and ensure access to and use of technology, Godisa and Tshumisano, have gained tremendous recognition as instruments for transferring technology to small, medium and micro-enterprises (SMMEs) and are therefore being expanded. The Godisa programme now has eight centres focused mainly on incubation (supporting small entities that are put in place for developing emerging technologies), with one technology demonstration centre and one innovation support centre. Tshumisano, which focuses on capacity building at Technikons and technology services to SMMEs, has seven technology stations.

A national task team developed the draft legislative framework and draft policy for dealing with indigenous knowledge systems, having consulted widely with stakeholders. Indigenous knowledge is an area of considerable complexity, with changing international practices and approaches, hence the need for an enabling environment locally and more effective protection of indigenous knowledge holders. A draft Bill is undergoing an internal assessment before being submitted to the Minister. It will be published for public comment and should be tabled in Parliament during 2003.

Medium-term output targets

Measurable objective: To establish and operate programmes, instruments and partnerships for the transfer of knowledge and technologies as measured by internationally accepted technology diffusion assessment methods.								
Subprogramme	Output	Measure/Indicator	Target					
Technology Transfer	Institutional mechanisms for promoting the uptake and spread of new and existing technologies	Regions and technology areas covered by Godisa and Tshumisano programmes	5 new incubators established by the end of 2003; 2 new technology stations scoped and implemented at technikons in 2003					
		Incubator performance relative to business targets	Incubators meet business targets					
Poverty Reduction	Community-based science and technology projects to reduce poverty and create jobs	Number of areas of technology where small business creation projects are being supported Extent of interventions promoting technologies for medical and beatth products	3 additional technology- based small business creation projects Current intervention evaluated in early 2004; scope larger scale					
		manufacturing	interventions					

Technology for Development

Programme 3: International Co-operation and Resources

International Co-operation and Resources is responsible through its two subprogrammes for the development of bilateral and multilateral co-operation in science and technology to strengthen the National System of Innovation, and for a coherent strategic programme to access overseas development assistance for science and technology in South Africa and on the African continent.

Expenditure estimates

Table 18.5: International Co-operation and Resources

Subprogramme	Expe	nditure outco	ome		Medium-teri	Medium-term expenditure estimate		
	Audited	Audited	Preliminary	Adjusted				
			outcome	appropriation				
R thousand	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	
International Co-operation	10 056	12 180	15 235	45 571	39 498	40 788	69 595	
International Resources	-	-	-	-	3 216	3 498	3 568	
Total	10 056	12 180	15 235	45 571	42 714	44 286	73 163	
Change to 2002 Budget Estimate				(3 409)	(13 771)	(13 272)		
Economic classification	40.05/	11.000	110/0	44.500	40.504	11.10/	70.000	
Current	10 056	11 909	14 363	44 582	42 584	44 136	73 033	
Personnel	2 579	2 688	3 781	5 207	8 886	9 461	9 993	
Transfer payments	5 321	7 351	8 178	34 916	31 713	32 325	60 960	
Other current	2 156	1 870	2 404	4 459	1 985	2 350	2 080	
Capital	-	271	872	989	130	150	130	
Transfer payments	-	-	-	-	-	-	-	
Acquisition of capital assets	-	271	872	989	130	150	130	
Total	10 056	12 180	15 235	45 571	42 714	44 286	73 163	

2003 Estimates of National Expenditure

	Exper	nditure outco	ome		Medium-tern	Medium-term expenditure est		
-	Audited	Audited	Preliminary	Adjusted				
			outcome	appropriation				
R thousand	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	
Standard items of expenditure								
Personnel	2 579	2 688	3 781	5 207	8 886	9 461	9 993	
Administrative	1 208	1 351	1 869	2 257	1 055	1 247	1 102	
Inventories	112	166	181	229	70	82	73	
Equipment	268	271	872	989	140	166	147	
Land and buildings	-	-	-	_	-	-	-	
Professional and special services	568	353	354	1 973	850	1 005	888	
Transfer payments	5 321	7 351	8 178	34 916	31 713	32 325	60 960	
Miscellaneous	-	-	-	_	-	-	-	
Total	10 056	12 180	15 235	45 571	42 714	44 286	73 163	
Transfer payments per subprogramme								
International Co-operation								
Global Science	-	-	-	25 935	20 000	18 000	46 000	
Africa Institute of SA	5 321	7 351	8 178	8 981	11 713	14 325	14 960	
Total	5 321	7 351	8 178	34 916	31 713	32 325	60 960	

Expenditure trends

In addition to funding the Africa Institute of South Africa, *International Co-operation and Resources* provides for transfer payments to various institutions in support of international science programmes. Over the MTEF, these transfers, under the broad category Global Science, expand significantly. A flexible and responsive approach to conducting and supporting international science programmes involving South African scientists is envisaged, also to supporting NEPAD and South African participation in global science programmes. Capacity to leverage overseas development assistance, an important component of the funding of Global Science, also receives increased priority. The present framework for funding will be revised over the next two years to shift to an approach which supports programmes that are strategically more closely linked to national needs. The new approach would require changes in capacity estimated to take approximately two years. This explains a projected increase in 2005/06, as the new approach and required capacities come on stream.

Service delivery objectives and indicators

Recent outputs

The Department successfully hosted the European Union-Africa, Caribbean, and Pacific (EU-ACP) conference on the role of science and technology in developing countries. In addition, programmes to support the implementation of NEPAD have been initiated. The Department contributed significantly to finalising the science and technology position for the World Summit on Sustainable Development. The Department participated in the Committee for Science and Technology Policy of the Organisation for Economic Co-operation and Development (OECD), in relation to the development of the National Research and Development Strategy, and statistical work on the measurement of science, technology and innovation systems, and in the area of biodiversity structures.

Bilateral and multilateral science and technology relations with the EU, Asian and SADC countries were strengthened. A bilateral programme to contract international skills and expertise in strategically important areas where local skills are scarce, such as IT and biotechnology, was established. A number of consortiums, established through bilateral agreements, continued to

support big science programmes such as the South African Large Telescope (SALT), and the High Energy Stereoscopic System (HESS) project in Namibia.

Medium-term output targets

International Co-operation and Resources

Measurable objective: To increase flows of scientific knowledge and resources to South Africa through participation in joint programmes.							
Subprogramme	Output	Measure/Indicator	Target				
International Co-operation	Bilateral and multilateral co- operation on science and technology	Extent of flow of knowledge, people and skills	Business plan objectives met				
International Resources	Overseas development assistance (ODA) for science and technology in South Africa and Africa	Level of ODA for science and technology	ODA should match 50% of increase in Science Vote				

Programme 4: Government Science and Technology System

Government Science and Technology System provides strategic direction, funding and support for the development and growth of Government's science and technology institutions.

- Funding of Public Research Institutions develops and implements frameworks for co-ordinating the allocation of grant funding for science, engineering and technology activities, and for public research institutions specifically, as well as facilitates the development of sector-focused medium term research and development plans with line departments and science, engineering and technology institutions.
- Internal Governance is responsible for compliance by funded organisations with good corporate governance prescripts and practices, including those in the Public Finance Management Act (1 of 1999), the Budget process, and Government's Medium Term Strategic Framework, and for keeping these requirements aligned with the strategic focus of the National System of Innovation.

Expenditure estimates

Table 18.6: Government Science and Technology System

	3	5 5					
Subprogramme	Expenditure outcome				Medium-term expenditure estimat		
	Audited	Audited	Preliminary	Adjusted			
			outcome	appropriation			
R thousand	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Funding of Public Research Institutions	3 143	3 210	3 870	6 879	8 083	9 011	9 268
Internal Governance	2 000	2 034	3 793	7 549	6 865	7 469	7 494
Total	5 143	5 244	7 663	14 428	14 948	16 480	16 762
Change to 2002 Budget Estimate				2 696	1 672	2 952	

	Exper	nditure outco	ome		Medium-term	n expenditure	estimate
	Audited	Audited	Preliminary	Adjusted			
			outcome	appropriation			
R thousand	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Economic classification							
Current	5 143	5 066	6 716	13 348	14 798	16 306	16 615
Personnel	2 801	2 920	4 106	5 498	10 386	11 058	11 679
Transfer payments	-	-	-	2 026	2 090	2 500	2 500
Other current	2 342	2 146	2 610	5 824	2 322	2 748	2 436
Capital	-	178	947	1 080	150	174	147
Transfer payments	-	-	-	-	-	-	_
Acquisition of capital assets	_	178	947	1 080	150	174	147
Total	5 143	5 244	7 663	14 428	14 948	16 480	16 762
Standard items of expenditure							
Personnel	2 801	2 920	4 106	5 498	10 386	11 058	11 679
Administrative	1 312	1 467	2 029	2 618	1 233	1 458	1 289
Inventories	121	180	196	250	81	96	85
Equipment	292	294	947	1 080	165	194	172
Land and buildings	-	-	-	-	-	-	-
Professional and special services	617	383	385	2 944	993	1 174	1 037
Transfer payments	-	-	-	2 026	2 090	2 500	2 500
Miscellaneous	_	-	-	12	-	-	-
Total	5 143	5 244	7 663	14 428	14 948	16 480	16 762
Transfer payments per subprogramme							
Funding of Public Research Institutions							
Academy of Science of South Africa	-	-	-	2 026	2 090	2 500	2 500
Total	-	-	-	2 026	2 090	2 500	2 500

Expenditure trends

In recent years, but particularly in 2002/03, capacity to oversee and monitor Government's science and technology institutions has been strengthened, explaining the strong budget growth in the programme. This programme is dominated by personnel expenditure, but also includes the transfer to the Academy of Science of South Africa.

Service delivery objectives and indicators

Recent outputs

The Science Vote is the government allocation to public entities referred to as the science councils (see Table 18.16 for the list of science councils) and to the Innovation Fund. While the councils report to different Ministries, allocations are considered in an integrated way. The allocation of the Science Vote process begins with the National Treasury's Budget guidelines. Science councils then interact with their line Ministers on sector-specific and national development priorities, and make three-year budget submissions. From these, the Department of Science and Technology coordinates a consolidated Science Vote submission to Treasury. The resulting government allocation for the Science Vote is then distributed between some of the science councils, in line with advice from the National Council on Innovation and the Department of Science and

Technology, and included in the MTEF allocations of the departments. The current distribution of the Science Vote is reflected in Table 18.16.

With the greater focus on science and technology institutions as a result of the establishment of a separate department for science and technology, changes are being introduced, and further changes envisaged, to the process for determining government financial support to these institutions. Greater co-ordination is envisaged between the Department of Science and Technology and other responsible line departments on research and development strategies. Consideration will also be given to expanding the number of government research institutions to be incorporated into the Science Vote, in order to ensure increased strategic co-ordination and oversight.

A new approach to evaluating the system and the institutions will be introduced. These would enable the National Council on Innovation to provide better advice to the Minister of Science and Technology on the appropriate distribution of the Science Vote.

In 2002, the Academy of Science of South Africa, a statutory body whose roles will include publishing scientific reports, promoting excellence and investigating matters of public interest, was introduced into the science system.

Medium-term output targets

Government Science and Technology System

Measurable objective: To build, fund and monitor a cohesive national research system that is run efficiently and effectively as determined by key performance indicators, in order to contribute to technology advancement and service delivery.

			*
Subprogramme	Output	Measure/Indicator	Target
Funding of Public Research Institutions	Coherent and effective funding strategy for the Science Vote/National System of Innovation	Alignment of departmental and science council R&D plans with the National R&D Strategy	R&D plans in key line departments (Trade and Industry, Health, Agriculture, and Minerals and Energy) in place
		Extend institutional investment portfolio in line with R&D Strategy	Full scope of government science and technology activity captured in Science and Technology Vote by 2006
		Science Council performance against institutional and key performance targets	Ongoing evaluation of institutions relative to targets
Internal Governance	Effective and efficient utilisation of public resources	Prescribed reports and submissions on time	Compliance with PFMA, MTEF and MTSF requirements for reporting and submissions

Programme 5: Science and Technology for Competitiveness

Science and Technology for Competitiveness develops the technology missions, human capital formation and national science activities in support of the national system of innovation. Activities are divided into two subprogrammes.

- Technology Missions seeks to establish and drive the key technology missions in the National R&D Strategy in collaboration with the government research system, the private sector and the higher education sector; develops frameworks and instruments for supporting the broader innovation activities of Government and enhances the engagement and investment in R&D by the private sector, in particular the venture capital industry; and increases and leverages intellectual capital developed through publicly financed research.
- Science Missions and Human Capital supports the development of human capital and knowledge through the promotion of education and research in scientific disciplines. The current science missions focus on astronomy and earth observation, Bioscience and bio-

resources, palaeontology and palaeo-anthropology and on Antarctic, islands and oceans research.

Expenditure estimates Table 18.7: Science and Technology for Competitiveness

Subprogramme	Exper	nditure outco	ome		Medium-terr	n expenditure	e estimate
1 3	Audited	Audited	Preliminary	Adjusted		I	
			outcome	appropriation			
R thousand	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Technology Missions	4 597	114 558	127 496	193 784	305 916	378 216	488 117
Science Missions and Human Capital	362 301	286 381	335 337	384 655	439 207	477 083	519 002
Total	366 898	400 939	462 833	578 439	745 123	855 299	1 007 119
Change to 2002 Budget Estimate				22 235	88 296	185 998	
Economic classification							
Current	366 898	400 939	462 487	578 046	744 963	855 107	1 006 944
Personnel	874	911	1 282	1 792	12 428	13 233	13 976
Transfer payments	364 018	398 463	459 533	571 349	729 739	838 569	990 052
Other current	2 006	1 565	1 672	4 905	2 796	3 305	2 916
Capital		_	346	393	160	192	175
Transfer payments	_	-	_	_		_	_
Acquisition of capital assets	-	-	346	393	160	192	175
Total	366 898	400 939	462 833	578 439	745 123	855 299	1 007 119
Chandend items of our anditure							
	074	011	1 000	1 700	10,400	10.000	10.07/
Personnel	874	911	1 282	1 /92	12 428	13 233	13 9/6
Administrative	478	537	/41	950	14/5	1 /45	1 542
Inventories	44	00 100	/ 1	89	97	115	102
Equipment	107	108	340	393	190	232	205
Land and buildings	- 1 277	-	-	-	- 1 100	- 1 405	1 242
Transfor naumonts	264 010	200 462	450 522	5 000	1 100	020 540	000.052
Miscollanoous	304 010	370 403	407 000	571 547	129 139	030 309	990 UJZ
Total	366 898	400 939	462 833	578 439	745 123	855 299	1 007 119
Transfer payments per subprogramme							
				20,000	117 500	107 500	170 500
	-	-	-	28 000	F 000	137 500	172 500
Netural Decourage	-	-	-	-	5 000	10 000	20 000
Natural Resources	-	-	-	-	2 000	11 000	30 000
Advanced Manufacturing	- 2 157	-	125 044	-	2 000	22 000	30 000
National Lasor Contro	5 157	113 320	123 040	0.000	11 540	10 000	10 000
Indicators	-	-	-	9 000	2 000	2 500	5 000
Fauinment Placement				14 000	2 000	2 300	20 000
Science Missions and Human Capital				14 000			20 000
National Research Foundation	251 170	272 844	318 479	341 925	368 133	300 423	425 628
Public Science and Youth	8 393	4 702	6 644	14 700	8 000	11 000	20 000
Foundation for Education Science and	4 233	7 597	8 564	12 771	9 1 3 0	9 853	10 450
Technology	1200	, , , , ,	0 004	12 / / 1	, 100	,	10 100
Grant-in-aid	97 065	-	-	14 227	5 486	5 899	6 327
Centres of Excellence	-	-	-	-	15 000	15 000	20 000
Science Themes	-	-	-	-	23 500	25 081	25 550
lotal	364 018	398 463	459 533	571 349	729 739	838 569	990 052

Expenditure trends

Increased allocation in the 2003 Budget for the National Research and Development Strategy makes possible a rapid expansion in the allocation for the *Science and Technology for Competitiveness* programme. After growing by 16,4 per cent per annum over the three years to 2002/03, the allocation to *Science and Technology for Competitiveness* is projected to nearly double from R578 million in 2002/03 to R1 billion in 2005/06.

Additional funding strengthens activities in terms of Government's Biotechnology Strategy and allows the launching of technology missions for Information and Communication Technology, for Natural Resources and for Advanced Manufacturing. It also allows for the funding of a range of centres of excellence in research and teaching, mainly through the National Research Foundation. The Innovation Fund is projected to grow by about 10 per cent per year over the medium term.

Service delivery objectives and indicators

Recent outputs

The Department of Science and Technology is committed to highlighting and stimulating the relevance and importance of science and technology. A reference group to address the inadequate involvement of women in science and technology has been initiated. The group will play a key role in policy and strategy relating to women's participation in science and technology from their early subject choices in schools to the career obstacles they face in the scientific community.

Over the past three years the Innovation Fund has supported projects in various focal areas: crime prevention, ICT, biotechnology, fauna and flora, and new materials and advanced manufacturing. The Fund has been significant in providing researchers with funds to ensure that their work develops from the laboratory to commercial products. In addition to financial support, the process has facilitated the formation of partnerships between industry and academia with a view to cross-pollination of skills. The recent review of the Fund indicated that new firms have been created (creating new high technology jobs), new products have been developed and intellectual property has been secured in a number of the projects.

The introduction and funding of specific technology missions has been exemplified by the National Biotechnology Strategy implementation process, a wide-ranging, multi-stakeholder planning process. It resulted in the establishment of three Biotechnology Regional Innovation Centres and related initiatives. The Advanced Manufacturing Technology Strategy has also undergone major development and is ready for resource allocations. Information and communication technology (ICT) research and development will be focused on Open Source Software and departmental support for the Advanced Institute for ICT, with the Department of Communications.

Specific projects which illustrate the early successes of the innovation strategy and the significant returns on investment in science and technology are:

- A focus, in co-operation with institutions such as the Council for Scientific and Industrial Research (CSIR), the Agricultural Research Council and Wits Technikon, on technologies to use renewable natural resources as a means to production, income generation and job creation, has resulted in technologies in paper making, bee keeping, leather products, mohair and hemp production, and other job-creating activities being transferred to poor communities.
- The South African HIV/Aids Vaccine Initiative (SAAVI), led by the Medical Research Council, is aimed at developing a vaccine to combat HIV/Aids. Major advances in the project include the development of a vaccine candidate for clinical trials in 2003. The Department's initial funding to the project has enabled the leveraging of additional funding from Government, the private sector and international bodies, with total resources available now

reaching R100 million per year. The programme has 127 principal researchers, an indication of the significant human resource impact of the project.

- Funding was allocated to the Council for Geosciences (CGS) to manage the National Borehole Repository for South Africa. The borehole repository houses a large collection of drilled cores that contain useful exploration information for the economic development of mineral, oil and gas companies. This critical natural resources collection is currently used by a number of South African and overseas research bodies. The replacement cost if this resource were lost would be over R5 billion. The repository will also provide storage for new borehole core from mining companies, in accordance with the new Minerals and Petroleum Resources Development Act (28 of 2002).
- Support for developing Southern Africa as a region of excellence in space science and astronomy has yielded significant benefits. The construction of the largest optical/infrared telescope in the southern hemisphere (the South African Large Telescope at Sutherland in the Northern Cape) and the largest gamma ray telescope in the world (the HESS in Namibia) are nearly complete, and strengthen the region's contribution to skills development and knowledge generation in these fields. Work has begun to attract the Square Kilometre Array Radio Telescope to the country.

Medium-term output targets

Science and Technology for Competitiveness

Measurable objectives:

- To establish and leverage enhanced innovation through the technology missions identified in the national research and development strategy as measured by innovation surveys;
- To establish and grow national scientific programmes to fund human capital programmes to ensure sufficient and growing science, engineering and technology human resources for economic growth as measured by widely accepted indicators.

Subprogramme	Output	Measure/Indicator	Target
Technology Missions	Establishment of technology missions	Number and range of missions and innovation activities	3 Biotechnology Regional Innovation Centres established and operational in 2003
			Information and communication technology R&D strategy planning finalised
			Resource-based industries innovation plan finalised in 2003 and priorities financed in 2004
			Open Source Software Innovation programme scoped and launched in 2003
			Initiatives in the national Manufacturing Technology strategy prioritised and funded in 2003
	Increased innovation capacity in the National System of Innovation	New Innovation fund instruments in place	Intellectual property rights, rolling call, and seed financing in place and fund innovation in 2003

Subprogramme	Output	Measure/Indicator	Target
Science Missions and Human Capital	Science, engineering and technology (SET) human resources	Increased quality and numbers of matric exemptions in maths and science	Out of school programmes for young people in maths and science in place each year
		Improved representativeness of the SET workforce	Implement programmes aimed at increasing the number and quality of science and engineering graduates in higher education sector each year
		Centres of excellence established	First phase (competitive call) finalised, and centres established/funded by September 2006 Antarctic research plan adopted and funding secured for 2004
			Biosciences/ bio-resources institutional plan finalised in 2003

Entities and instruments represented in the Science Vote

(See Table 18.16 for allocations)

Council for Scientific and Industrial Research

The Council for Scientific and Industrial Research (CSIR) is governed by the Scientific Research Council Act (46 of 1988), as amended by Act 71 of 1990. It reports to the Minister of Trade and Industry. The CSIR's mandate is to foster industrial and scientific development – either by itself or in partnership with public and private sector institutions – to contribute to the improvement of the quality of life of the people of South Africa. This must, in terms of the legislation, be done in the national interest through directed and multidisciplinary research and technological innovation. Building on past successes, the CSIR will continue to use its research skills innovatively in the transformation of the country. Co-operation between the science councils is important for finding holistic solutions.

Medical Research Council

The Medical Research Council (MRC), reporting to the Minister of Health, was established by the South African Medical Research Council Act (19 of 1969) (replaced by Act 58 of 1991) as an independent statutory body to co-ordinate health and medical research activities throughout South Africa. The Council's mission is to improve the nation's health status and quality of life through health research aimed at promoting equity and development. Recently the MRC placed an even greater emphasis on values and ethics in line with the broader South African value system and current needs in the health research environment. The MRC's HIV/Aids vaccine project, in particular, will test the organisation to the limit in the application of these values and ethics.

Agricultural Research Council

The Agricultural Research Council (ARC), reporting to the Minister of Agriculture, was officially founded on 1 April 1992, but some of its major research components date back a hundred years. Since 1992, the ARC has accumulated significant knowledge and a considerable number of biotechnologies which have enabled it to provide key support to food and other agricultural

production for consumption at home and for export. The ARC is continuing to provide South Africa with world-class, research-based knowledge and systems to support decisions on the use and maintenance of natural resources.

The Council for Geoscience

The Council for Geoscience (CGS) operates in terms of the Geoscience Act (100 of 1993). It reports to the Minister of Minerals and Energy. The CGS is a world-class public organisation, which provides geoscience information and services for the benefit of the people of South Africa. The Council facilitates the exploitation of South Africa's minerals, and runs a number of services to aid this function, for example: a CD-ROM database and map for South African mineral deposits and occurrences, and a programme to identify targets for mineral development in the poorest areas of South Africa with a view to combating poverty. The CGS is internationally engaged and has succeeded in winning new tenders, which are funded by the World Bank, the Islamic Development Bank, the African Development Bank and the Nordic Development Fund.

South African Bureau of Standards

The South African Bureau of Standards (SABS) operates in terms of the Standards Act (29 of 1993) and reports to the Minister of Trade and Industry. The SABS seeks to improve the competitiveness of the South African economy and to make a contribution to the quality of life of all South Africans. Its core business is the production, maintenance and dissemination of standards. SABS has registered increases in both the number of standards published and the number of published pages over the past year. It is developing a standard for the detection of cholera bacteria in water and standards for railway safety. Its global trade continues to grow three to four times faster than the country's international trade.

Council for Minerals and Technology

The Council for Minerals and Technology (Mintek) reports to the Minister of Minerals and Energy and operates in terms of the Mineral Technology Act (30 of 1989). Mintek serves South Africa by promoting technology, industrial growth and human development. Mintek is involved in developing the sub-continental (Southern African Development Community) and continental (African) minerals industry, particularly the minerals research and development capacity. It was involved in developing the economic growth strategy for the Millennium African Partnership, which has now evolved into the New Partnership for Africa's Development (NEPAD). Mintek also runs black economic empowerment projects through outsourcing programmes. Over 300 matric students were on the Mintek-initiated Edumap programme across the country, including 70 at the Edumap Wits College. Mintek also runs a very successful in-house programme for about 35 Technikon students each year, who get their final training at Mintek.

Public entities reporting to the Minister

Human Sciences Research Council

The Human Sciences Research Council (HSRC) promotes research and knowledge in the field of the human sciences in terms of the Human Sciences Research Act (23 of 1968). The HSRC has recently made a fundamental shift in its strategic orientation and programmes, which has resulted in strong growth and further projected growth in contract and consortium earnings. The Council is sensitive to the need to reach disadvantaged communities which cannot afford market rates for services. Focal areas include human resource development, the social aspects of HIV/Aids and health, an integrated approach to development, and the labour market and job creation.

National Research Foundation

The National Research Foundation (NRF) promotes research (both basic and applied) knowledge in science, technology and indigenous technology, in terms of the National Research Foundation Act (23 of 1998). It operates national facilities that undertake public research, train students and develop key competencies in the national interest. The Hermanus Magnetic Observatory was transferred to the NRF from the Centre for Scientific and Industrial Research during 2001 and will finalise its repositioning in 2002.

Africa Institute of South Africa

The Africa Institute of South Africa is a statutory council that carries out in-depth analysis of Africa's current affairs, gathers intelligence on issues related to the future of the continent, the African Union and NEPAD, and change in general. The strong increase in funding is based on the revised mandate to develop research capabilities.

National Laser Centre

The National Laser Centre manages laser equipment and expertise used for research and development. The current focus is mainly on developing laser-based technology to improve the competitiveness of South African industry, and on the transfer of knowledge and technology to industry. The Centre provides universities and technikons with access to laser equipment and expertise to stimulate the development of a laser-based research culture.

Foundation for Education, Science and Technology

The mandate of the Foundation for Education, Science and Technology (FEST), which was incorporated into the National Research Foundation in December 2002, is to promote the understanding of science in broader society. Programmes focus primarily on young people and decision makers. FEST is developing a national infrastructure of science centres. From 2003, the Foundation will feature prominently in the promotion of science among the youth and the targeted increase in the enrolment of historically disadvantaged young people at higher education institutions.

Godisa Trust

Godisa operates the innovation and technology demonstration activities and incubator programme, initiated with European Union (EU) financing and now co-financed with funding streams from the Department of Trade and Industry, the Department of Science and Technology and the EU. The Trust operates these initiatives under a management agreement with the Department of Trade and Industry and the Department of Science and Technology.

Tshumisano Trust

Tshumisano operates the technology stations programme with funding from the Department of Science and Technology and GTZ (Geselschaft fur Techniese Zussameenabeit) (technical assistance and capacity building). Technology stations are developed at technikons and service SMMEs, and build market responsiveness in the programmes of the technikons.

Academy of Science of South Africa

The Academy of Science of South Africa Act (67 of 2001) provides for the establishment of the Academy (ASSAF). ASSAF's roles include publishing scientific reports, promoting excellence in

scientific and technical practices, investigating matters of public interest concerning science, and managing South African research journals.

Annexures

Vote 18: Science and Technology

- Table 18.8: Summary of expenditure trends and estimates per progamme
- Table 18.9: Summary of expenditure trends and estimates per economic classification
- Table 18.10: Summary of expenditure trends and estimates per standard item
- Table 18.11 Summary of personnel numbers and costs
- Table 18.12: Summary of expenditure on training
- Table 18.13: Summary of information and communications technology expenditure

Table 18.14: Summary of donor support

- Table 18.15 Summary of expenditure on infrastructure
- Table 18.16:Summary of Science Councils

Table 18.8: Summary of expenditure trends	s and estimates	s per progra	amme									
	Expen	diture outcom	e						Medium-terr	n expenditure	e estimate	
I	Audited	Audited	Preliminary	Main	Additional	Adjusted	Revised	Current	Capital	Total		
			Outcome	appropriation	appropriation a	appropriation	estimate					
R thousand	1999/00	2000/01	2001/02		2002/0	~			2003/04		2004/05	2005/06
1 Administration	15 226	18 279	23 227	25 194	1 400	26 594	26 594	30 503	300	30 803	34 148	34 733
2 Technology for Development	68 039	130 482	174 423	113 529	1 677	115 206	115 206	196 813	124	196 937	203 197	232 206
3 International Co-operation and Resources	10 056	12 180	15 235	48 980	(3 409)	45 571	45 571	42 584	130	42 714	44 286	73 163
4 Government Science and Technology System	5 143	5 244	7 663	11 732	2 696	14 428	14 428	14 798	150	14 948	16 480	16 762
5 Science and Technology for Competitiveness	366 898	400 939	462 833	556 204	22 235	578 439	578 439	744 963	160	745 123	855 299	1 007 119
Total	465 362	567 124	683 381	755 639	24 599	780 238	780 238	1 029 661	864	1 030 525	1 153 410	1 363 983
Change to 2002 Budget Estimate						24 599	24 599			152 914	259 132	

9 18.8: Summary of expenditure trends and estimates per	program
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Table 18.9: Summary of expenditure trends a	and estimate: Expe	s per econo	mic classi me	fication					Medium-ter	m expenditur	e estimate	
	Audited	Audited	Preliminary	Main	Additional	Adjusted	Revised	Current	Capital	Total		
R thousand	1999/00	2000/01	outcome 2001/02	appropriation	appropriation 8 2002/03	appropriation	estimate		2003/04		2004/05	2005/06
Current	465 159	566 184	679 554	754 142	22 594	776 736	776 736	1 029 661	ı	1 029 661	1 152 395	1 363 116
Personnel	17 366	18 906	25 507	30 836	1 458	32 294	32 294	62 162	ı	62 162	66 188	69 907
Salaries and wages	13 893	15 125	20 407	27 520	1 458	28 978	28 978	49 729	ı	49 729	52 950	55 924
Other	3 473	3 781	5 100	3 316	I	3 316	3 316	12 433	I	12 433	13 238	13 983
Transfer payments	433 758	532 854	637 345	699 740	15 138	714 878	714 878	953 572	ı	953 572	1 069 730	1 278 619
Subsidies to business enterprises	I	I	I	I	1	T	I	I	I	I	I	I
Other levels of government												
social security funds	I	ı	I	I	I	I	I	I	ı	I	I	I
universities and technikons	I	I	I	I	I	I	I	I	I	I	I	I
extra-budgetary institutions	325 143	349 244	400 713	424 464	14 300	438 764	438 764	459 006	I	459 006	492 937	524 645
provincial government	I	I	I	I	I	I	I	I	I	I	I	I
local government	I	I	I	I	I	I	I	I	I	I	ı	I
Households and non-profit institutions	108 615	183 610	236 632	275 276	838	276 114	276 114	494 566	I	494 566	576 793	753 974
Foreign countries and international credit institutions	I	I	I	I	I	I	I	I	I	I	I	I
Other	14 035	14 424	16 702	23 566	5 998	29 564	29 564	13 927	1	13 927	16 477	14 590
Capital	203	940	3 827	1 497	2 005	3 502	3 502	1	864	864	1 015	867
Transfer payments	I	I	I	I	I	I	I	I	I	I	I	I
Other levels of government	I	I	I	I	I	I	I	I	ı	I	ı	I
Other capital transfers	I	I	I	I	I	I	I	I	I	I	I	I
Movable capital	203	940	3 827	1 497	2 005	3 502	3 502	I	864	864	1 015	867
Motor vehicles (transport)	I	ı	I	I	I	1	I	ı	T	ı	T	I
Equipment - Computers	203	940	2 597	1 064	1 298	2 362	2 362	I	518	518	608	520
Equipment - Other office equipment	I	I	814	433	707	1 140	1 140	I	346	346	407	347
Other	I	I	416	I	I	I	I	I	I	I	I	I
Fixed capital	1	1	ı	ı	1	1	1	1	1	ı	T] '
Land	I	I	I	I	I	I	I	ı	T	ı	Т	I
Buildings	I	I	I	I	I	I	I	I	I	I	I	I
Infrastructure	T	I	I	I	I	I	I	I	I	I	I	I
Other	I	I	I	I	ı	I	I	I	I	I	ı	I
Total	465 362	567 124	683 381	755 639	24 599	780 238	780 238	1 029 661	864	1 030 525	1 153 410	1 363 983

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Table 18.10: Summary of expenditure	e trends and	estimates	per standa	ard item								
	Expen	iditure outco	me						Medium-term	n expenditure	estimate	
I	Audited	Audited	Preliminary	Main	Additional	Adjusted	Revised	Current	Capital	Total		
			outcome	Appropriation	appropriation a	appropriation	estimate					
R thousand	1999/00	2000/01	2001/02		2002/03				2003/04		2004/05	2005/06
Personnel	17 366	18 906	25 507	30 836	1 458	32 294	32 294	62 162	I	62 162	66 188	206 69
Administrative	6 636	8 572	12 132	13 916	1 621	15 537	15 537	7 379	I	7 379	8 727	7 712
Inventories	874	1 345	1 080	732	262	994	994	487	I	487	576	509
Equipment	1 868	1 710	3 827	1 497	2 005	3 502	3 502	118	864	982	1 161	1 026
Land and buildings	I	I	I	I	Ι	I	I	I	I	I	I	I
Professional and special services	4 581	3 528	3 378	8 918	4 103	13 021	13 021	5 943	I	5 943	7 028	6 210
Transfer payments	433 758	532 854	637 345	699 740	15 138	714 878	714 878	953 572	I	953 572	1 069 730	1 278 619
Miscellaneous	279	209	112	I	12	12	12	I	I	1	I	I
Total	465 362	567 124	683 381	755 639	24 599	780 238	780 238	1 029 661	864	1 030 525	1 153 410	1 363 983

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Table 18.11: Summary of personnel numbers and costs¹

Personnel numbers	1999/00	2000/01	2001/02	2002/03	2003/04
1 Administration	98	74	106	147	118
2 Technology for Development	3	4	9	14	39
3 International Co-operation and Resources	7	6	11	28	42
4 Government Science and Technology System	33	25	36	52	55
5 Science and Technology for Competitiveness	33	4	5	13	53
Total	144	116	164	254	307
Total personnel cost (R thousand)	17 366	18 906	25 507	32 294	62 162
Unit cost (R thousand)	120.6	163.0	155.5	127.1	202.5
1 Eult time equivalent					

Full-time equivalent

	EXper	naiture outco	me	Adjusted	Nealum-term	i expenaiture e	stimate
	Audited	Audited	Preliminary	appropriation			
			outcome				
R thousand	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
1 Administration	19	22	67	102	115	123	134
2 Technology for Development	3	3	11	15	38	41	44
3 International Co-operation and Resources	9	7	19	30	41	44	48
4 Government Science and Technology System	8	6	25	38	54	57	63
5 Science and Technology for Competitiveness	3	4	8	15	52	55	09
Total	39	45	130	200	300	320	349

training
of expenditure on
Table 18.12: Summary

	Expenditure	Adjusted	Medium-term	i expenditure est	timate
	outcome	appropriation			
R thousand	2001/02	2002/03	2003/04	2004/05	2005/06
1 Administration	748	634	784	738	738
Technology	658	634	684	738	738
IT services	06	I	100	I	I
2 Technology for Development	254	393	524	457	457
Technology	254	393	424	457	457
IT services	1	I	100	I	I
3 International Co-operation and Resources	402	623	772	705	705
Technology	402	623	672	705	705
IT services	1	I	100	I	I
4 Government Science and Technology System	438	682	836	772	772
Technology	438	682	736	772	772
IT services	I	Ι	100	I	I
5 Science and Technology for Competitiveness	161	248	367	280	280
Technology	161	248	267	280	280
IT services	1	I	100	I	I
Total	2 003	2 580	3 283	2 952	2 952

Table 18.13: Summary of information and communications technology expenditure

Table 18.14: Summary of donor support

nate	005/06		I
enditure estin	04/05 20		I
term expe-ו	20(0	(
Medium	2003/04	18 58	18 580
	2002/03	17 760	17 760
	2001/02	4 044	4 044
Outcome	2000/01		I
	1999/00	•	I
ash or	Kind		
0		Cash	
Donor		European Union	
 ODA programme/project name	R thousand	GODISA - Technical Support to SMMEs Programme	Total

Table 18.15: Summary of expenditure on infrastructure

Projects	Expen	iaiture outco	me	AdJusted	Mealum-term	i expenaiture	estimate
				appropriation			
R thousand	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Infrastructure programmes or large infrastructure projects	I	I	I	Ι	I	I	I
Small project groups	I	I	I	Ι	I	I	I
Infrastructure transfers	I	I	I	21 000	I	I	I
- Renovation of Didacta Building - FEST	I	I	I	4 300	I	I	I
- Borehole Coreshed repositories - Council for Geosciences	I	I	I	10 000	I	I	I
- Building of Science Centres	I	I	I	6 700	I	I	I
Sub-total	T	I	I	21 000	T	I	T
Fixed installations transferred to households	I	I	I	Ι	I	I	I
Maintenance on infrastructure	I	I	I	Ι	I	I	I
Total	I	I	-	21 000	I	I	I

		Exper	nditure outcom	e		Medium-terr	n expenditure e:	stimate
Science Council	Department	Audited	Audited	Preliminary	Adjusted			
				outcome	appropriation			
R thousand		1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
1 Council for Scientific and Industrial Research (CSIR)	Trade and Industry	315 649	301 112	302 877	297 751	323 014	346 326	368 151
2 SA Bureau of Standards (SABS)	Trade and Industry	77 724	79 052	81 369	85 000	91 407	660 /6	102 991
3 Council for Mineral Technology (MINTEK)	Minerals and Energy	81 773	78 007	76 872	76 410	82 439	87 632	93 019
4 Council for Geosciences (CGS)	Minerals and Energy	63 794	60 856	65 946	66 384	72 019	76 606	81 375
5 Agricultural Research Council (ARC)	Agriculture	281 237	268 378	262 746	266 552	289 013	308 742	327 838
6 Medical Research Council (MRC)	Health	79 566	108 661	127 221	145 498	156 695	163 388	173 304
7 Human Sciences Research Council (HSRC)	Science and Technology	64 419	61 452	65 492	65 087	70 030	69 336	73 607
8 National Research Foundation (NRF)	Science and Technology	251 170	272 844	318 479	341 925	368 133	399 423	425 628
9 Africa Institute of SA (AISA)	Science and Technology	5 321	7 351	8 178	8 981	11 713	14 325	14 960
10 Foundation for Education, Science and Technology (FEST)	Science and Technology	4 233	7 597	8 564	12 771	9 130	9 853	10 450
Total		1 224 886	1 245 310	1 317 744	1 366 359	1 473 593	1 572 730	1 671 323

Table 18.16: Summary of Science Councils