2010-2013

Corporate Strategy

science
& technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

VISION

To create a prosperous society that derives enduring and equitable benefits from science and technology.

MISSION

To develop, coordinate and manage a National System of Innovation that will bring about maximum human capital, sustainable economic growth and improved quality of life for all.

AIM

To realise the full potential of science and technology in social and economic development through the development of human resources, research and innovation.

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FOREWORD BY THE MINISTER OF SCIENCE AND TECHNOLOGY

The DST promotes South African science and innovation by funding R&D at public research institutes and universities.

R&D promotes the growth of knowledge-intensive activity in the South African economy. The intensity of R&D expenditure - measured as the percentage of GDP spent on R&D - is a good indication of the competitiveness of a country's economy. The most recent R&D survey (for 2007/08) reveals a gross investment in R&D of R18,6 billion, continuing a decade-long trend of growth and a 12% increase on the previous year.

There is a clear connection between R&D intensity and competitiveness. Our aim is to improve the competitiveness of our economy significantly. At the moment, South Africa is ranked 45 out of 134 countries on the World Economic Forum's Global Competitiveness Index (2009). So we have work to do and our corporate strategy is designed to improve our innovative capacity and our human-capital profile.

Over the 2010 MTEF expenditure is expected to increase to R4.6 billion. Even though this is a reversal of budget growth in the previous three years, we have secured an additional allocation of R50 million for the South African Research Chairs Initiative, our flagship investment in human capital. It allows our higher education institutions to attract and retain the best and brightest amid intense sustained international competition for scholars and scientists. The investment will build a larger base of scientific expertise than currently exists, thus enhancing South Africa's international reputation in research and innovation.

The DST is part of the Economic Sectors and Employment Cluster that has prioritised cross-cutting interventions to promote decent work. These include leveraging procurement to support industrialisation, and the strategic use of regulation to promote economic efficiencies and industrial financing. Importantly, the DST will play a key role in finalising a beneficiation strategy to promote the diversification of the South African economy. The DST will enter into closer partnerships with organised business over strategies to increase R&D expenditure, improve institutional mechanisms that support commercialisation, and improve exploitation of large-scale science-based initiatives to support local manufacturing.

Work on our strategic initiatives, such as SKA, will continue, as will our focus on climate change, clean energy, and biotechnology. In an important new departure, the DST will play a leading role in developing a green economy plan. This plan will include a regulatory framework to support green industries and reduce carbon emissions. Greater localisation of manufacturing of materials in solar, nuclear and wind technologies will also be promoted.

I take pleasure in presenting this corporate strategy to the South African public.

Naledi Pandor MP,
Minister of Science and Technology

1. Strategic overview and key policy developments: 2006/07-2012/2013

The Department of Science and Technology (DST) derives its mandate from the 1996 White Paper on Science and Technology. The basic premise is that science, technology and innovation (STI) play a critical role in economic growth and socio-economic development. The 2009-2014 Medium Term Strategic Framework (MTSF) identifies technology innovation as one of the critical policy areas required to speed up growth and transform the economy to create decent work and sustainable livelihoods.

The MTSF emphasises the need to build on the current range of strategies and programmes that are already supporting innovation in firms and research and development (R&D) in the private and public sectors, with emphasis on biotechnology and pharmaceuticals, space science and technology, energy security, and other opportunities presented by climate change. In this regard, the appropriate, continuous and effective implementation of the indicator-based 2002 National Research and Development Strategy (NRDS) and 2007 Ten-Year Innovation Plan (TYIP) will be crucial.

The NRDS emphasises an integrated approach, which includes human resource development, knowledge generation, investment in science and technology infrastructure, and improving the strategic management of the public science and technology system. The TYIP seeks to transform the South African economy into a knowledge-based one, in which the production and dissemination of knowledge will lead to economic benefits and enrich all fields of human endeavour. The success of the Technology Innovation Agency Act and the Intellectual Property Rights from Publicly Financed Research and Development Act (IPR Act) will be important to address the failure to commercialise and protect the results of scientific research. This will strengthen the innovation capacity of the country.

Innovation and economic growth depend on, among other things, the quality of education outcomes. Several interventions are currently being implemented to address persisting challenges of access, participation, and success rates at all levels of education, the aging and unrepresentative nature of the scientific workforce, and low publication and patenting rates. These interventions will be consolidated and integrated when the science, engineering and technology (SET) human capital development (HCD) strategy is finalised and implemented.

The growth and sustainability of the country's innovation capacity also depends on the availability of innovation-enabling skills (such as intellectual property rights management). These skills are necessary to support the entire innovation value chain. To this extent, the development of the innovation-enabling skills strategy will be a critical part of the SET HCD strategy.

Goals and key deliverables

The DST's five principal goals are to -

- develop the innovation capacity of the National System of Innovation (NSI) and thereby contribute to socio-economic development;
- enhance South Africa's knowledge-generation capacity in order to produce world-class research papers and turn some advanced findings into innovative products and processes;
- develop appropriate STI human capital to meet the needs of society;
- build world-class STI infrastructure to extend the frontiers of knowledge, train the next generation of researchers, and enable technology development and transfer, as well as knowledge interchange; and
- position South Africa as a strategic international RDI partner and destination through the exchange of knowledge, capacity and resources between South Africa and its regional and other international partners, thereby strengthening the NSI.

The DST has a number of key deliverables under each of these goals, including the -

- development of strong innovation chains in biotechnology, nanotechnology, the hydrogen economy, space science, information technology and advanced manufacturing;
- development of technologies to address poverty and the poor quality of life of so many of South Africa's people;
- development of an innovative and diverse flux of young people seeking and finding careers in science and engineering; and
- accomplishment of notable successes in turning trends in global science to national advantage, for example, in astronomy and space science.

Grand challenges

The success of the TYIP depends on the achievement and realisation of these goals and deliverables. The Plan sets out core projections, which are summarised as South Africa's grand challenges in science and technology (S&T). The grand challenges are the following:

- Farmer to Pharma: Over the next decade South Africa should develop its bioeconomy to become a world leader in biotechnology and pharmaceuticals, using the nation's indigenous resources and new developments in genomics.
- Space S&T: South Africa will become a key contributor and partner to global space S&T through the National Space Agency, a growing satellite industry and a range of innovations in space science, including earth observation,

communication, navigation and engineering.

- Energy Security: Safe, clean, affordable and reliable energy supplies are in global demand, and South Africa should meet its medium-term energy supply requirements while innovating for the long term in clean coal technologies, nuclear energy, renewable energy and the promise of the hydrogen economy.
- Global Change: South Africa should exploit its geographic position, which enables it to play a leading role in climate change science.
- Human and Social Dynamics: As a leading voice among developing countries, South Africa should contribute to a greater global understanding of shifting social dynamics, and the role of science in stimulating growth and development.

The effective implementation of the plan will require policy leadership from the DST and other government departments, and strengthened cooperation in all science and technology matters.

2. Strategic assessment of the contributions of the DST

The NRDS has been well received in the NSI, and substantial financial resources have already been committed for the necessary attainment of its objectives. In addition, the responsiveness and scale of the S&T system continues to develop.

The response rate to the R&D survey increased to 63,2% in 2007/08 from the 61,1% in 2006/07, and indications are that the number of companies that performed R&D also increased year on year. About 723 businesses participated in the latest survey, compared to 677 in 2006/07 and 607 in 2005/06. National R&D spending as a percentage of GDP is a critical benchmark of South Africa's progress towards becoming a knowledge-based economy. The 2007/08 R&D survey results show national R&D spending to be R18,6 billion or 0,93% of GDP. R&D intensity has slowed down from 0,95% in 2006, with the rate of R&D investment lagging behind the strong GDP growth. Government has committed itself to achieving an investment of 1% of GDP on R&D by 2008. This relatively low target is already behind many of the developing countries with which South Africa compares. However, to attain the target, both public and private expenditure must continue to increase.

The high-level findings of the survey indicate that the business sector uses its own money to fund up to 57,7% of its R&D. The country has some 40 084 researchers and support staff in the public and private sectors, with nearly 19 320 full-time equivalent researchers. This fundamentally important area of HCD is one of DST's main focus areas, and there is also a concerted effort to increase innovation-enabling skills.

Over and above these specific developments, the country's capacity to harness innovation as a source of socio-economic development continues to increase because of the Department's funding and sustaining of research careers for young scientists and engineers.

The DST has also undertaken a number of initiatives to deal with poverty and the impact of poverty on people's lives, using established and effective technology platforms in the domain of job creation. These projects have demonstrated that positive results can be achieved by combining technology with the entrepreneurial skills of the people of South Africa.

3. Strategic Management Framework

The NSI faces many challenges, including the fragmented governance structures of research institutions and inadequate infrastructure and low spending on R&D in both the public and the private sectors. To address some of these challenges, the DST developed a strategic management framework, which was approved by the Cabinet in October 2004, and which classifies the technology-related services and R&D activities supported by government into three basic groups:

- Early stage or highly cross-sectoral generic technology and associated human resources, for which the DST is responsible.
- Focused, sectoral and relatively mature technology domains, which are primarily the responsibility of sector-specific departments, with the DST's assistance.
- Standard technology-based services, for which sector-specific departments are responsible.

This strategic framework and the change in approach to the publicly-funded portion of South Africa's NSI have led to a number of concrete organisational and operational changes, aimed at maximising impact in the DST's focus areas. Structured engagements between the DST and key national departments, as well as between the DST and provincial governments, continually give effect to the strategic management framework.

The Department's strategic approach for the future is underpinned by the following:

- A synthesis review of the NSI, which takes account of the independent reviews of the country's science councils since 2004.
- A review by the Organisation for Economic Cooperation and Development (OECD) of the NSI's structures, policies and performance.

These two important reviews indicate that while South Africa's NSI has strong and effective governance principles and high levels of business expenditure on R&D, the country is still a relatively small player in the global realm of research and innovation. It is unlikely that the country will be able to meet growing national challenges effectively without significantly increased public investment in RDI.

4. Implementing the strategy: Targeting investment in specific areas

A number of key factors will guide the DST through the next phase in the development of the NSI.

4.1 Human capital development

Government has identified high-level skills as a significant constraint in the development of a knowledge-based economy. South Africa therefore has to increase its investment in HCD and produce a greater number of skilled individuals, particularly in science, engineering and technology.

The Department of Science and Technology has identified the need to increase the number of, and improve the equity profile of, honours, masters, doctoral and postdoctoral graduates. The increased production of graduates with high-level skills is also necessary for the development of the next generation of researchers and academics and for the generation of new knowledge and innovation.

Similarly, the Department needs to continue investing in academic and research staff, and improve the research infrastructure to enhance the capacity of the RDI system. The development of a knowledge-based economy is dependent on the country's capacity to produce new knowledge, innovation and products. To achieve the above, the Department will continue to work in concert with the Department of Higher Education and Training given the important role played by universities in research and innovation, and with the Department of Basic Education as they are responsible for ensuring that the schooling system produces quality outcomes, including an increased number of learners graduating with Mathematics and Science.

4.2 The creation of attractive, world-class, large-scale innovation projects

Success depends on focused initiatives, one of the most important of which is the Technology Innovation Agency (TIA), which will absorb the Innovation Fund and the biotechnology regional innovation centres, among other bodies, and will significantly expand on the innovation development portfolio of these entities and programmes.

TIA, established through an Act of Parliament, is envisaged as the institutional mechanism that has the competency to assist the NSI to mine the existing body of knowledge, as well as to stimulate the generation of new knowledge in order to develop technology-based products and services that have the potential to be commercialised and distributed, locally and abroad.

To date, the Innovation Fund has consolidated its operations and developed into an instrument that plays a major role in driving the commercialisation of innovation for the benefit of South Africa. Since its inception in 1999, it has funded 173 projects in various sectors, including health, agriculture, manufacturing, mining, education, safety and security, information and communication technologies (ICT) and biotechnology. The value of this funding is R900 million.

Since 2004, there has been a growing emphasis on the creation and successful exploitation of South African-developed intellectual property for the benefit of all South Africans. This has led to the design and implementation of a legislative and policy framework that provides for the establishment of a dedicated agency function for the identification and effective management of intellectual property arising from publicly funded research. As a result of the IPR Act 2008, the National Intellectual Property Management Office (NIPMO) will be established during 2010 to fulfil this function.

The massive scale of current and projected expenditure towards the procurement of power infrastructure makes it imperative for South Africa to develop cutting-edge capabilities in these technologies. Investment in these capabilities will ensure that the country is able to source and produce energy technologies locally, as well as to supply these to global markets. This will have a positive effect on the country's technology balance of payments (TBP) and will make the South African energy sector globally competitive.

The Department's ongoing participation in international initiatives, including the Group on Earth Observation and South Africa's bid to host the Square Kilometre Array (SKA) radio astronomy telescope, will open doors to further global research and innovation opportunities.

While the Northern Cape has basic infrastructure in place, including roads, electricity and telecommunications, the SKA bid and related Accelerated and Shared Growth Initiative of South Africa (AsgiSA) projects are part of the national infrastructure investment and development programme in this area. The DST is working closely with the Northern Cape Provincial Government to ensure the alignment of activities and deliverables in this regard. The South African SKA demonstrator telescope, MeerKAT, and the final SKA facility will be major users of South Africa's planned broadband optical fibre data transport backbone and the proposed undersea cable to Europe. The MeerKAT will therefore require a link to Cape Town and Europe from a site in the Karoo region of the Northern Cape.

The lack of low-cost bandwidth for research and innovation is cutting South Africa off from global research. The South Africa National Research Network (SANReN) will address this, presenting South Africa with an opportunity to provide cost-effective broadband

access to global research networks in order to stimulate research and the establishment of academic communities in research and innovation. This will also make the country a more attractive destination for multinational companies that wish to conduct research. SANReN will assist in keeping pace with global trends in research connectivity, meeting existing obligations in international projects like SALT, and grasping new opportunities such as those presented by the SKA.

The SKA will be a direct foreign investment into the further development of Africa as a global hub for radio astronomy in addition to optical and gamma ray astronomy. The construction of the SKA in the African partner countries, including South Africa, will be closely linked to the development of renewable energy and ICT infrastructure. This could include solar power plants, broadband communication networks, data storage and the establishment of a high performance computing infrastructure. Such infrastructure investment will establish the SKA African partner countries as participants within the global novel technology infrastructure, and will help further develop participation within the global knowledge economy.

South African scientists and engineers currently enjoy access to numerous global megascience infrastructures and initiatives, such as CERN (the European Organization for Nuclear Research in Geneva), the Joint Institute for Nuclear Research in Russia, the Group on Earth Observation, the biotechnology cluster in southern California, and the ICT clusters in California and Seattle.

4.3 Essential S&T infrastructure and research equipment

In terms of S&T, focused investment on RDI will position South Africa for enhanced technological innovation and increase its capacity to create new high-tech products and services. This will have benefits at several levels, mainly in respect of wealth creation and improved quality of life of all South Africans.

Integrated infrastructure planning is essential for accelerating the modernisation of the South African economy and transforming it from a resource-based economy to one that is based on knowledge. The DST, with partners, has developed an e-based toolkit to enhance integrated planning and accelerate community infrastructure planning and service delivery. The Toolkit for Integrated Planning provides capabilities for integrating the profiling of past and current development needs and the simulation of future development needs.

4.4 Research, development and innovation

Significant progress has been made towards the establishment of the National Space Agency, TIA and NIPMO. Collectively, these crucial institutional instruments will help to foster the funding and support partnerships that are required for the development of cutting-edge S&T capabilities in the country.

The high risk and complexity of R&D investments makes funding the major obstacle to the successful commercialisation of technological innovations. Creative funding mechanisms that could help to address some of these problems are emerging through increased public-private partnerships. These partnerships are expected to help close the financing gap, and become effective vehicles for financing medium and high-tech innovations. Among other things, the establishment of TIA will address the innovation chasm and the fragmentation of funding instruments that are currently evident in the NSI. In partnership with industry and public research institutions, the agency will establish a network of centres of competence (CoCs) focused on market opportunities to build a competitive technology edge for South Africa. The product offerings of TIA are aimed at maximising socio-economic benefits throughout the country by -

- providing funding that is targeted at technology development and early commercialisation stages of the innovation value chain;
- facilitating capacity building for innovation, including the development of innovation-enabling skills;
- establishing technology nursery programmes aimed at supporting technology development and the establishment of technology-based enterprises;
- developing technology commercialisation advocacy programmes and campaigns aimed at promoting a national culture of innovation;
- facilitating national and international collaboration for technology development and innovation; and
- proactively encouraging and supporting inbound technology transfer.

In the medium term, the implementation of the TYIP, through the five grand challenges identified, will demonstrate South Africa's innovation strengths and capabilities. These grand challenges are discussed briefly below.

4.4.1 Space Science and Technology

South Africa is increasingly reliant on space-based services, particularly those underpinning earth observation, communications and navigation, which will be essential for addressing social, economic and environmental challenges effectively in the coming decades. The focus of this grand challenge is on technologies that will contribute to making the country a regional hub for space S&T. The geopolitical implications of developing national competence in space-related activities could change the future of provinces like the Western and the Northern Cape, which have already seen a number of space and astronomy infrastructure investments as a result of the DST and other national policy initiatives. In July 2006, Cabinet approved the establishment of the South African National Space Agency as an institutional vehicle to establish space S&T in South Africa.

The South African National Space Agency Act, 2008, sets out the strategic focus of the agency, which will be on -

- promoting the peaceful use of outer space;
- supporting the creation of an environment conducive to industrial development in space technologies;
- fostering research in astronomy, earth observation, communications, navigation and space physics;
- advancing competencies and capabilities in SET through HCD and outreach programmes; and
- fostering international cooperation in space-related activities.

In support of these developments and in order to coordinate a national approach to the development of space S&T in South Africa, the DST formulated the National Space Strategy in conjunction with the Department of Trade and Industry. The strategy was approved by Cabinet in 2008 and is focused on leveraging the benefits of space S&T for socio-economic growth and sustainable development.

The national space S&T programme will be aligned with the following primary goals:

- To capture a global market share for small to medium-sized space systems in support of the establishment of a knowledge economy through fostering and promoting innovation and industrial competitiveness.
- To empower better decision making through the integration of space-based systems with ground-based systems for providing the correct information products at the right time.
- To use space S&T to develop applications for the provision of geospatial, telecommunication, timing and positioning products and services.

4.4.2 Farmer to Pharma

Combining the benefits of new technologies in the fields of biotechnology and genetics with South Africa's indigenous knowledge and rich biodiversity will allow the country to participate competitively in a knowledge-based bioeconomy. This will involve integrating a number of technologies, research domains, economic infrastructures and government practices. The focus of this grand challenge is on cross-cutting issues to which a horizontal and multidisciplinary approach is suited, and on areas in which public policy can be effective in removing barriers, encouraging innovation, and improving understanding and cooperation among the various stakeholders.

4.4.3 Energy Security

The recent collapse of the global financial system has negatively affected plans to expand the national power infrastructure, and currently also dictates the prioritisation of demand-side management and energy efficiency interventions. In response to these developments, the Department will boost investment in energy technology innovations that will contribute to local energy technology capabilities and enhance the global competitiveness of the South African energy industry.

The development of cutting-edge capabilities in alternative and clean fossil fuel solutions remains important in the medium to long term. The Department will therefore continue to establish and direct platforms to ensure the delivery of South African-designed solutions for local and global markets.

4.4.4 Global Change

Given its proximity to the Antarctic and Southern Oceans, and the Agulhas and Benguela currents, South Africa is positioned to serve as a unique laboratory for R&D on earth-systems change, and to make a major contribution to understanding such phenomena. The projected effects of climate change in Africa include the increased incidence of malaria, schistosomiasis and other vector-borne diseases. Urgent responses are required, including research on prevention and early warning systems, field detection and treatment, public health infrastructure requirements, and treatment regimes.

The country is also well positioned to lead research on the continent in terms of understanding and projecting changes to the physical system and the impact of these changes, as well as mitigating their long-term effects.

4.4.5 Human and Social Dynamics

The focus of this grand challenge is on multidisciplinary examinations of the dynamics of human behaviour (e.g. the way individuals and organisations, including families and other informal organisations create, grow, learn, change and act under the impetus of internal and external stimuli), the influence of organisational, community, and environmental structures and processes on these dynamics, the interplay of evolutionary forces and human behavioural changes, and individual cognitive, computational, linguistic, developmental, social, biological and other processes as dynamic evolving systems. These processes include systems of coordination and control in the behaviour of individuals, the dynamics of coordination between individuals, and the dynamics of change across the life span of individuals and organisations.

4.5 International relations and technology transfer strategies

To make progress with these challenges, South Africa needs to strengthen its international partnerships - both to enhance its knowledge and to create an environment conducive to the transfer of technology. Knowledge-based economies are connected through a growing international research and cooperation network. International cooperation will be used to -

- provide a base for cooperation in the development of human capital;
- leverage foreign direct investment through South Africa's

extensive bilateral and global research networks and existing international competencies;

- strengthen South Africa's infrastructure development through appropriate international connections; and
- promote South Africa as an important global RDI partner.

4.6 Policy and strategy capacity

The NRDS provides a long-term planning basis for the NSI in the form of a framework of indicators to monitor the performance of the S&T system at macro level. The development and implementation of the Research Information Management System (RIMS) has commenced, with a total of 19 institutions participating. Of these, seven universities are already using one or two modules, and three historically black universities and four science councils have established project teams and completed data mapping. So far three of the seven planned modules, namely Genius, Research Outputs and Proposal Tracking, have been fully customised for South African conditions and signed off for roll-out at participating institutions.

The governance structure established is a strategic steering committee that involves research executives at science councils and deputy vice-chancellors of research at universities. The University of Venda for Science and Technology and four universities in KwaZulu-Natal have indicated interest in participating in 2010/11. Currently nanotechnology, biotechnology and fuel cell technologies are undergoing rapid development, and major innovations of the future will emerge at the confluence of scientific disciplines and technologies. Important sectors such as transport, communications and construction have gained a high degree of importance in economic competitiveness and have an enormous influence on social development. Significant progress in long-range S&T planning methodologies has been made internationally, especially in industry. These emerging challenges and opportunities have made it necessary for South Africa to create permanent capacity to evaluate future S&T development, including foresight, knowledge assessments, technology road mapping, and integration with retrospective analysis.

Over the past few years, the DST has worked closely with the National Treasury to develop data requirements for an enhanced national database for the monitoring and evaluation of its public investments in S&T. In 2007, the Department introduced the R&D Tax Incentive Programme to encourage private sector investment in R&D activities. This allows the DST to work optimally with the South African Revenue Service and National Treasury on tax incentives, and to ensure that the national S&T indicator system continues to play a key role in the Department's long-term S&T planning.

4.7 Broader S&T impact across government

A knowledge-based economy requires a great degree of intergovernmental and interdepartmental cooperation and coordination. The core elements of the Cabinet-approved strategic management framework include a renewed focus on frontier S&T programmes, the sustainability of the national research base, strong alignment with sector innovation, and S&T services to enhance service delivery. The devolution of S&T budgets allows departments to fund sector-specific programmes that boost research capability. Some national departments have made progress in developing medium-term R&D priority plans, but these are not yet fully funded. In addition, several other areas will receive urgent attention over the medium term, including interdepartmental S&T initiatives, enhanced innovation and growth in priority sectors, and the use of public procurement to support innovation within the context of the development of small, medium and micro-enterprises (SMMEs). To encourage innovation, the DST will also partner with provincial governments and facilitate the development of provincial innovation systems.

Lastly, because S&T are playing increasingly important roles in South Africa's international engagements, both multilateral and bilateral, the Department is actively aligning its international work with that of other government departments through the International Relations, Peace and Security Cluster.

5. Organisation and structure

The DST was established in 2004, when it was separated from the Ministry of Arts, Culture, Science and Technology. Subsequently, Cabinet approved a new management framework for S&T. It comprises the following:

- Programme 1: Administration.
- Programme 2: Research, Development and Innovation.
- Programme 3: International Cooperation and Resources.
- Programme 4: Human Capital and Knowledge Systems.
- Programme 5: Socio-Economic Partnerships.

Expenditure estimates

SUMMARY OF EXPENDITURE ESTIMATES BY PROGRAMME							
	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
	Outcome			Revised estimate	Medium-term estimates MTEF Baseline		
R thousand							
1. Administration	225,904	116,771	129,912	173,569	182,932	193,861	203,820
2. Research, Development and Innovation	394,047	529,846	855,832	1,143,393	1,284,040	1,341,174	826,200
3. International Cooperation and Resources	124,304	99,433	140,509	131,963	135,111	143,092	148,482
4. Human Capital and Knowledge Systems	878,181	1,275,300	1,457,640	1,598,974	1,748,671	1,955,127	1,933,948
5. Socio-Economic Partnerships	990,563	1,105,930	1,119,575	1,213,796	1,264,787	1,335,515	1,447,799
Total for programmes	**2,612,999**	**3,127,280**	**3,703,468**	**4,261,695**	**4,615,541**	**4,968,769**	**4,560,249**
SUMMARY OF ECONOMIC CLASSIFICATION OF PAYMENTS							
CURRENT PAYMENTS							
Compensation of employees	83,743	104,075	144,869	200,160	214,971	227,327	239,092
Goods and services	90,173	106,843	115,321	142,230	146,998	155,246	162,785
Total transfers and subsidies	2,293,388	2,908,359	3,439,880	3,894,847	4,249,472	4,582,938	4,154,953
Total payments for capital assets	145,607	7,921	3,323	4,485	4,100	3,258	3,419
Payments for financial assets	88	82	75	-	-	-	-
TOTAL PAYMENTS	**2,612,999**	**3,127,280**	**3,703,468**	**4,234,111**	**4,615,541**	**4,968,769**	**4,560,249**

Expenditure trends

Expenditure increased at an average annual rate of 17,7% between 2006/07 and 2009/10, rising from R2,6 billion in 2006/07 to R4,3 billion in 2009/10. This was mainly due to substantial allocations for projects in Programme 2 (RDI), human capital development initiatives, and increased funding for organisations such as SANReN and the National Research Foundation through Programme 4 (Human Capital and Knowledge Systems), and the Council for Scientific and Industrial Research and Human Science Research Council through Programme 5 (Socio-Economic Partnerships). Expenditure is expected to increase to R4,6 billion at an average annual rate of 2,3% between 2009/10 and 2012/13. This marginal growth can be attributed to the discontinued allocation for the Square Kilometre Array project from 2012/13 in Programme 2, salary adjustments for the Department and its public entities, and the allocation of an additional R50 million to the South African Research Chairs Initiative (SARChI).

Over the medium term, the spending focus will remain on human resource development, knowledge generation, and investment in science and technology infrastructure.

6. Programmes

Programme 1: Administration

This Programme is responsible for the overall management of the Department and for providing centralised support services to ensure that funded organisations comply with good corporate governance practices and are aligned with the strategic focus of the NSI, as well as monitoring and evaluating the science councils. It has the following components:

- The offices of the Minister, the Deputy Minister and the Director-General.
- Finance, which is responsible for the DST's finances and supply chain management.
- Policy, Planning, Governance, and Monitoring and Evaluation.
- Communication.
- Human Resources.
- Legal Services.
- Information technology systems and support.
- Internal auditing.
- Knowledge, Information and Records Management.
- Property Management, which covers functions and funds that have been devolved from the Department of Public Works.

Expenditure estimates

PROGRAMME NAME: Administration Detail by subprogramme							
	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
	Outcome			Adjusted appro-priation	Medium-term estimates		
R thousand					MTEF Baseline		
Minister 1	1,038	1,107	1,584	1,709	1,816	1,916	2,012
Deputy Minister 1	865	949	1,306	1,407	1,496	1,578	1,657
Management	15,211	11,297	14,226	50,951	66,542	70,673	74,073
Corporate Services	204,304	95,310	107,912	106,554	100,281	106,737	112,474
Governance	2,636	3,801	3,445	9,653	8,988	8,919	9,365
Office Accomodation	1,850	4,307	1,439	3,295	3,809	4,038	4,239
Total of subprogrammes	**225,904**	**116,771**	**129,912**	**173,569**	**182,932**	**193,861**	**203,820**
SUMMARY OF ECONOMIC CLASSIFICATION OF PAYMENTS							
Compensation of employees	37,465	47,412	60,682	96,810	105,600	111,940	117,936
Goods and services	41,783	61,308	66,384	72,239	73,497	78,949	82,814
Total transfers and subsidies	2,481	1,131	649	1,000	1,000	1,000	1,000
Total payments for capital assets	144,087	6,838	2,125	3,520	2,835	1,972	2,070
Payments for financial assets	88	82	72	-	-	-	
TOTAL PAYMENTS	**225,904**	**116,771**	**129,912**	**173,569**	**182,932**	**193,861**	**203,820**

Expenditure trends

Expenditure decreased from R225,9 million in 2006/07 to R173,6 million in 2009/10, at an average annual rate of 8,4%. This can be attributed to a once-off expenditure incurred in 2006/07, relating to the purchase of the Department's new building and the decreases in outsourced services and operating leases.

Expenditure is expected to increase over the MTEF period from R173,6 million to R203,8 million, at an average annual rate of 5,5%. This is due to an increase in spending on the compensation of employees owing to cost-of-living adjustments to salaries, the carry-through costs of the senior management salary adjustments in September 2008, and the funding of additional positions in the Ministry following the change in the executive authority of the Department. In addition, advertising, audit and communication expenditure is expected to increase over the medium term owing to tariff adjustments.

Programme 2: Research, Development and Innovation

Programme 2's vision is of South African society that are prospering through enhanced employment prospects, the creation and retention of local wealth, and an enriched cultural and social environment. To realise this, the Programme strives to foster and promote South African innovation and high-technology development in a manner that will enhance and add value to the country's technology products and services, including exports.

The overall strategic purpose of the Programme is to -

- deliver new technology-based industries to the South African economy by developing appropriate strategic roadmaps for chosen sectors of the economy, including energy, space, health and biotechnology;
- create the appropriate policy and institutional implementation instruments in order to deliver technology products and services from the sectors of the economy;
- develop and implement appropriate policies to promote and protect intellectual property that is the result of publicly financed R&D in South Africa.

The interaction of the appropriate policies, incentives and funding environment influences the efficacy of the implementation instruments and their ability to deliver new industries and employment opportunities in the economy. In order to contribute to the national coordination of these interactions, the Programme provides policy leadership in the DST's long-term cross-cutting RDI initiatives through four subprogrammes:

- Space Science and Technology.
- Hydrogen and Energy.
- Biotechnology and Health Innovation.
- Innovation Planning and Instruments.

Collectively, Programme 2 focuses on the following core activities:

- Developing appropriate space technology platforms and promoting the use of space applications for socio-economic benefits.
- Providing strategic direction towards the construction of the SKA demonstrator telescope and other activities to ensure that South Africa is well positioned to host the SKA.
- Driving strategic interventions to stimulate innovation towards sustainable energy security for South Africa and the region.
- Providing strategic direction in building the bioeconomy in South Africa through the National Biotechnology Strategy and CoCs that are established to address the various research agendas in biotechnology.
- Driving strategic interventions to bridge the innovation chasm and facilitate the exploration of basic research outputs for socio-economic development through the design and implementation of appropriate innovation policies and institutional instruments, including TIA and NIPMO. Together, these instruments are aimed at establishing partnerships between government, academia and industry in respect of the translation of a greater proportion of R&D into technology-based products and services with the potential for commercialisation.

Expenditure estimates

PROGRAMME NAME: Research, Development and Innovation Detail by subprogramme							
	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
	Outcome			Adjusted appro-priation	Medium-term estimates MTEF Baseline		
R thousand							
Space Science	202,315	296,157	344,206	574,427	611,547	659,342	113,613
Hydrogen and Energy	9,587	33,820	139,650	149,985	134,178	142,780	148,919
Biotechnology and Health	178,114	194,164	228,098	259,344	310,019	298,447	321,768
Innovation Planning and Instruments	4,031	5,705	143,878	159,637	228,296	240,605	241,900
Total of subprogrammes	**394,047**	**529,846**	**855,832**	**1,143,393**	**1,284,040**	**1,341,174**	**826,200**
SUMMARY OF ECONOMIC CLASSIFICATION OF PAYMENTS							
Compensation of employees	5,805	8,824	14,859	21,339	22,021	23,233	24,394
Goods and services	7,688	7,241	11,845	19,602	23,892	25,012	26,263
Total transfers and subsidies	380,116	513,388	828,912	1,102,227	1,237,917	1,292,709	775,312
Total payments for capital assets	438	393	215	225	210	220	231
Payments for financial assets	-	-	1	-	-	-	
Total payments	**394,047**	**529,846**	**855,832**	**1,143,393**	**1,284,040**	**1,341,174**	**826,200**

Expenditure trends

Expenditure increased substantially from R394 million in 2006/07 to R1,1 billion in 2009/10, at an average annual rate of 42,6%. The significant growth is attributable to the introduction of programmes that bolster biotechnology and hydrogen energy, as well as innovation instrument initiatives and the SKA project. This caused increases in current payments, which grew, at an average annual rate of 44,7%, from R13,5 million in 2006/07 to R40,9 million in 2009/10. Capital transfers to departmental agencies and non-profit institutions also increased, at an average annual rate of 42,6%, from R380,1 million to R1,1 billion.

Over the medium term, expenditure is expected to decrease to R826,2 million at an average annual rate of 10,3%. This is solely due to the discontinuation of funding for the SKA project in 2012/13. The decrease is offset slightly by marginal growth, which sustains existing projects that support the NSI.

Service delivery objectives and indicators

- The Subprogramme: Space Science and Technology focuses on creating the necessary strategic and institutional regimes for creating and developing a viable space programme and an earth observation system. This includes providing strategic direction on key aspects linked to the construction of the SKA demonstrator telescope and related activities to ensure that Africa is well positioned to host it. Targeted national space initiatives are intended to harness the benefits of space science and technology for socio-economic growth and sustainable development.
- The Subprogramme: Hydrogen and Energy provides policy leadership in long term, cross-cutting RDI in the energy sector. It plays a key role in developing a sustainable and globally competitive South African energy knowledge base and industry that will ensure broader socio-economic benefits for the country from the nascent global hydrogen economy.
- The Subprogramme: Biotechnology and Health provides policy leadership for developing a world-class bioeconomy in South Africa. This will be achieved through innovation instruments that provide financial, intellectual property and innovation management support.
- The Subprogramme: Innovation Instruments and Planning drives strategic interventions that will enable South Africa to translate a greater proportion of its scientific knowledge outputs into commercial technology products and services. This is achieved through designing and creating policy and institutional structures that facilitate technology development and its progression into national and international markets.

Recent outputs

- SumbandilaSat, micro earth observation satellite, was launched on 17 September 2009. It is currently acquiring data that will be used for agriculture and environmental monitoring in Southern Africa.
- The South African HIV and Aids Research and Innovation Platform (SHARP) was launched in July 2009. The aim of SHARP is to provide a platform for evidence-based solutions that will contribute to the National Strategic Plan for HIV/Aids and Sexually Transmitted Infections.
- To support the Department's Hydrogen and Fuel Cell RDI Strategy, Anglo Platinum launched a R100 million Platinum Development Fund for the beneficiation of platinum group metals for commercial application.
- All seven dishes of the KAT-7 (MeerKAT precursor) were completed in January 2010. The MeerKAT (80 dishes) is a prototype for the SKA that South Africa is bidding to host.

Selected medium-term output targets

Subprogramme	Objectives (intended outcomes)	Measure/ Indicator	Corporate strategy Output	Corporate strategy Target	Targets split over three-year corporate strategy period		
			2010 — 2013	2010 — 2013	2010/11	2011/12	2012/13
Innovation Planning and Instruments	Establish TIA to provide support (financial and non-financial), stimulate and intensify the commercialisation of intellectual property that will lead to new patents, products, services and new high-tech industries	Fully operational TIA	A fully operational TIA organisation with governance and management structures as well as operational processes, systems and procedures	Fully operational TIA and migrated 7 entities into the TIA, i.e. Innovation Fund, 4 biotechnology innovation centres, Tshumisano and the Advanced Manufacturing Technology Strategy by 31 Mar. 2013	Appoint full-time TIA CEO by 30 Nov. 2010 and migrate 7 entities to TIA by 31 Mar. 2011	Complete the migration of all 7 entities (targeted to be consolidated into TIA), contracts, and projects by 31 Mar. 2012	Fully operational TIA by 31 Mar. 2013
		Number of TIA regional offices established	TIA regional offices established	6 regional offices established (in Gauteng, KwaZulu-Natal, the Western Cape, the Eastern Cape, the Northern Region and the Central Region by Mar. 2013)	3 regional offices established (in Gauteng, KwaZulu-Natal and the Western Cape) by 30 Nov. 2010	2 additional regional offices in the Northern Region (Limpopo, Mpumalanga and North West) by 31 Mar. 2012	1 additional regional office in the Central Region (the Free State and Northern Cape) by 31 Mar. 2013
	Provide support towards the creation of new companies to ensure technology commercialisation of products, processes and services that address socio-economic challenges	Number of high-technology companies with commercial activity established	New technology-based companies with commercial activity support	Creation of 25 sustainable technology-based companies with full commercial activities by 31 Mar. 2013	Creation of 5 new technology-based companies by 31 Mar. 2011	Creation of 8 additional technology-based companies by 31 Mar. 2012, and continued support to ensure sustainable business processes of existing companies	Creation of 12 additional technology-based companies by 31 Mar. 2013, and continued support to ensure sustainable business processes of existing companies
	To provide support towards the creation of formalised industry partnerships to ensure technology uptake and commercialisation	Number of technology commercialisation partnerships entered into with private sector, including foreign direct investment	Formalised industry partnerships	Provide financial support towards the creation of 10 formalised industry partnerships by 31 Mar. 2013	Provide financial support towards the creation of 3 formalised industry partnerships by 31 Mar. 2011	Provide financial support towards the creation of an additional 3 formalised industry partnerships by 31 Mar. 2012	Provide financial support towards the creation of an additional 4 formalised industry partnerships by 31 Mar. 2013
	Establish NIPMO and offices of technology transfer (OTTs) to ensure that	Fully operational NIPMO	NIPMO established	Fully operational NIPMO by 31 Mar. 2013	Establish an interim administrative NIPMO office within the DST	Establish an independent and fully operational NIPMO by 31 Mar. 2012	NIPMO spun-out as a government component by 31 Mar. 2013

Subprogramme	Objectives (intended outcomes)	Measure/ Indicator	Corporate strategy Output	Corporate strategy Target	Targets split over three-year corporate strategy period		
			2010 — 2013	2010 — 2013	2010/11	2011/12	2012/13
	intellectual property (IP) created from publicly financed R&D is identified, protected and used for socio-economic benefit				and work towards establishing NIPMO as a stand-alone government component by 31 Mar. 2011		
		Number of new OTTs established and capacitated to fulfil the required function as stipulated in section 7 of the IPR Act	OTTs with required function as stipulated in section 7 of the IPR Act	Establish 12 OTTs	Establish and capacitate 2 OTTs by 31 Mar. 2011	Establish and capacitate 4 OTTs by 31 Mar. 2012	Establish and capacitate 6 OTTs by 31 Mar. 2013
	Develop human capital in IP management to promote technology transfer	Number of people trained in IP management and technology transfer	Capacity developed in IP management and technology transfer	Train 100 people in IP management and technology transfer	Train 30 people in IP management by 31 Mar. 2011	Train an additional 35 people in IP management by 31 Mar. 2012	Train an additional 35 people in IP management by 31 Mar. 2013
	Create a NIPMO fund to support IP protection and enforcement	Total amount provided to NIPMO	Established the NIPMO fund to support IP protection and enforcement	Provide R15 million for NIPMO fund by 31 Mar. 2013	Provide R3 million for NIPMO fund by 31 Mar. 2011	Provide an additional R4 million for NIPMO fund by 31 Mar. 2012	Provide an additional R8 million for NIPMO fund by 31 Mar. 2013
Hydrogen and Energy	To commercialise alternative energy technologies through spin-off companies in order to diversify the energy industry and the economy	Number of alternative energy technologies demonstrated and taken up by industry	Companies established	1 company established by 31 Mar. 2013	1 alternative technology showcased at a conference by 31 Mar. 2011	Incubation of at least 1 company by 31 Mar. 2012	1 trading alternative energy company by 31 Mar. 2013
	Development of human capital for the alternative energy and nuclear power industries to bolster sustainable and globally competitive technological capabilities	Number of graduates	Human capital for the alternative energy and nuclear power industries	60 graduates, including masters and doctorates, by 31 Mar. 2013	15 graduates, including masters and doctorates, by 31 Mar. 2011	20 additional graduates, including masters and doctorates, by 31 Mar. 2012	25 additional graduates, including masters and doctorates, by 31 Mar. 2013
	Increase energy-related publications in order to enhance the knowledge-based economy	Number of publications	Peer-reviewed publications	10 energy-related publications by 31 Mar. 2013	2 energy-related publications by 31 Mar. 2011	3 energy-related publications by 31 Mar. 2012	5 energy-related publications by 31 Mar. 2010

Subprogramme	Objectives (intended outcomes)	Measure/ Indicator	Corporate strategy Output	Corporate strategy Target	Targets split over three-year corporate strategy period		
			2010 — 2013	2010 — 2013	2010/11	2011/12	2012/13
	Facilitate patent registration in energy-related research and technologies to ensure exploitation of know-how for commercial and economic benefit	Number of patent applications resulting from publicly funded space research	Registered South African patents exploited	1 South African patent registered and exploited by 31 Mar. 2013	Two patent applications by 31 Mar. 2011	1 patent registered by 31 Mar. 2012	1 registered patent exploited by 31 Mar. 2013
	Leverage local and global partnerships into commercialisatio n purposes for the benefit of South Africa, and taking advantage of available know-how	Number of IP transactions through commercialisa-tion partnerships leading to the commercialisa-tion of energy technologies	IP transactions, such as licensing agreements, in-bound IP, and technology transfer agreements	1 Intellectual Property transaction initiated by 31 Mar. 2013	1 signed memorandum of agreement with potential partners by 31 Mar. 2011	1 formal partnership concluded for the commercialisa-tion of energy technologies	1 formal partnership concluded
Space Science and Technology	Attract investment to the knowledge economy by winning the bid to host the SKA	Successful SKA bid	Demonstration of science and technology capabilities through construction of the MeerKAT prototype of the SKA	Outcome of the SKA bid by the end 2012	Initial construction of MeerKAT by 31 Mar. 2011	Successful bid by 31 Dec. 2012 and construction of MeerKAT to be completed by 31 Mar. 2014	Continuing construction of MeerKAT and signing of agreements to start SKA construction
	HCD in astronomy and space engineering to a create critical mass of experts for the ICT, engineering and research sectors	Number of students and postdoctoral fellows funded	Students and postdoctoral fellows that are funded in astronomy, ICT and engineering	150 astronomy, ICT and engineering students and postdoctoral fellows funded by 31 Mar. 2013	50 students and postdoctoral fellows by 31 Mar. 2011	50 additional students and postdoctoral fellows by 31 Mar. 2012	50 students and postdoctoral fellows by 31 Mar. 2013
	Creating the human capital and technology incubators required to support meeting socio-economic challenges and promoting benefits to the general public	Number of students that graduate, and number of research chairs and CoCs established	Graduates at the Bachelor, Honours, MSc and PhD level	120 astronomy and space engineering graduates by 31 Mar. 2013	30 graduates by 31 Mar. 2011	40 graduates by 31 Mar.2012	50 graduates by 31 Mar. 2013
			Formal research chairs and CoCs	8 research chairs by 31 Mar. 2013	3 research chairs in each of the following areas: Earth observation, navigation and positioning, and space exploration	2 research chairs in each of the following areas: Earth observation, communications and space engineering	2 research chairs in Earth observation
				3 CoCs by 31 Mar. 2013	1 CoC in optronics/ synthetic aperture radar by 31 Mar. 2011	1 CoC in space electronics and software by 31 Mar. 2012	1 CoC in space subsystems and systems by 31 Mar. 2013

Subprogramme	Objectives (intended outcomes)	Measure/ Indicator	Corporate strategy Output	Corporate strategy Target	Targets split over three-year corporate strategy period		
			2010 — 2013	2010 — 2013	2010/11	2011/12	2012/13
	Building platforms that support user needs in terms of both direct services and products and critical infrastructure to support the national space programme	Number of space platforms developed	Space platforms that support the national space programme	6 space platforms developed by 31 Mar. 2013	2 platforms built by 31 Mar. 2011:	2 platforms built by 31 Mar. 2012	2 platforms built by 31March 2013
	Development of space applications, products and services developed that respond to the needs of end users across all tiers of government	Total number of space-related technology services launched by South African-based companies	Space applications, products and services launched	24 products and services developed by 31 Mar. 2013	8 products and services developed by 31 Mar. 2011	8 additional products and services developed by 31 Mar. 2012	8 additional products and services developed by 31 Mar. 2013
	The South African National Space Agency (SANSA), which will be the implementing arm of the national space programme, established	SANSA Board in place, with CEO appointed and agency fully operational	A fully operational SANSA, with governance and management structures, as well as operational processes, systems and procedures	Fully operational SANSA by 31 Mar. 2013	Operationalisation of SANSA through the appointment of a board of directors, a CEO and skeletal staff by 31 Mar. 2011	Full operationalisation of SANSA, migration of entities to SANSA, and rollout of the national space programme by 31 Mar. 2012	Fully operational SANSA by 31Mar. 2013
	Strengthening South Africa's international engagements through mobilising the local community to leverage international opportunities and to build on local space capacity	Number of international engagements	International engagements in the following fronts: Bilateral, Multilateral, Regional and UN	6 bilateral, 5 multilateral, and 4 regional and UN engagements by 31 Mar. 2013	2 bilateral agreements formalised by 31 Mar. 2011	2 bilateral agreements formalised, 2 multilateral engagements formalised, engagements and 2 Regional engagements formalised by 31 Mar. 2012	2 bilateral agreements formalised and 2 regional engagements by 31 Mar. 2013
Biotechnology and Health	Grow the bio-economy through an increase in new biotechnology-based products and services, thereby contributing to economic growth in South Africa	Number of new biotechnology-based products and services funded through biotechnology innovation instruments	New biotechnology products and new services	8 biotechnology-based products or services by 31 Mar. 2013	2 new products or services by 31 Mar. 2011	3 additional new products or services by 31 Mar. 2012	3 additional new products or services by 31 Mar. 2013
	Grow the bio-economy through an increase in the	Number of companies established	New companies established based on	8 companies established by 31 Mar. 2013	2 companies established by 31 Mar. 2011	3 additional companies established by	3 additional companies established by

Subprogramme	Objectives (intended outcomes)	Measure/ Indicator	Corporate strategy Output	Corporate strategy Target	Targets split over three-year corporate strategy period		
			2010 — 2013	2010 — 2013	2010/11	2011/12	2012/13
	number of spin-off biotechnology companies from established technology platforms, thereby contributing to economic growth in South Africa		biotechnology or health innovation activities			31 Mar. 2012	31 Mar. 2013
	Develop the required human capital to grow the knowledge-based bio-economy	The number of funded doctoral and masters students	10 additional doctoral and 14 additional masters students funded	110 doctoral and masters students funded by 31 Mar. 2013	33 doctoral and masters students funded by 31 Mar. 2011	37 doctoral, and masters students funded by 31 Mar. 2012	40 doctoral and masters students funded by 31 Mar. 2013
	Create an enabling environment for health innovation	Number of health-related research and innovation initiatives established	Health innovation initiatives	4 new health innovation initiatives by 31 Mar. 2013	1 new health innovation initiatives by 31 Mar. 2011	1 new health innovation initiative by 31 Mar. 2012	1 new health innovation initiative by 31 Mar. 2013

Programme 3: International Cooperation and Resources

Programme 3 aims to develop, promote and manage strategic international relationships, opportunities, and S&T agreements that strengthen the NSI, and enable an exchange of knowledge, capacity and resources between South Africa and its regional and international partners. It has three subprogrammes:

- Overseas Bilateral Cooperation.
- Multilateral Cooperation and Africa.
- International Resources.

Expenditure estimates

PROGRAMME NAME: International Cooperation and Resources Detail by subprogramme							
	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
	Outcome			Adjusted appro-priation	Medium-term estimates MTEF Baseline		
R thousand							
Multilateral Cooperation and Africa	68,857	73,261	61,381	56,854	56,543	60,256	62,799
International Resources	27,285	10,048	37,359	50,409	48,919	51,334	53,172
Overseas Bilateral Cooperation	28,162	16,124	41,769	24,700	29,649	31,502	32,511
Total of subprogrammes	**124,304**	**99,433**	**140,509**	**131,963**	**135,111**	**143,092**	**148,482**
SUMMARY OF ECONOMIC CLASSIFICATION OF PAYMENTS							
Compensation of employees	17,401	19,849	30,392	31,028	33,278	35,108	36,863
Goods and services	24,604	20,285	22,698	24,228	25,591	26,098	27,259
Total transfers and subsidies	81,791	59,014	86,913	76,417	75,750	81,372	83,821
Total payments for capital assets	508	285	506	290	492	514	539
Payments for financial assets	-	-	-	-	-	-	
TOTAL PAYMENTS	**124,304**	**99,433**	**140,509**	**131,963**	**135,111**	**143,092**	**148,482**

Expenditure trends

Expenditure increased from R124,3 million in 2006/07 to R132 million in 2009/10, at an average annual rate of 2%. The growth can be attributed mainly to an average annual increase of 22,7% in the Suprogramme: International Resources, as it received additional allocations of R23,1 million from 2006/07 to support multilateral and bilateral cooperation.

Expenditure increased marginally over the MTEF period to R148,5 million, at an average annual rate of 4%. The increase is to sustain existing projects. The spending focus over the MTEF period remains advancing and facilitating South Africa's participation in strategic bilateral and multilateral agreements, accessing funding, human capital and knowledge, and leveraging resources in support of the NSI.

Service delivery objectives and indicators

South Africa increased its participation in multilateral organisations and enhanced its impact in the region and globally. Winning the bid to host a new regional NEPAD water initiative, co-chairing the steering group for the OECD's Global Science Forum project on S&T cooperation between developed and developing countries, and serving on the OECD's Committee for Scientific and Technological Policy steering group on STI cooperation to address global challenges, are a few examples of this increased participation. During South Africa's chairmanship in SADC in 2009, and following the secondment of an official and the launch of the SADC STI Desk, South Africa was mandated to lead in four regional projects (i.e. SADC STI policy management training and capacity building; the SADC Women in SET programme in consultation with member states; hosting a workshop on intellectual property rights; and developing modalities for the implementation and launch of the 2009 SADC SET Week). South Africa's bilateral relations in Africa were enhanced through the funding of joint bilateral projects with Kenya, while an expression of interest with Namibia will be finalised before the end of March 2010.

South Africa continued its active engagement with the European Union having established policy dialogue on space science, energy and social sciences and humanities, which resulted in specific European Union Framework Programme calls for proposals aimed at addressing South African and African challenges. The ongoing dialogue under the African Union-EU partnership resulted in the first EU FP7 Africa call, where significant research funds were

allocated to science and technology research on the continent. This call was preceded by an African, Caribbean and Pacific group of states call, aimed at building STI capacity in these regions. The implementation of the Finnish-South African innovation partnership programmes is well under way, having already supported emerging entrepreneurs and built innovation capacity in South Africa, including in poor provinces and rural areas. The implementation of the Finnish-South African partnership programme to strengthen the Southern Africa network for biosciences is supporting the advancement of life sciences research central to addressing the challenge of HIV/Aids, food security and environmental protection. Funds were also mobilised from donor organisations in support of food security and climate change initiatives in South Africa and the SADC region.

Joint research projects have been completed with several partners in 2009/10, including those within the India-Brazil-South Africa (IBSA) framework in areas such as nanotechnology, biotechnology, and polar and oceanographic research. Bilateral engagements in areas such as space, energy, ICT, advanced manufacturing and science for sustainability have been completed or adapted to be in support of the TYIP. Flagship projects falling in this joint research projects category include Biota South, aimed at capacity development in mapping biodiversity, and Inkaba yeAfrica, a multidisciplinary project that surveys a cone-shaped sector of the earth from core to space, gathering data that will facilitate future planning. Discussions to establish the possible reconfiguration of these projects in support of both the TYIP and the NRDS have been initiated.

Recent outputs

- Implementation of international strategy: Among other things, bilateral STI relationships with Switzerland, Flanders, Germany, Norway, France, India, Algeria, Egypt, Mozambique, Kenya and Namibia were deepened, as well as with India, Brazil and South Africa (IBSA).
- SADC STI leadership: DST secured South African Development Community (SADC) support for the SKA Project at the SADC Summit of 2009, and provided further leadership on policy discussions and activities like the SADC SET Week (in Mauritius).
- Enhanced South-South cooperation: The DST's leadership role in South-South cooperation was recognised in the successful hosting of a TWAS General Conference in Durban in October 2009. South Africa was elected as vice-president of the Non-Aligned Movement Science and Technology (NAM S&T) bureau for the next four years. South Africa was elected the vice-chair of the Committee on Development Information, Science and Technology S&T committee.
- Strategic partnership with the EU: The DST increased participation in the seventh round of the EU Framework Programme (EU-FP7) projects and the European Cooperation in Science and Technology (COST) programme. STI was recognised at the South Africa-EU Summit held in South Africa, where a successful small and medium-sized enterprises (SME) meeting was held to encourage the participation of SMEs in EU-funded projects.
- Increased funds leveraged: DST successfully leveraged R178 million in official development assistance funding from partners like Canada, the EU, Finland, Germany, Japan and the United States of America with a further R11 million leveraged for HCD initiatives from partners like Australia, Canada, France, Germany, and Japan.

Selected medium-term output targets

Subprogramme	Objectives (intended outcomes)	Measure/ Indicator	Corporate Strategy Output	Corporate strategy Output Target	Targets split over three-year corporate strategy period		
			2010 — 2013	2010 — 2013	2010/11	2011/12	2012/13
International Resources	Increase access to international STI and development resources that will contribute to national and regional development	Value of funding and in-kind assistance leveraged	Funding and in-kind assistance leveraged	R298 870 000	R146 350 000 by 31 Mar. 2011	R144 370 000 by 31 Mar. 2012	R8 150 000 by 31 Mar. 2013
	Promote and manage South Africa's international STI cooperation in support of the national priorities articulated in the NRDS, TYIP and MTSF	Number of high-level SKA bid events organised	High-level SKA bid events organised	6 high-level SKA bid events organised	2 high-level SKA bid events organised by 31 Mar. 2011	2 high-level SKA bid events organised by 31 Mar. 2012	2 high-level SKA bid events organised by 31 Mar. 2013
		Number of international partners engaged in supporting the SKA bid	International partners engaged in supporting the SKA bid	18 international partners engaged in supporting the SKA bid	6 international partners engaged in supporting the SKA bid by 31 Mar. 2011	6 international partners engaged in supporting the SKA bid by 31 Mar. 2012	6 international partners engaged in supporting the SKA bid by 31 Mar. 2013
		Number of international facilities accessed through partnerships	International facilities accessed through partnerships	6 international facilities accessed through partnerships	2 international facilities accessed through partnerships by 31 Mar. 2011	2 international facilities accessed through partnerships by 31 Mar. 2012	2 international facilities accessed through partnerships by 31 Mar. 2013
Multilateral Cooperation and Africa	Promote and manage South Africa's international STI cooperation in support of the national priorities articulated in the NRDS, TYIP and MTSF	Number of African SKA partners engaged	African SKA partners engaged	8 existing African SKA partners engaged	8 existing African SKA partners engaged	8 existing African SKA partners engaged	8 existing African SKA partners engaged
		Number of new joint STI projects with African partners	New joint STI projects with African partners	30 new joint STI projects with African partners	8 new joint STI projects with African partners by 31 Mar. 2011	10 new joint STI projects with African partners by 31 Mar. 2012	12 new joint STI projects with African partners by 31 Mar. 2013
		Number of OECD initiatives led or implemented locally	OECD Initiatives led or implemented locally	6 OECD initiatives led or implemented locally	2 OECD initiatives led or implemented locally by 31 Mar. 2011	2 OECD initiatives led or implemented locally by 31 Mar. 2012	2 OECD initiatives led or implemented locally by 31 Mar. 2013
	Enhance the impact of South Africa and the region on the international STI environment, in order to make the country and the region important international STI partners	Number of SA-led SADC initiatives successfully implemented	SA-led SADC initiatives successfully implemented	5 SA-led SADC initiatives successfully implemented	3 SA-led SADC initiatives successfully implemented by 31 Mar. 2011	1 new SA-led SADC initiative successfully implemented by 31 Mar. 2012	1 new SA-led SADC initiative successfully implemented by 31 Mar. 2013

Subprogramme	Objectives (intended outcomes)	Measure/ Indicator	Corporate Strategy Output	Corporate strategy Output Target	Targets split over three-year corporate strategy period		
			2010 – 2013	2010 – 2013	2010/11	2011/12	2012/13
Overseas Bilateral Cooperation	Increase access to international STI and development resources that will contribute to national and regional development	Value of foreign funds spent in support of South African STI cooperation	Foreign funds spent in support of South African STI cooperation	R165 million	R50 million	R55 million	R60 million
		Number of participants (postgraduate students and principal investigators) in international STI cooperation	Participants (postgraduate students and principal investigators) in international STI cooperation	110 participants in international STI cooperation	30 participants in international STI cooperation by 31 Mar. 2011	35 participants in international STI cooperation by 31 Mar. 2012	45 participants in international STI cooperation by 31 Mar. 2013
	Enhance the impact of South Africa and the region on the international STI environment, in order to make the country and the region important international STI partners	Number of initiatives in which South Africa actively participates under IBSA	Initiatives in which South Africa actively participates under IBSA	5 initiatives in which South Africa actively participates under IBSA	5 initiatives in which South Africa actively participates under IBSA by 31 Mar. 2011	-	-

Programme 4: Human Capital and Knowledge Systems

Programme 4 aims to develop and implement national programmes to produce knowledge, human capital and the associated infrastructure, equipment and public research services to sustain the country's system of innovation. It has the following three subprogrammes:

- Human Capital and Science Platforms.
- Emerging Research Areas and Infrastructure.
- Indigenous Knowledge Systems.

Expenditure estimates

PROGRAMME NAME: Human Capital and Knowledge Systems Detail by subprogramme							
	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
	Outcome			Adjusted appro-priation	Medium-term estimates MTEF Baseline		
R thousand							
Human Capital and Science Platforms	753,997	946,058	1,066,199	1,122,390	1,233,835	1,396,853	1,377,910
Indigenous Knowledge Systems	8,382	10,508	12,122	25,397	27,370	29,227	30,688
Emerging Research Areas and Infrastructure	115,802	318,734	379,319	451,187	487,466	529,047	525,350
Total of subprogrammes	**878,181**	**1,275,300**	**1,457,640**	**1,598,974**	**1,748,671**	**1,955,127**	**1,933,948**
SUMMARY OF ECONOMIC CLASSIFICATION OF PAYMENTS							
Compensation of employees	10,206	11,869	16,963	21,457	22,796	24,050	25,253
Goods and services	7,728	9,483	7,444	11,420	8,564	9,007	9,460
Total transfers and subsidies	859,960	1,253,885	1,433,015	1,565,997	1,717,206	1,921,959	1,899,119
Total payments for capital assets	287	63	216	100	105	111	116
Payments for financial assets	-	-	2	-	-	-	
TOTAL PAYMENTS	**878,181**	**1,275,300**	**1,457,640**	**1,598,974**	**1,748,671**	**1,955,127**	**1,933,948**

Expenditure trends

Expenditure increases at an average annual rate of 22,1%, from R878,2 million in 2006/07 to R1,6 billion in 2009/10. This was driven by increased expenditure in the Subprogramme: Human Capital and Science Platforms and the Subprogramme: Emerging Research Areas and Infrastructure in the form of transfers to the National Research Foundation and SANReN.

Expenditure is expected to increase to R1,9 billion over the medium term, at an average annual rate of 6,5%. This can mainly be ascribed to the expansion of SARChI, for which an additional R50 million is allocated in 2012/13. The spending focus over the MTEF period will remain on developing and renewing science, engineering and technology human capital and facilitating research equipment and infrastructure.

Service delivery objectives and indicators

Human Capital and Science Platforms

The Subprogramme: Human Capital and Science Platforms conceptualises, formulates and implements programmes that address the availability of human capital for STI, produces new knowledge to build the knowledge resources of the country (through science investment in areas of geographic advantage - the science missions), and interfaces positively with the institutions that are key in the production of S&T knowledge and human resources for the NSI. Focus areas include astronomy, human palaeontology, research chairs at South African universities, centres of excellence (CoEs) and a postdoctoral fellowship programme. The eighth CoE, focusing on global change, is being established.

Emerging Research Areas and Infrastructure

The Subprogramme: Emerging Research Areas and Infrastructure steers the advancement of novel and cross-cutting research areas and the establishment of world-class research infrastructure in the NSI. It synergises opportunities for emerging research areas, infrastructure, large-scale facilities and the development of critical mass. Complementary initiatives among stakeholders in the public sector will be facilitated to develop a competitive research nucleus.

Indigenous Knowledge Systems

The Subprogramme: Indigenous Knowledge Systems focuses on the development of indigenous knowledge and its integration into the NSI through the development and implementation of policy and undertaking of strategic projects. It works through networks of science councils, universities and civil society organisations.

Museums and science centres have also begun to play key roles in the interfacing of indigenous knowledge through public awareness campaigns.

Recent outputs

- A successful National Science Week, which doubled as a 10-year celebration of the NSW programme and attracted about 204 000 participants, was launched by the Minister in Kimberley, in the Northern Cape (a province of international significance for astronomy, as 2009 was the International Year of Astronomy). Country-wide NSW activities were made possible by the involvement of a record number (over 70) of organisers and grant holders. International Year of Astronomy (IYA) campaigns took astronomy to all science outreach institutions and every target group. The IYA-SA team brought together participants from different parts of Africa.

- On 11 November 2009, under the African Origins Platform, researchers at the University of the Witwatersrand's Bernard Price Institute of Palaeontology announced the discovery of a new species of dinosaur. University of the Witwatersrand researchers continued to make new fossil discoveries, considered to be of great significance to the study of human origins, at the Cradle of Humankind World Heritage site. As a result of the collaborative efforts of more than 50 South African and international scientists, it has taken a relatively short time to uncover these discoveries.

- The number of SARChI chairs was increased to 82 in the current financial year. The chairs are proving to be an effective instrument for developing human capital. The initiative is successfully contributing to the transformation of South Africa's cohort of scientists. The number of postgraduate students supported by research chair grants has grown from 115 in 2007 (when there were only 21 research chairs) to 423 in 2009 (under 72 research chairs). Of the 423 students, 51% are black, 47% female and 76% South African. A big proportion of non-South African students come from other countries in Africa, marking SARChI's contribution to the development and support for high-level research and scientific skills in the continent. In addition to students supported by and from the SARChI grants, research chair holders also mentor students supported from other sources of funding. The number of these students increased from 252 in 2008 to 367 in 2009. It is therefore encouraging that the research chairs supervised a total of 790 (423 plus 367) students in 2009. Overall, the number of publications increased from 179 in 2008 to 323 in 2009 (265 peer-reviewed journal articles, 10 books, and 48 book chapters).

- The Women in Science Awards event took place on 21 August 2009, with the Ministers of both Science and Technology and Higher Education and Training participating in the programme. Two new categories of award were introduced (the Tata scholarship and Indigenous Knowledge Systems awards). The quality of applications was exceptional, but the racial profile of the winners remains a challenge. The overall winner of the 2009 Women in Science Awards (in the Distinguished Women Scientist category) was further honoured for her achievements by the African Union under the African Union Scientific Awards Programme.

- Phase II of the establishment of the Centre for High-Performance Computing (CHPC), one of the key components of the national cyberinfrastructure system, was completed. A Sun-Hybrid supercomputer was installed in September 2009, bringing the total computational capacity of the CHPC to 30 teraflops, and making it the fastest supercomputer in Africa. SANReN, which is responsible for the roll-out of a high-speed broadband network to all academic and research institutions in the country, was awarded a private electronic communications network licence exemption under the Electronic Communications Act, 2005. This licence exemption allows SANReN to build its own network for private use with the condition that any spare capacity not be sold or leased for commercial use. A major achievement for SANReN was the successful completion of the national network which connects all major metros in the country with a 10 gigabit per second link. As part of the implementation of the National Nanotechnology Strategy, and in particular to strengthen the nanoscience knowledge base, the DST successfully hosted the country's first International NanoSchool, which attracted about 150 students and lecturers from eight different countries.

Selected medium-term output targets

Subprogramme	Objectives (intended outcomes)	Measure/ Indicator	Corporate Strategy Output	Corporate Strategy Target	Target split over three-year corporate strategy period		
			2010-2013	2010-2013	2010/11	2011/12	2012/13
Human Capital and Science Platforms	Develop high-level human capital for the National System of Innovation	Number of postgraduate research students awarded bursaries	Increased support for postgraduate research students	Cumulative total of 4 900 students awarded bursaries	1 300 students awarded bursaries	1 700 students awarded bursaries	1 900 students awarded bursaries
		Number of postdoctoral students supported	Postdoctoral students funded	60 new postdoctoral students funded	20 new postdoctoral students funded by 31 Mar. 2011	20 new postdoctoral students funded by 31 Mar. 2012	20 new postdoctoral students funded by 31 Mar. 2013
		Appropriate policy and regulatory environment to support development of human capital	Science, Technology and Innovation (SETI) Human Capital Development strategy and implementation plan	Approval of the SETI HCD strategy and implementation plan by 31 Mar. 2013	Approval of the SETI HCD strategy by 31 Mar. 2011	Approval of the implementation plan and SETI HCD strategy implemented by 31 Mar. 2012	Implementation of the SETI HCD strategy and plan by 31 Mar. 2013
			Palaeoscience strategy and implementation plan	Approval of the palaeoscience strategy and implementation plan by 31 Mar. 2013	Approval of the palaeoscience strategy by 31 Mar. 2011	Approval of implementation plan and the palaeoscience strategy implemented by 31 Mar. 2012	Implementation of the palaeoscience strategy and plan by 31 Mar. 2013
			Antarctic research strategy and research plan	Approval of revised Antarctic strategy and implementation plan by 31 Mar. 2013	Approval of the Antarctic strategy by 31 Mar. 2011	Approval of the implementation plan and the Antarctic strategy implemented by 31 Mar. 2011	Implementation of the Antarctic strategy and plan by 31 Mar. 2013
	Enhance youth access to science, technology, engineering and mathematics in order to improve their participation in Science, Engineering and Technology based careers	Number of learners supported	Increased support to learners in the 18 adopted Dinaledi schools	Cumulative total of 8 100 learners provided with supplementary tuition in Mathematics, Physical Sciences and English by 31 Mar. 2013	2 700 learners provided with supplementary tuition in Mathematics, Physical Sciences and English by 31 Mar. 2011	2 700 learners provided with supplementary tuition in Mathematics, Physical Sciences and English by 31 Mar. 2012	2 700 learners provided with supplementary tuition in Mathematics, Physical Sciences and English by 31 Mar. 2013
		Number of people participating in SET awareness programmes	People participating in National Science Week (NSW) programmes and initiatives	Cumulative total of 825 000 people visited NSW sites, and 15 million reached through media by 31 Mar. 2013	250 000 people visit NSW sites and 5 million reached through popular media by 31 Dec. 2011	275 000 people visit NSW sites and 5 million reached through popular media by 31 Dec. 2012	300 000 people visit NSW sites and 5 million reached through popular media by 31 Dec. 2013
		Number of science centres supported	Increased support to science centres	64 grants awarded to science centres	20 science centres across the country	22 science centres across the country	22 science centres across the country

Subprogramme	Objectives (intended outcomes)	Measure/ Indicator	Corporate Strategy Output	Corporate Strategy Target	Target split over three-year corporate strategy period		
			2010-2013	2010-2013	2010/11	2011/12	2012/13
					supported with development grants by 31 Mar. 2011	supported with development grants by 31 Mar. 2012	supported with development grants by 31 Mar. 2013
	Promote and enhance research productivity to increase South Africa world share of knowledge outputs	Number of research chairs supported	Increased support to researchers	Cumulative total of 68 new research chairs supported	20 new research chairs supported by 31 Mar.2011	30 new research chairs supported by 31 Mar. 2012	18 new research chairs supported by 31 Mar. 2013
		Number of peer-reviewed research papers	Increased research productivity by researchers	Cumulative total of 1 830 peer-reviewed papers published	550 peer-reviewed papers published by 31 Mar. 2011	606 peer-reviewed papers published by Mar. 2012	674 peer-reviewed papers published by 31 Mar. 2013
Emerging Research Areas and Infrastructure	Identify and support the development of new and emerging research areas and technologies	Number of prototype products developed	3 prototype products developed	Development of at least 3 product prototypes for the identified areas	1 product prototype developed by 31 Mar. 2011	1 product prototype developed by 31 Mar. 2012	1 product prototype developed by 31 Mar. 2013
	To ensure the availability of appropriate infrastructure for RDI	Approved 10 year Infrastructure strategy and implementation plan	10-year strategic research infrastructure strategy and implementation plan	Approval of infrastructure strategy and plan	Approval of strategic research infrastructure strategy by 31 Mar. 2011	Implementation of strategy and plan by 31 Mar. 2012	Implementation of strategy and plan by 31 Mar. 2013
		Operational broadband network for all research and academic institutions	Increased availability of broadband connectivity for RDI	Connection of 76 academic and research sites	Connection of 39 academic and research sites by 31 Mar. 2011	Connection of 11 academic and research sites by 31 Mar. 2012	Connection of 26 academic and research sites by 31 Mar. 2013
Indigenous Knowledge Systems	Promote and develop RDI and innovation in IKS	Establishment of an IKS CoE	Increased support for RDI for IKS	1 CoE established by 31 Mar. 2011	Develop a framework for the identification and establishment of a CoE in IKS by 31 Mar. 2011	Establishment of an IKS CoE by 31 Mar. 2012	
		Number of people attending IKS public awareness programmes	Participation by people in IKS awareness and advocacy activities	Cumulative total of 18 000 people attending expos in at least 3 provinces	5 000 people attend IKS expo (KwaZulu-Natal) and 20 000 reached through popular media by 31 Mar. 2011	6 000 people attend IKS expo (North West) and 25 000 reached through popular media by 31 Mar. 2012	7 000 people attend IKS expo (Free State) and 30 000 reached through popular media by 31 Mar. 2013
	Development of Policy and legislation to protect IKS innovations and products from unfair exploitation	Sui Generis Bill	Sui Generis Bill	Approval of Sui Generis legislation	Drafting of legislative framework to inform legislation by 31 Mar. 2011	Approval of legislative framework by 31 Mar. 2012	Drafting and approval of Sui Generis Bill by 31 Mar. 2013

Subprogramme	Objectives (intended outcomes)	Measure/ Indicator	Corporate Strategy Output	Corporate Strategy Target	Target split over three-year corporate strategy period		
			2010-2013	2010-2013	2010/11	2011/12	2012/13
	Ensure the development of knowledge management systems in IKS	Improved management of indigenous knowledge	Establishment of an IKS national recordal system	A functioning National Indigenous Knowledge Management System (NIKMAS) with 3 IKS centres operational	Finalisation of system architecture for NIKMAS and establishment 1 IKS centre by 31 Mar. 2011	Implementation of NIKMAS and the establishment of 1 new IKS centre by 31 Mar. 2012	Implementation of NIKMAS and the establishment of 1 new IKS centre by 31 Mar. 2013
	Establishment of a certification and accreditation system for the recognition and affirmation of IKS practitioners and Holders	Approved accreditation and certification framework	Development of an institutional accreditation framework for certification of IKS knowledge holders	Approved accreditation and certification framework	Drafting and approval of policy framework for an accreditation and certification system by 31 Mar. 2011	Approval of the accreditation and certification framework by 31 Mar. 2012	Implementation of the accreditation and certification framework by 31 Mar. 2013

Programme 5: Socio-Economic Partnerships

Programme 5 aims to provide policy, strategy and direction-setting support for R&D-led growth. Its strategic focus is informed by government's Micro-Economic Reform Strategy, the National Industrial Policy Framework, the TYIP, the National Framework for Sustainable Development, and AsgiSA.

Interventions are aimed at promoting growth in public and private investments in R&D, and advancing national growth objectives through sustainable, value-added exploitation of natural resources and by supporting the greater use of ICT applications in government and society. The national objectives of growing the base of SMMEs, black-owned businesses (particularly engineering companies), job creation and poverty reduction are key considerations in the design and implementation of interventions. Programme 5 has the following three subprogrammes:

- S&T for Economic Impact: Sector Innovation and Gobal Change.
- S&T for Economic Impact: Technology localisation and Advance Manufacturing.
- S&T for Social Impact.
- S&T Investments.

Expenditure estimates

PROGRAMME NAME: Socio-Economic Partnerships Detail by subprogramme							
	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
	Outcome			Adjusted appro-priation	Medium-term estimates		
R thousand					MTEF Baseline		
Science and Technology for Economic Impact	769,045	847,008	848,286	915,392	981,322	1,013,914	1,049,138
Science and Technology for Social Impact	216,047	254,076	247,595	274,228	260,794	299,409	374,059
Science and Technology Investment	5,471	4,846	23,694	24,176	22,671	22,192	24,602
Total of subprogrammes	**990,563**	**1,105,930**	**1,119,575**	**1,213,796**	**1,264,787**	**1,335,515**	**1,447,799**
SUMMARY OF ECONOMIC CLASSIFICATION OF PAYMENTS							
Compensation of employees	12,866	16,121	21,973	29,526	31,276	32,996	34,646
Goods and services	8,370	8,526	6,950	14,741	15,454	16,180	16,989
Total transfers and subsidies	969,040	1,080,941	1,090,391	1,169,179	1,217,599	1,285,898	1,395,701
Total payments for capital assets	287	342	261	350	458	441	463
Payments for financial assets	-	-	-	-	-	-	
TOTAL PAYMENTS	**990,563**	**1,105,930**	**1,119,575**	**1,213,796**	**1,264,787**	**1,335,515**	**1,447,799**

Expenditure trends

Expenditure for Programme 5 increases from R990,6 million in 2006/07 to R1447,8 billion in 2012/13, at an average growth rate of 6,1%. Expenditure was reprioritised to provide funding for a technology localisation programme to support government's key priorities. The programme will provide technological support to local manufacturing firms to allow them to become potential suppliers in large-scale public procurement processes. In addition, funding is also being increased and redirected to two grand challenges outlined in the DST's Ten-Year Innovation Plan. These are Human and Social Dynamics, and the Global Change Grand Challenge. In addition, funding continues to be set aside to enhance information and data collection on the functioning and impact of the NSI to assist with long-term monitoring, evaluation and planning.

Service delivery objectives and indicators

- The Subprogramme: Science and Technology for Economic Impact strengthens the achievement of government's strategic economic growth and sector-development objectives through four major interventions, described as technology missions in the 2002 National R&D Strategy. These include ICT, advanced manufacturing, resource-based industries and climate change challenges. Key activities of the Subprogramme include providing policy direction, oversight and management of the implementation of RDI strategies and programmes with regard to technology mission areas. Transfers are made for RDI projects managed by several of the Department's implementing agencies.

- The Subprogramme: Science and Technology for Social Impact leads and supports knowledge generation in human and social dynamics in development, and promotes technology transfer for poverty reduction to support the creation of sustainable job and wealth opportunities, and to contribute to creating sustainable human settlements in areas of deprivation. It focuses on mature technologies that do not yet have widespread application, but are seen as having the potential to achieve government's broad development objectives. It does this by building partnerships with other government departments focusing on research and technology transfer.
- The Subprogramme: Science and Technology Investments leads and supports the development of S&T indicators, monitors national S&T expenditure and planning, and implements section 11D of the Income Tax Act. This involves the administration of the reporting by private companies on R&D claims against the tax allowance. Transfers and subsidies within the Subprogramme are for implementation of the Research Information Management System and for the development of new S&T indicators.

Recent outputs

The R&D survey 2007/08 was completed, and highlighted a 12% increase in gross investment in R&D to R18,6 billion.

More companies have become aware of the R&D Tax Incentive Programme, and the volume of enquiries received by the Department has increased substantially. By the end of October 2009, the DST had received a total of 301 submissions, with reported R&D expenditure of about R3,2 billion.

Integrated infrastructure planning is essential for accelerating the modernisation of the South African economy from a resource-based economy to one that is based on knowledge. The DST, with partners, has developed an e-based toolkit to enhance integrated planning and accelerate community infrastructure planning and service delivery. The Toolkit for Integrated Planning provides capabilities to integrate the profiling of past and current development needs and to simulate future development needs.

Initiatives geared at job creation sustained 604 community-based full-time jobs benefiting mainly women and the youth. These are jobs in community-based technology demonstration projects for essential oils, aquaculture and agroprocessing in support of the bioeconomy. Some of the initiatives (e.g. the Hondeklip Bay abalone grow-out) have demonstrated commercial viability to develop into enterprises that will create additional sustainable jobs in the near future.

The roll-out of rural broadband connectivity using a wireless mesh network progressed well in 2009/10, with mesh network equipment already installed in more than 150 schools in the Nkangala District Municipality in Mpumalanga and parts of Sekhukhune District Municipality in Limpopo. The network will go live by the end of March 2010, with these schools able to access the Internet and communicate with each other. Nineteen local entrepreneurs (village operators) have already completed the first phase of a two-phase business and technical training programme, which will enable them to run their own business by operating, supporting and maintaining the network.

The 10-year Global Change Research Plan was finalised, as were the implementation arrangements for the research plan.

Fluorochemicals Expansion Initiative supported 4 postdoctoral fellows and 31 science and engineering students (seven doctoral, 12 masters and 12 undergraduate). The initiative was part of the implementation of the Advanced Manufacturing and Technology Strategy.

Formalisation of the Titanium Centre of Competence is in progress and discussions on governance and operational models are under way. Titanium R&D projects under the CoC are on track, with good progress in the primary production of titanium powder, powder metallurgy, investment casting and additive manufacturing. There are five potential patents (three on the primary titanium process and two on the powder metallurgy work). To date, 60 students have been involved in the programme (24% doctoral, 30% masters, 20% Hons/BTech and 26% undergraduate).

Concerning technology localisation, technology benchmarking was conducted for 117 foundry companies with the support of the National Foundry Technology Network to identify technology gaps that must be addressed to make the foundries globally competitive. The foundry industry is a key industry in the supply chain and localisation of components related to the infrastructure build programs of Eskom and Transnet, and the Competitive Supplier Development Programme. Of the companies benchmarked, 28 will receive technology assistance packages (TAPs) from the Department. The Council for Scientific and Industrial Research and Mintek are in the process of being contracted to assist with the implementation of the TAPs. R26m has been provided by the DST for the technology upgrade support for these companies.

Selected medium-term output targets

Subprogramme	Objectives (intended outcomes)	Measure/ Indicator	Corporate strategy output	Corporate strategy target	Targets split over three-year corporate strategy period		
			2010 – 2013	2010 – 2013	2010/11	2011/12	2012/13
Science and Technology for Economic Impact	To increase human capital for competitiveness in advanced manufacturing, light metals, chemical engineering, ICT and climate science	Number of students funded for research degrees (Honours and PhDs) and work-based learnerships	Bursary awards to Honours and PhD students and work-based learnerships	182 students funded for research degrees (Honours and PhDs) by 31 Dec. 2012 51 funded work-based learnerships by 31 Dec. 2012	45 students funded for research degrees (Honours and PhDs) by 31 Dec. 2010 12 funded work-based learnerships by 31 Dec. 2010	59 students funded for research degrees (Honours and PhDs) by 31 Dec. 2011 18 funded work-based learnerships by 31 Dec. 2011	78 students funded for research degrees (Honours and PhDs) by 31 Dec. 2012 21 funded work-based learnerships by 31 Dec. 2012
	To increase the extent of new knowledge generated for economic and social benefit	Size of intellectual property (IP) portfolio (patents, patent applications, licences and trademarks)	IP portfolio (patents, patent applications, licences and trademarks)	33 IP portfolios (patents, patent applications, licences and trademarks) by 31 Mar. 2013	11 IP portfolios by 31 Mar. 2011	11 IP portfolios by 31 Mar. 2012	11 IP portfolios by 31 Mar. 2013
		Number of published scientific and technical papers	Published scientific and technical papers	270 published scientific and technical papers by 31 Mar. 2013	70 published scientific and technical papers by 31 Mar. 2011	100 published scientific and technical papers by 31 Mar. 2012	100 published scientific and technical papers by 31 Mar. 2013
	Provide support to targeted research networks to advance DST priorities	Number of NSI research networks supported (organising stakeholders into consultative and learning bodies and communities of practice)	Supported NSI research networks	21 NSI research networks supported by 31 Mar. 2013	11 NSI research networks supported by 31 Mar. 2011	5 NSI research networks supported by Mar. 2012 31	5 NSI research networks supported by 31 Mar. 2013
	To enable growth in advanced industries through support to companies and investing in new developments	Number of companies provided with TAPs	Companies provided with TAPs	76 companies provided with TAPs by 31 Mar. 2013	24 companies provided with TAPs by 31 Mar. 2011	24 additional companies provided with TAPs by 31 Mar. 2012	28 additional companies provided with TAPs by 31 Mar. 2013
		Number of innovation strategies developed that support technology localisation in specific sectors	Innovation strategies that support technology localisation in the nuclear industry and foundry industry	2 innovation strategies that support localisation developed by 31 Dec. 2010	2 innovation strategies that support localisation developed by 31 Dec. 2010	-	-

Subprogramme	Objectives (intended outcomes)	Measure/ Indicator	Corporate strategy output	Corporate strategy target	Targets split over three-year corporate strategy period		
			2010 — 2013	2010 — 2013	2010/11	2011/12	2012/13
Science and Technology for Economic Impact	To develop human capital through increasing funding support for the number of research graduates (Honours and PhDs), studentships and internships awarded to expand human capital in the social sciences and humanities	Number of Masters/PhD students funded per year and linked to the 7 SARChI chairs established in the social sciences and humanities	Bursary awards to Masters/PhD students in the social sciences and humanities	63 funded Masters/PhD students in the social sciences and humanities by 31 Mar. 2013	21 funded Masters/PhD students in the social sciences and humanities by 31 Mar. 2011	21 funded Masters/PhD students in the social sciences and humanities by 31 Mar. 2012	21 funded Masters/PhD students in the social sciences and humanities by 31 Mar. 2013
		Number of Integrated Planning and Development Modelling internships and studentships	Studentships and internships awarded	5 studentships and 2 internships awarded by 31 Mar. 2011	5 studentships and 2 internships awarded by 31 Mar. 2011	—	—
	To increase the extent of knowledge generated for economic and social benefit	Number of Human and Social Dynamics Grand Challenge policy interventions for social developments	Policy and social dialogues undertaken	12 policy and social dialogues undertaken by 31 Mar. 2013	4 policy and social dialogues undertaken by 31 Mar. 2011	4 policy and social dialogues undertaken by 31 Mar. 2012	4 policy and social dialogues undertaken by 31 Mar. 2013
		Number of policy briefs/policy papers per year generated by the HSRC targeted at policy and decision-making in government	Published policy briefs/policy papers	15 published policy briefs/policy papers by 31 Mar. 2013	5 published policy briefs/policy papers by 31 Mar. 2011	5 published policy briefs/policy papers by 31 Mar. 2012	5 published policy briefs/policy papers by 31 Mar. 2013
	To increase the impact on households through providing decision-support interventions for sustainable development	Number of decision-support interventions for sustainable development	Finalised geospatial decision-support intervention for Phase 1(b) of the Toolkit for Integrated Planning and Development	1 finalised geospatial decision-support intervention for Phase 1(b) of the Toolkit for Integrated Planning and Development by 31 Mar. 2011	1 finalised geospatial decision-support intervention for Phase 1(b) of the Toolkit for Integrated Planning and Development by 31 Mar. 2011	Toolkit operationalised across South African municipalities	Case study review: Toolkit operationalised across South African municipalities
	To increase the number of households benefiting from technology-based interventions	Number of households benefiting from technology-based interventions	Households benefiting from technology-based interventions	9 300 households benefiting from technology-based interventions by 31 Mar. 2011	2 800 households benefiting from technology-based interventions by 31 Mar. 2011	3 000 households benefiting from technology-based interventions by 31 Mar. 2012	3 500 households benefiting from technology-based interventions by 31 Mar. 2013

Subprogramme	Objectives (intended outcomes)	Measure/ Indicator	Corporate strategy output	Corporate strategy target	Targets split over three-year corporate strategy period		
			2010 — 2013	2010 — 2013	2010/11	2011/12	2012/13
	To increase support for agro-processing and aquaculture to enhance sustainable economic opportunities	Number of new businesses created	New businesses created	15 new businesses created by 31 Mar. 2013	5 new businesses created by 31 Mar. 2010	8 new businesses created by 31 Mar. 2012	2 additional new businesses created by 31 Mar. 2013
		Number of jobs created	Job creation	1 200 jobs to be created by 31 Mar. 2012	600 jobs to be created by 31 Mar. 2010	400 jobs to be created by 31 Mar. 2011	200 jobs to be created by 31 Mar. 2012
Science and Technology Investment	Contribute to improving government decision making on science and technology as productive investments	Number of decision-support interventions	Statistical and analytical reports published for the Minister, Cabinet, and public information	3 annual reports on publicly funded science and technology activities (STAs) published by 31 Oct. 2012	2009/10 report on publicly funded STAs published by 31 Oct. 2010	2010/11 report on publicly funded STAs by 31 Oct. 2011	2011/12 report on publicly funded STAs by 31 Oct. 2012
				3 annual TBP reports published by by 31 Mar. 2013	2009/10 TBP report published by by 31 Mar. 2011	2010/11 TBP report published by by 31 Mar. 2012	2011/12 TBP report published by 31 Mar. 2013
				2 biennial reports on the country's progress towards a knowledge economy published by 31 Mar. 2013	2009/10 report on the country's progress towards a knowledge economy published by 31 Mar. 2011		2011/12 report on the country's progress towards a knowledge economy published by 31 Mar. 2013
				1 report on the national Innovation Survey published by 31 Mar. 2012		2010 Innovation Survey report published by 31 Mar. 2012	
				3 annual reports on Tax Incentive Programme published by 31 Mar. 2013	2009/10 Tax Incentive Programme report published by 31 Mar. 2011	2010/11 Tax Incentive Programme report published by 31 Mar. 2012	2011/12 Tax Incentive Programme report published by 31 Mar. 2013
				8 reports on sector-focused R&D activities and trends published by 31 Mar. 2013		Thematic indicator report on selected sector published by 31 Mar. 2012	Thematic indicator report on selected sector published by 31 Mar. 2013
						1 report on the review of Type 3 S&T infrastructure published by 31 Mar. 2012	2 reports on the review of Type 3 S&T infrastructure published by 31 Mar. 2013

Subprogramme	Objectives (intended outcomes)	Measure/ Indicator	Corporate strategy output	Corporate strategy target	Targets split over three-year corporate strategy period		
			2010 — 2013	2010 — 2013	2010/11	2011/12	2012/13
					One report on the review of Type 3 S&T infrastructure published by 31 Mar. 2011	2 reports generated through RIMS published by 31 Mar. 2012	3 reports generated through RIMS published by 31 Mar. 2013
	To provide decision support for growing government expenditure on research and development as a percentage of GDP	The number of national R&D survey reports published	Published national R&D survey reports	3 national R&D survey reports published by 31 Oct. 2012	2008/09 R&D survey report published by 31 Oct. 2010	2009/10 R&D survey report published by 31 Oct. 2011	2010/11 R&D survey report published by 31 Oct. 2012

Public entities and agencies reporting to the Minister

Technology Innovation Agency

The Technology Innovation Agency (TIA) was established by the Technology Innovation Agency Act, 2008. It is meant to support the state in stimulating and intensifying technological innovation in order to improve economic growth and the quality of life of all South Africans by developing and exploiting technological innovations. The process of making TIA fully operational is under way.

Council for Scientific and Industrial Research

The Council for Scientific and Industrial Research (CSIR) was established under the Scientific Research Council Act, 1988. Its objects are, through directed and particularly multidisciplinary research and technological innovation, to foster, in the national interest and in fields which in its opinion should receive preference, industrial and scientific development, either by itself or in cooperation with principals from the private or public sectors, and thereby to contribute to the improvement of the quality of life of the people of South Africa. As a science council, the CSIR conducts activities across the research and innovation value chain, with a focus on directed R&D.

The overall strategic intent to support national priorities is implemented through the CSIR's research impact areas. These are energy (renewable and alternative), health (novel drug development and nutrition), defence and security (developing defence capability as a national asset), the natural environment (climate change, pollution and waste, water, and coastal issues), the built environment (transport and human settlements), industry (manufacturing, forestry and mining), and ICT (cyberinfrastructure, information security and accessibility).

The organisational priorities of the CSIR are building and transforming human capital, strengthening the SET base, performing relevant R&D, and transferring technology and skilled human capital, while maintaining financial sustainability and exercising good governance.

Expenditure estimates

Council for Scientific and Industrial Research (CSIR): Programme information

R thousand	Audited outcome 2006/07	2007/08	2008/09	Revised estimate 2009/10	Medium-term estimate 2010/11	2011/12	2012/13
Defence, Peace, Safety and Security	172,904	217,223	298,006	293,874	307,997	331,722	357,469
Materials Science and Manufacturing	131,171	146,418	182,691	180,155	188,813	203,357	219,142
Biosciences	97,758	126,681	122,614	120,823	126,629	136,383	146,969
Natural Resources and the Environment	187,977	181,183	185,246	182,093	190,844	205,544	221,498
Built Environment	110,621	126,539	157,028	155,472	162,944	175,495	189,117
Other programmes	460,258	445,215	580,954	583,736	600,727	647,002	697,220
Total expense	**1,160,689**	**1,243,259**	**1,526,539**	**1,516,153**	**1,577,954**	**1,699,503**	**1,831,415**

Council for Scientific and Industrial Research (CSIR): Financial information

Statement of financial performance R thousand	Audited outcome 2006/07	2007/08	2008/09	Revised estimate 2009/10	Medium-term estimate 2010/11	2011/12	2012/13
Revenue							
Non-tax revenue	**726,779**	**868,522**	**1,104,497**	**946,875**	**976,129**	**1,096,001**	**1,192,954**
Sale of goods and services other than capital assets	682,742	793,366	991,841	896,982	928,730	1,050,973	1,150,177
Of which:							
Contract income	682,742	793,366	991,841	896,982	928,730	1,050,973	1,150,177
Other non-tax revenue	44,037	75,156	112,656	49,893	47,399	45,028	42,777
Transfers received	460,443	429,013	480,320	599,384	634,248	638,210	675,834
Total revenue	**1,187,222**	**1,297,535**	**1,584,817**	**1,546,259**	**1,610,377**	**1,734,211**	**1,868,788**
Expenses							
Current expense	**1,160,689**	**1,243,259**	**1,526,539**	**1,516,153**	**1,577,954**	**1,699,503**	**1,831,415**
Compensation of employees	592,828	628,319	771,977	853,815	888,043	941,327	997,805
Goods and services	510,700	580,593	705,645	620,277	646,306	711,085	782,750
Depreciation	50,682	28,061	37,409	42,061	43,605	47,091	50,860
Interest, dividends and rent on land	6,376	6,421	10,023	—	—	—	
Total expenses	**1,160,689**	**1,243,259**	**1,526,539**	**1,516,153**	**1,577,954**	**1,699,503**	**1,831,415**
Surplus / (Deficit)	**26,533**	**54,276**	**58,278**	**30,106**	**32,423**	**34,708**	**37,373**
Statement of financial position							
Carrying value of assets	219,135	225,429	297,985	372,606	415,862	449,962	501,586
Of which: Acquisition of assets	66,443	41,794	115,092	116,682	86,861	81,191	102,484
Investments	200,000	—	100,000	—	—	—	
Inventory	43,203	61,712	79,338	105,228	115,751	127,326	140,058
Receivables and prepayments	146,906	267,076	138,725	146,617	143,901	139,708	222,035
Cash and cash equivalents	379,243	691,476	782,528	743,402	722,955	666,505	637,037
Assets not classi ed elsewhere	95,070	94,890	96,756	1,608	1,608	1,608	1,608
Total assets	**1,083,557**	**1,340,583**	**1,495,332**	**1,369,461**	**1,400,077**	**1,385,109**	**1,502,324**
Accumulated surplus/de cit	347,716	392,732	449,495	479,601	512,024	546,732	584,104
Post-retirement benefits	12,751	8,595	8,862	5,825	—	—	
Trade and other payables	623,750	896,144	994,960	884,035	888,053	838,377	918,220
Provisions	72,248	—	1,427	—	—	—	
Liabilities not classi ed elsewhere	27,092	43,112	40,588	—	—	—	
Total equity and liabilities	**1,083,557**	**1,340,583**	**1,495,332**	**1,369,461**	**1,400,077**	**1,385,109**	**1,502,324**

Expenditure trends

The CSIR is funded by transfers from the Department of Science and Technology, as well as receiving ring-fenced grant allocations for CoCs, the Laser Loan Programme, ICT and Demonstration in Government and the Meraka Institute. The Council generates about 66% of its income from R&D contract income. It generates a marginal surplus on this contract income and on technology transfer activities, which is reinvested in terms of the Council's mandate.

Over the MTEF period, the Council is expected to receive transfers of R634,2 million, R638,2 million and R675,8 million, and additional ring-fenced allocations of R56,5 million, R63,9 million and R67,1 million, excluding value added tax.

The variable portion of CSIR's expenditure is dependent on the nature of the R&D contract income secured and undertaken by the CSIR. Expenditure increased from R1,2 billion in 2006/07 to R1,8 billion in 2012/13. The spending focus over the MTEF period will remain on fostering industrial and scientific development in the national interest through multidisciplinary research and technological innovation.

National Research Foundation

National Research Foundation (NRF), established under the National Research Foundation Act, 1998, promotes and supports research through funding, human resource development and the provision of research facilities. Its strategic focus is on promoting and supporting research in order to facilitate the creation of knowledge, innovation and development in all fields of science and technology, including indigenous knowledge.

Expenditure estimates

National Research Foundation (NRF): Financial information

Statement of financial performance	Audited outcome			Revised estimate	Medium-term estimate		
R thousand	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Revenue							
Non-tax revenue	**255,634**	**408,678**	**702,716**	**840,458**	**946,884**	**985,247**	**963,335**
Sale of goods and services other than capital assets	201,912	331,217	574,557	750,469	857,640	891,027	861,155
Of which:							
Isotopes sales	19,790	25,344	25,344	33,943	6,408	7,197	8,182
	182,122	305,873	549,213	716,526	851,232	883,830	852,973
Other non-tax revenue	53,722	77,461	128,159	89,989	89,244	94,220	102,180
Transfers received	580,411	638,980	658,952	721,723	772,227	831,920	820,429
Total revenue	**836,045**	**1,047,658**	**1,361,668**	**1,562,181**	**1,719,111**	**1,817,167**	**1,783,764**
Expenses							
Current expense	**427,497**	**494,999**	**595,329**	**657,701**	**746,855**	**784,964**	**821,958**
Compensation of employees	221,675	242,846	287,902	347,161	381,288	409,078	434,891
Goods and services	190,085	223,080	275,839	265,022	318,087	324,098	325,139
Depreciation	15,074	28,649	30,941	45,388	47,239	51,626	61,759
Interest, dividends and rent on land	663	424	647	130	241	162	170
Transfers and subsidies	397,386	505,836	766,319	903,827	972,256	1,032,203	961,806
Total expenses	**824,883**	**1,000,835**	**1,361,648**	**1,561,528**	**1,719,111**	**1,817,167**	**1,783,764**
Surplus / (Deficit)	**11,162**	**46,823**	**20**	**653**	**(0)**	**(0)**	**(0)**
Statement of financial position							
Carrying value of assets	210,559	240,111	319,552	514,826	833,543	1,134,434	1,355,518
Of which: Acquisition of assets	62,755	59,768	111,122	241,172	366,462	353,023	283,349
Investments	56,880	48,887	46,141	44,000	42,000	40,000	40,000
Inventory	2,696	2,579	3,926	4,500	5,400	6,000	9,500
Receivables and prepayments	102,878	276,602	264,991	290,000	311,000	298,000	332,000
Cash and cash equivalents	371,159	507,334	756,204	502,583	483,971	512,368	473,282
Total assets	**744,172**	**1,075,513**	**1,390,814**	**1,355,909**	**1,675,914**	**1,990,802**	**2,210,300**
Accumulated surplus/de cit	(72,618)	(47,280)	(77,985)	(77,332)	(77,332)	(77,333)	(77,333)
Capital and reserves	77,073	98,558	129,283	129,283	129,283	129,283	129,283
Post-retirement bene ts	88,967	93,630	92,217	95,232	98,200	101,051	103,833
Trade and other payables	441,292	691,594	926,347	695,000	693,320	704,465	700,098
Provisions	—	—	2,500	—	—	—	
Liabilities not classi ed elsewhere	209,458	239,011	318,452	513,726	832,443	1,133,334	1,354,418
Total equity and liabilities	**744,172**	**1,075,513**	**1,390,814**	**1,355,909**	**1,675,914**	**1,990,800**	**2,210,299**
Contingent liabilities	670,953	1,340,904	1,508,120	1,500,000	1,200,000	1,100,000	1,000,000

Expenditure trends

Expenditure increased from R824,9 million in 2006/07 to R1,6 billion in 2009/10, at an annual average rate of 23,7%. This is dominated by the ramping up of spending on key DST programmes, including SARChI and the SKA project. Expenditure over the medium term is expected to increase to R1,8 billion, at an average rate of 4,5%. Spending over the MTEF period will largely be in the key investment areas, as well as in compensation of employees and goods and services.

Revenue increased from R836 million in 2006/07 to R1,6 billion in 2009/10, at an average rate of 23,1%. Over the medium term, the NRF's total revenue is expected to grow at an average annual rate of 4,5% to reach R1,8 billion. The growth is mainly to cater for adjustments for inflation for existing key research and infrastructure activities.

Human Sciences Research Council

The Human Sciences Research Council (HSRC), established under the Human Sciences Research Council Act, 2008, undertakes, promotes and coordinates research in the human and social sciences. It is mandated to -

- address developmental challenges in South Africa, Africa and the rest of the world by means of strategic basic and applied research in human sciences;
- inform the formulation and monitoring of policy, and evaluate the implementation thereof;
- stimulate public debate through the effective dissemination of fact-based research results; 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 in society through its research; and
- develop and make available data sets underpinning research, policy development and discussion of developmental issues.

The HSRC aligns its research activities and structures to South Africa's national development priorities. Its work is closely aligned

with the 2010 MSTF priorities. Community-based demonstration projects are designed to obtain scientific evidence to inform government policies and intervention programmes. Organisational performance is measured in terms of indicators that are closely aligned with its strategic objectives.

Expenditure estimates

Human Sciences Research Council (HSRC): Financial information

Statement of financial performance	Audited outcome			Revised estimate	Medium-term estimate		
R thousand	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Revenue							
Non-tax revenue	**127,088**	**134,431**	**181,150**	**167,515**	**212,121**	**227,240**	**244,445**
Sale of goods and services other than capital assets	124,605	128,202	176,006	159,625	203,560	217,515	233,398
Of which:							
Research income	124,605	124,177	167,059	145,906	188,675	200,606	214,189
Other sales	-	4,025	8,947	13,719	14,885	16,909	19,209
Other non-tax revenue	2,483	6,229	5,144	7,890	8,561	9,725	11,047
Transfers received	107,479	127,164	144,146	166,185	169,793	180,729	189,877
Total revenue	**234,567**	**261,595**	**325,296**	**333,700**	**381,914**	**407,969**	**434,322**
Expenses							
Current expense	**240,549**	**257,378**	**315,331**	**326,445**	**368,649**	**393,059**	**417,563**
Compensation of employees	121,153	118,790	122,119	160,312	172,336	185,261	199,155
Goods and services	115,602	134,369	187,818	162,390	192,429	203,826	214,346
Depreciation	3,794	4,219	5,383	3,743	3,884	3,972	4,062
Interest, dividends and rent on land	-	-	-	-	-	-	-
Transfers and subsidies	-	9,342	10,500	11,802	13,265	14,910	16,759
Total expenses	**240,549**	**266,720**	**325,831**	**338,247**	**381,914**	**407,969**	**434,322**
Surplus / (Deficit)	**(5,982)**	**(5,125)**	**(535)**	**(4,547)**	**-**	**-**	**-**
Statement of financial position							
Carrying value of assets	89,420	91,920	170,602	170,059	169,075	168,003	166,841
Of which: Acquisition of assets	2,832	7,614	15,098	3,200	2,900	2,900	2,900
Inventory	3,268	2,698	3,517	3,940	4,275	4,856	5,535
Receivables and prepayments	34,393	41,838	35,232	27,193	29,505	33,517	38,209
Cash and cash equivalents	29,393	46,865	46,848	48,565	39,997	37,229	32,447
Assets not classi ed elsewhere	46	733	1,735	1,976	2,144	2,435	2,776
Total assets	**156,520**	**184,054**	**257,934**	**251,733**	**244,996**	**246,040**	**245,808**
Accumulated surplus/de cit	90,286	9,402	8,866	4,319	4,319	4,319	4,319
Capital and reserves	-	74,665	143,652	143,652	143,652	143,652	143,652
Borrowings	-	1,120	1,499	-	-	-	-
Trade and other payables	52,621	78,114	79,420	67,147	68,276	79,734	79,734
Provisions	9,748	10,110	10,648	12,908	14,006	15,922	18,103
Liabilities not classi ed elsewhere	3,865	10,643	13,849	23,707	14,743	2,413	-
Total equity and liabilities	**156,520**	**184,054**	**257,934**	**251,733**	**244,996**	**246,040**	**245,808**

Expenditure trends

The HSRC is funded by transfer payments (as a core grant) from the DST, as well as ring-fenced allocations. External income is obtained from research grants, contract research work and non-research items such as rental income. Between 2006/07 and 2009/10, expenditure increased from R240,5 million to R338,2 million, at an average annual rate of 12%. The largest increase, of 22,2%, between 2007/08 and 2008/09, was due mostly to increases in salary-related expenses, driven by increases in the number of staff owing to an expanded programme of work. Costs were managed throughout the period, resulting in relatively small surpluses or deficits at the end of each budget year.

Allocations over the MTEF period are R169,8 million, R180,7 million and R189,7 million (excluding VAT). These amounts include ring-fenced allocations, and reflect an annual rate of increase of 5,5% over the MTEF. The HSRC has not received earmarked funds for CAPEX since 2008/09. The entity's total budget is projected to grow at a slightly higher average annual rate of 6,6% over the MTEF period, from R381,9 million in 2010/11 to R434,3 million in 2012/13.

Africa Institute of South Africa

The Africa Institute of South Africa (AISA) is a statutory body established in terms of the Africa Institute of South Africa Act, 2001. It focuses on political, socio-economic, international and development issues in contemporary Africa, and contributes to the goals of the National System of Innovation through research programmes which affect on knowledge production, human resource development, social science and innovation. AISA's key roles are to conduct research, support policy development, run training programmes, and establish, participate in and maintain networks for peace, development and prosperity in Africa.

Expenditure estimates

Africa Institute of South Africa, Pretoria: Objective information

R thousand	Audited outcome 2006/07	2007/08	2008/09	Revised estimate 2009/10	Medium-term estimate 2010/11	2011/12	2012/13
Research	2,749	3,173	3,077	2,424	2,454	2,658	2,973
Publications	579	857	1,329	2,072	2,134	2,264	2,399
Library and Documentation	679	866	627	955	1,085	1,045	1,107
Corporate Affairs, Outreach and International Liaison	680	973	1,060	2,147	2,119	2,355	2,495
Other objectives	16,848	18,178	21,577	24,157	25,674	26,514	27,605
Total expense	**21,535**	**24,047**	**27,670**	**31,755**	**33,466**	**34,836**	**36,579**

Africa Institute of South Africa, Pretoria: Financial information

Statement of financial performance R thousand	Audited outcome 2006/07	2007/08	2008/09	Revised estimate 2009/10	Medium-term estimate 2010/11	2011/12	2012/13
Revenue							
Non-tax revenue	**1,265**	**1,222**	**1,141**	**2,475**	**2,872**	**2,396**	**2,517**
Sale of goods and services other than capital assets	118	54	36	100	100	120	140
Of which:							
Sales by market establishments	118	54	36	100	100	120	140
Other non-tax revenue	1,147	1,168	1,105	2,375	2,772	2,276	2,377
Transfers received	23,454	26,530	30,464	29,280	30,594	32,440	34,062
Total revenue	**24,719**	**27,752**	**31,605**	**31,755**	**33,466**	**34,836**	**36,579**
Expenses							
Current expense	**21,535**	**24,047**	**27,670**	**31,755**	**33,466**	**34,836**	**36,579**
Compensation of employees	11,655	11,206	14,744	17,513	18,441	19,455	20,427
Goods and services	9,438	12,396	12,192	12,570	13,271	14,175	14,832
Depreciation	345	314	734	1,672	1,754	1,206	1,320
Interest, dividends and rent on land	97	131	-	-	-	-	-
Total expenses	**21,535**	**24,047**	**27,670**	**31,755**	**33,466**	**34,836**	**36,579**
Surplus / (Deficit)	**3,184**	**3,705**	**3,935**	**-**	**-**	**-**	**-**
Statement of financial position							
Carrying value of assets	1,521	2,386	3,539	3,824	2,761	2,502	2,294
Of which: Acquisition of assets	97	1,221	2,002	2,023	500	1,020	1,220
Investments	32	34	61	64	65	68	72
Inventory	815	704	1,374	1,550	1,600	1,650	1,700
Receivables and prepayments	1,015	368	5,601	3,500	3,000	2,500	2,000
Cash and cash equivalents	6,072	8,221	4,788	13,120	12,000	12,000	12,000
Assets not classi ed elsewhere	1,331	2,285	2,427	1,200	1,100	1,000	900
Total assets	**10,786**	**13,998**	**17,790**	**23,258**	**20,526**	**19,720**	**18,966**
Accumulated surplus/de cit	7,756	11,461	14,822	8,613	7,588	8,934	10,558
Borrowings	666	-	-	-	-	-	-
Trade and other payables	1,694	1,667	2,206	1,600	1,900	2,000	2,100
Provisions	670	870	762	700	750	760	770
Liabilities not classi ed elsewhere	-	-	-	12,345	10,288	8,026	5,538
Total equity and liabilities	**10,786**	**13,998**	**17,790**	**23,258**	**20,526**	**19,720**	**18,966**

Expenditure trends

AISA is funded mainly by transfers from the Department of Science and Technology. Total revenue increased from R24,7 million in 2006/07 to R31,8 million in 2009/10, at an average annual rate of 8,7%, and is expected to grow at an average annual rate of 5,1% over the MTEF period, to R36,6 million. Transfers received from the Department grew at an average annual rate of 5,2% over the MTEF period, from 29,3 million in 2009/10 to R34,1 million in 2012/13.

Academy of Science of South Africa

Academy of Science of South Africa (ASSAf) was established under the Academy of Science of South Africa Act, 2001. Its objectives are to promote common ground for scientific thinking across all disciplines, to promote innovative and independent scientific thinking, to promote the development of the intellectual capacity of all people, and to link South Africa with scientific communities at the highest levels, particularly in Africa. The Academy publishes scientific reports, investigates matters of public interest about science, and manages South African journals.

Expenditure estimates

Academy of Science of South Africa: Financial information

Statement of financial performance	Audited outcome			Revised estimate	Medium-term estimate		
R thousand	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Revenue							
Non-tax revenue	**1,002**	**835**	**1,158**	**1,168**	**1,120**	**1,072**	**1,024**
Sale of goods and services other than capital assets	730	378	375	368	320	272	224
Of which:							
Sales by market establishments	730	378	375	368	320	272	224
Other non-tax revenue	272	457	783	800	800	800	800
Transfers received	4,960	8,602	16,430	19,704	16,260	14,465	14,637
Total revenue	**5,962**	**9,437**	**17,588**	**20,872**	**17,380**	**15,537**	**15,661**
Expenses							
Current expense	**5,957**	**8,167**	**12,693**	**20,872**	**17,380**	**15,537**	**15,661**
Compensation of employees	2,065	2,785	4,908	7,689	8,458	9,304	10,234
Goods and services	3,869	5,352	7,747	12,890	8,667	6,012	5,235
Depreciation	23	30	38	293	255	221	192
Total expenses	**5,957**	**8,167**	**12,693**	**20,872**	**17,380**	**15,537**	**15,661**
Surplus / (Deficit)	**5**	**1,270**	**4,895**	**-**	**-**	**-**	**-**
Statement of financial position							
Carrying value of assets	169	139	240	1,658	1,443	1,252	1,090
Of which: Acquisition of assets	84	-	139	1,710	40	30	30
Cash and cash equivalents	4,337	5,275	11,275	9,858	7,850	7,067	6,360
Assets not classi ed elsewhere	-	-	78	80	-	-	-
Total assets	**4,506**	**5,414**	**11,593**	**11,596**	**9,293**	**8,319**	**7,450**
Accumulated surplus/de cit	3,700	4,970	8,865	10,896	9,293	8,319	7,450
Trade and other payables	806	444	2,728	700	-	-	-
Total equity and liabilities	**4,506**	**5,414**	**11,593**	**11,596**	**9,293**	**8,319**	**7,450**

Expenditure trends

ASSAf is funded primarily by transfer payments from the Department of Science and Technology. Revenue and expenditure increased from R6,0 million in 2006/07 to R20,9 million in 2009/10, at an average annual rate of 51,8%, and is expected to decrease at an average annual rate of 9,1%, to reach R15,7 million over the medium term. Transfers over the medium term are expected to be R16,3 million, R14,5 million and R14,6 million.

Tshumisano Trust

Tshumisano Trust was established in 2002 as a joint venture funded by the Department of Science and Technology, with the participation of the Department of Labour, universities of technology, and the German government's funding agency, the Gesellschaft für Technische Zusammenarbeit.

The mandate of the Trust is to improve the competitiveness of the innovation capacity of SMMEs in selected sectors through technological innovation and related skills development. Tshumisano's technology stations support and maintain a system of technology transfer providers and related needs-orientated services to SMMEs, while ensuring that universities of technology orient their graduates and research and development towards the needs of SMMEs.

Expenditure estimates

Tshumisano Trust: Programme information

	Audited outcome			Revised estimate	Medium-term estimate		
R thousand	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Technology Stations Programme	35,280	35,990	31,712	36,000	37,770	39,541	41,755
Institute For advanced Tooling	7,500	7,500	7,500	7,500	7,500	7,500	7,920
Internship	6,000	6,000	6,600	6,694	8,340	8,733	9,223
Total expense	**48,780**	**49,490**	**45,812**	**50,194**	**53,610**	**55,774**	**58,898**

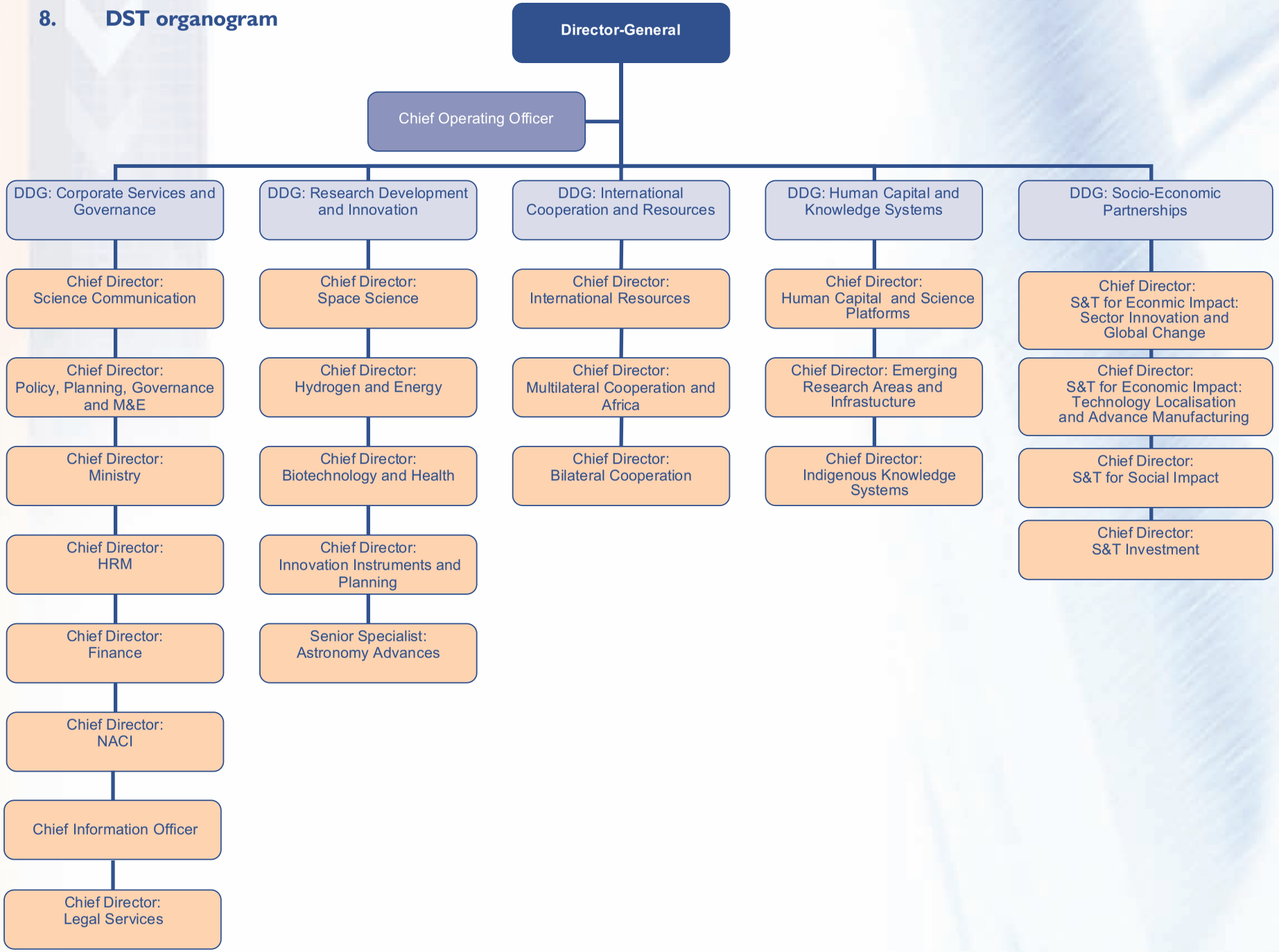
Tshumisano Trust: Financial information

Statement of financial performance	Audited outcome			Revised estimate	Medium-term estimate		
R thousand	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Revenue							
Non-tax revenue	**1,557**	**1,040**	**1,444**	**14,457**	**15,700**	**15,597**	**16,725**
Other non-tax revenue	1,557	1,040	1,444	14,457	15,700	15,597	16,725
Transfers received	46,680	52,155	51,544	36,437	40,410	40,927	45,773
Total revenue	**48,237**	**53,195**	**52,988**	**50,894**	**56,110**	**56,524**	**62,498**
Expenses							
Current expense	**48,780**	**49,490**	**45,812**	**6,479**	**7,237**	**7,569**	**7,740**
Compensation of employees	2,388	3,273	3,860	4,369	4,805	5,031	5,300
Goods and services	46,101	45,811	40,340	1,898	2,209	2,327	2,264
Depreciation	262	382	168	212	223	211	176
Interest, dividends and rent on land	29	24	1,444	-	-	-	-
Transfers and subsidies	-	-	-	43,715	46,373	48,205	51,158
Total expenses	**48,780**	**49,490**	**45,812**	**50,194**	**53,610**	**55,774**	**58,898**
Surplus / (Deficit)	**(543)**	**3,705**	**7,176**	**700**	**2,500**	**750**	**3,600**
Statement of financial position							
Carrying value of assets	1,282	1,260	1,092	918	834	710	526
Of which: Acquisition of assets	1,019	360	-	38	139	-	-
Investments	5,282	1,978	5,381	5,299	5,392	5,169	5,320
Receivables and prepayments	168	70	15	20	36	41	44
Cash and cash equivalents	3,892	3,871	1,633	-	-	-	-
Total assets	**10,624**	**7,179**	**8,121**	**6,237**	**6,262**	**5,920**	**5,890**
Accumulated surplus/de cit	3,229	3,467	3,885	-	-	-	-
Trade and other payables	7,395	3,436	3,964	6,237	6,262	5,920	5,890
Liabilities not classi ed elsewhere	-	276	272	-	-	-	-
Total equity and liabilities	**10,624**	**7,179**	**8,121**	**6,237**	**6,262**	**5,920**	**5,890**

Expenditure trends

Tshumisano Trust is funded by transfer payments from the Department of Science and Technology, as well as ring-fenced allocations. Total revenue grew from R48,2 million in 2006/07 to R50,9 million in 2009/10, at an average annual rate of 1,8%, and is expected to grow at an annual rate of 7,1% over the MTEF period to reach R62,5 million. Expenses increase in similar proportions. Allocations from the Department over the MTEF period, including ring-fenced allocations, are R53,6 million in 2010/11, R55,7 million in 2011/12 and R58,9 in 2012/13.

8. DST organogram



ABBREVIATIONS

AISA	Africa Institute of South Africa
AsgiSA	Accelerated and Shared Growth Initiative of South Africa
ASSAf	Academy of Science of South Africa
BIKS	Bachelor of Indigenous Knowledge Systems
CHPC	Centre for High Performance Computing
CoC	centre of competence
CoE	centre of excellence
CSIR	Council for Scientific and Industrial Research
DST	Department of Science and Technology
EU	European Union
HSRC	Human Sciences Research Council
HCD	human capital development
ICT	information and communication technologies
IKS	indigenous knowledge systems
IPR Act	Intelectual Property from Publicly Financed Research and Development Act
KAT	Karoo Array Telescope
MTEF	Medium Term Expenditure Framework
MTSF	Medium Term Strategic Framework
NAM	Non-Aligned Movement
NEPAD	New Partnership for Africa's Development
NIKMAS	National IKS Management System
NIPMO	National Intellectual Property Management Office
NPEP	Nanotechnology Public Engagement Programme
NRDS	National Research and Development Strategy
NRF	National Research Foundation
NSI	National System of Innovation
OECD	Organisation for Economic Cooperation and Development
R&D	research and development
RDI	research, development and innovation
RIMS	Research Information Management System
S&T	science and technology
SADC	Southern African Development Community
SALT	Southern African Large Telescope
SANReN	South African National Research Network
SARChI	South African Research Chairs Initiative
SET	science, engineering and technology
SKA	Square Kilometre Array
SMEs	small and medium enterprises
SMMEs	small, medium and micro-enterprises
STAs	science and technology activities
STI	science, technology and innovation
TBP	technology balance of payments
TIA	Technology Innovation Agency
TYIP	Ten-Year Innovation Plan
WACS	West Africa Coast System

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