



# 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.

A handwritten signature in black ink, reading 'Naledi Pandor'.

**Naledi Pandor MP,**  
Minister of Science and Technology

## I. 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 |                  |                  |
| R thousand                                     |                  |                  |                  |                  | MTEF Baseline         |                  |                  |
| 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        |
| <b>Total for programmes</b>                    | <b>2,612,999</b> | <b>3,127,280</b> | <b>3,703,468</b> | <b>4,261,695</b> | <b>4,615,541</b>      | <b>4,968,769</b> | <b>4,560,249</b> |
| SUMMARY OF ECONOMIC CLASSIFICATION OF PAYMENTS |                  |                  |                  |                  |                       |                  |                  |
| <b>CURRENT PAYMENTS</b>                        |                  |                  |                  |                  |                       |                  |                  |
| 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               | -                | -                     | -                | -                |
| <b>TOTAL PAYMENTS</b>                          | <b>2,612,999</b> | <b>3,127,280</b> | <b>3,703,468</b> | <b>4,234,111</b> | <b>4,615,541</b>      | <b>4,968,769</b> | <b>4,560,249</b> |

### 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 appropriation | Medium-term estimates<br>MTEF Baseline |                |                |
| R thousand                                            |                |                |                |                        |                                        |                |                |
| Minister I                                            | 1,038          | 1,107          | 1,584          | 1,709                  | 1,816                                  | 1,916          | 2,012          |
| Deputy Minister I                                     | 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 Accommodation                                  | 1,850          | 4,307          | 1,439          | 3,295                  | 3,809                                  | 4,038          | 4,239          |
| <b>Total of subprogrammes</b>                         | <b>225,904</b> | <b>116,771</b> | <b>129,912</b> | <b>173,569</b>         | <b>182,932</b>                         | <b>193,861</b> | <b>203,820</b> |
| 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             | -                      | -                                      | -              | -              |
| <b>TOTAL PAYMENTS</b>                                 | <b>225,904</b> | <b>116,771</b> | <b>129,912</b> | <b>173,569</b>         | <b>182,932</b>                         | <b>193,861</b> | <b>203,820</b> |

## 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 appropriation | Medium-term estimates |                  |                |
| R thousand                                                                  |                |                |                |                        | MTEF Baseline         |                  |                |
| 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        |
| <b>Total of subprogrammes</b>                                               | <b>394,047</b> | <b>529,846</b> | <b>855,832</b> | <b>1,143,393</b>       | <b>1,284,040</b>      | <b>1,341,174</b> | <b>826,200</b> |
| 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              | -                      | -                     | -                | -              |
| <b>Total payments</b>                                                       | <b>394,047</b> | <b>529,846</b> | <b>855,832</b> | <b>1,143,393</b>       | <b>1,284,040</b>      | <b>1,341,174</b> | <b>826,200</b> |

## 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                                                                                                                                                    |
| <b>Innovation Planning and Instruments</b> | 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            |
| <b>Hydrogen and Energy</b> | 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 commercialisation purposes for the benefit of South Africa, and taking advantage of available know-how      | Number of IP transactions through commercialisation partnerships leading to the commercialisation 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 commercialisation of energy technologies                           | 1 formal partnership concluded                                                         |
| <b>Space Science and Technology</b> | 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 31 March 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 31 Mar. 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 |
|                                 |                                                                                                                                                                            |                                                                                                             |                                                                                                                                |                                                                                |                                                                                                                       |                                                                                                                                             |                                                                              |
| <b>Biotechnology and Health</b> | 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<br>(intended<br>outcomes)                                                                                                      | Measure/<br>Indicator                                                    | Corporate<br>strategy Output                                     | Corporate<br>strategy<br>Target                          | Targets split over three-year corporate<br>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 appropriation | Medium-term estimates |                |                |
| R thousand                                                                     |                |               |                |                        | MTEF Baseline         |                |                |
| 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         |
| <b>Total of subprogrammes</b>                                                  | <b>124,304</b> | <b>99,433</b> | <b>140,509</b> | <b>131,963</b>         | <b>135,111</b>        | <b>143,092</b> | <b>148,482</b> |
| 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                                                  | -              | -             | -              | -                      | -                     | -              | -              |
| <b>TOTAL PAYMENTS</b>                                                          | <b>124,304</b> | <b>99,433</b> | <b>140,509</b> | <b>131,963</b>         | <b>135,111</b>        | <b>143,092</b> | <b>148,482</b> |

### 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 Subprogramme: 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<br>(intended outcomes)                                                                                                                                        | Measure/<br>Indicator                                              | Corporate<br>Strategy<br>Output                          | Corporate<br>strategy<br>Output<br>Target                   | Targets split over three-year corporate<br>strategy period                 |                                                                            |                                                                            |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|
|                                            |                                                                                                                                                                          |                                                                    | 2010 — 2013                                              | 2010 — 2013                                                 | 2010/11                                                                    | 2011/12                                                                    | 2012/13                                                                    |
| <b>International Resources</b>             | 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   |
| <b>Multilateral Cooperation and Africa</b> | 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<br>(intended<br>outcomes)                                                                                                                                     | Measure/<br>Indicator                                                                                       | Corporate<br>Strategy<br>Output                                                                   | Corporate<br>strategy<br>Output<br>Target                            | Targets split over three-year corporate<br>strategy period                           |                                                                  |                                                                  |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|
|                                               |                                                                                                                                                                          |                                                                                                             | 2010 – 2013                                                                                       | 2010 – 2013                                                          | 2010/11                                                                              | 2011/12                                                          | 2012/13                                                          |
| <b>Overseas<br/>Bilateral<br/>Cooperation</b> | 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 appropriation | Medium-term estimates |                  |                  |
|                                                                            |                |                  |                  |                        | MTEF Baseline         |                  |                  |
| <b>R thousand</b>                                                          |                |                  |                  |                        |                       |                  |                  |
| 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          |
| <b>Total of subprogrammes</b>                                              | <b>878,181</b> | <b>1,275,300</b> | <b>1,457,640</b> | <b>1,598,974</b>       | <b>1,748,671</b>      | <b>1,955,127</b> | <b>1,933,948</b> |
| <b>SUMMARY OF ECONOMIC CLASSIFICATION OF PAYMENTS</b>                      |                |                  |                  |                        |                       |                  |                  |
| 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                | -                      | -                     | -                | -                |
| <b>TOTAL PAYMENTS</b>                                                      | <b>878,181</b> | <b>1,275,300</b> | <b>1,457,640</b> | <b>1,598,974</b>       | <b>1,748,671</b>      | <b>1,955,127</b> | <b>1,933,948</b> |

### 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<br>(intended<br>outcomes)                                                                                                                                  | Measure/<br>Indicator                                                                 | Corporate<br>Strategy<br>Output                                                                      | Corporate<br>Strategy<br>Target                                                                                                      | Target split over three-year corporate strategy<br>period                                                        |                                                                                                                  |                                                                                                                  |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
|                                           |                                                                                                                                                                       |                                                                                       | 2010-2013                                                                                            | 2010-2013                                                                                                                            | 2010/11                                                                                                          | 2011/12                                                                                                          | 2012/13                                                                                                          |
| Human Capital<br>and Science<br>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 the 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                                                 |
| <b>Emerging Research Areas and Infrastructure</b> | 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                                       |
| <b>Indigenous Knowledge Systems</b>               | 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<br>(intended<br>outcomes)                                                                                           | Measure/<br>Indicator                              | Corporate<br>Strategy<br>Output                                                                    | Corporate<br>Strategy<br>Target                                                                       | Target split over three-year corporate strategy<br>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 of 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 Global 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 appropriation | 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           |
| <b>Total of subprogrammes</b>                                      | <b>990,563</b> | <b>1,105,930</b> | <b>1,119,575</b> | <b>1,213,796</b>       | <b>1,264,787</b>      | <b>1,335,515</b> | <b>1,447,799</b> |
| 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                                      | -              | -                | -                | -                      | -                     | -                | -                |
| <b>TOTAL PAYMENTS</b>                                              | <b>990,563</b> | <b>1,105,930</b> | <b>1,119,575</b> | <b>1,213,796</b>       | <b>1,264,787</b>      | <b>1,335,515</b> | <b>1,447,799</b> |

### 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                                                                                                                             |
| <b>Science and Technology for Economic Impact</b> | 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<br><br>51 funded work-based learnerships by 31 Dec. 2012                          | 45 students funded for research degrees (Honours and PhDs) by 31 Dec. 2010<br><br>12 funded work-based learnerships by 31 Dec. 2010 | 59 students funded for research degrees (Honours and PhDs) by 31 Dec. 2011<br><br>18 funded work-based learnerships by 31 Dec. 2011 | 78 students funded for research degrees (Honours and PhDs) by 31 Dec. 2012<br><br>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)<br><br>Number of published scientific and technical papers | IP portfolio (patents, patent applications, licences and trademarks)<br><br>Published scientific and technical papers                       | 33 IP portfolios (patents, patent applications, licences and trademarks) by 31 Mar. 2013<br><br>270 published scientific and technical papers by 31 Mar. 2013 | 11 IP portfolios by 31 Mar. 2011<br><br>70 published scientific and technical papers by 31 Mar. 2011                                | 11 IP portfolios by 31 Mar. 2012<br><br>100 published scientific and technical papers by 31 Mar. 2012                               | 11 IP portfolios by 31 Mar. 2013<br><br>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<br><br>Number of innovation strategies developed that support technology localisation in specific sectors                | Companies provided with TAPs<br><br>Innovation strategies that support technology localisation in the nuclear industry and foundry industry | 76 companies provided with TAPs by 31 Mar. 2013<br><br>2 innovation strategies that support localisation developed by 31 Dec. 2010                            | 24 companies provided with TAPs by 31 Mar. 2011<br><br>2 innovation strategies that support localisation developed by 31 Dec. 2010  | 24 additional companies provided with TAPs by 31 Mar. 2012<br><br>-                                                                 | 28 additional companies provided with TAPs by 31 Mar. 2013<br><br>-                                                                 |
|                                                   |                                                                                                                                      |                                                                                                                                                                 |                                                                                                                                             |                                                                                                                                                               |                                                                                                                                     |                                                                                                                                     |                                                                                                                                     |

| 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                                                                              |
| <b>Science and Technology for Economic Impact</b> | 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 I(b) of the Toolkit for Integrated Planning and Development | 1 finalised geospatial decision-support intervention for Phase I(b) of the Toolkit for Integrated Planning and Development by 31 Mar. 2011 | 1 finalised geospatial decision-support intervention for Phase I(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                                                         |
| <b>Science and Technology Investment</b> | 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 31 Mar. 2013                                                         | 2009/10 TBP report published by 31 Mar. 2011                                                   | 2010/11 TBP report published 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<br>(intended<br>outcomes)                                                                              | Measure/<br>Indicator                               | Corporate<br>strategy<br>output       | Corporate<br>strategy target                            | Targets split over three-year corporate<br>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  |                  |                  | Revised estimate | Medium-term estimate |                  |                  |
|---------------------------------------|------------------|------------------|------------------|------------------|----------------------|------------------|------------------|
|                                       | 2006/07          | 2007/08          | 2008/09          | 2009/10          | 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          |
| <b>Total expense</b>                  | <b>1,160,689</b> | <b>1,243,259</b> | <b>1,526,539</b> | <b>1,516,153</b> | <b>1,577,954</b>     | <b>1,699,503</b> | <b>1,831,415</b> |

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

| R thousand                                           | Audited outcome  |                  |                  | Revised estimate | Medium-term estimate |                  |                  |
|------------------------------------------------------|------------------|------------------|------------------|------------------|----------------------|------------------|------------------|
|                                                      | 2006/07          | 2007/08          | 2008/09          | 2009/10          | 2010/11              | 2011/12          | 2012/13          |
| <b>Statement of financial performance</b>            |                  |                  |                  |                  |                      |                  |                  |
| <b>Revenue</b>                                       |                  |                  |                  |                  |                      |                  |                  |
| <b>Non-tax revenue</b>                               | <b>726,779</b>   | <b>868,522</b>   | <b>1,104,497</b> | <b>946,875</b>   | <b>976,129</b>       | <b>1,096,001</b> | <b>1,192,954</b> |
| 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           |
| <b>Transfers received</b>                            | <b>460,443</b>   | <b>429,013</b>   | <b>480,320</b>   | <b>599,384</b>   | <b>634,248</b>       | <b>638,210</b>   | <b>675,834</b>   |
| <b>Total revenue</b>                                 | <b>1,187,222</b> | <b>1,297,535</b> | <b>1,584,817</b> | <b>1,546,259</b> | <b>1,610,377</b>     | <b>1,734,211</b> | <b>1,868,788</b> |
| <b>Expenses</b>                                      |                  |                  |                  |                  |                      |                  |                  |
| <b>Current expense</b>                               | <b>1,160,689</b> | <b>1,243,259</b> | <b>1,526,539</b> | <b>1,516,153</b> | <b>1,577,954</b>     | <b>1,699,503</b> | <b>1,831,415</b> |
| 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           | —                | —                    | —                | —                |
| <b>Total expenses</b>                                | <b>1,160,689</b> | <b>1,243,259</b> | <b>1,526,539</b> | <b>1,516,153</b> | <b>1,577,954</b>     | <b>1,699,503</b> | <b>1,831,415</b> |
| <b>Surplus / (Deficit)</b>                           | <b>26,533</b>    | <b>54,276</b>    | <b>58,278</b>    | <b>30,106</b>    | <b>32,423</b>        | <b>34,708</b>    | <b>37,373</b>    |
| <b>Statement of financial position</b>               |                  |                  |                  |                  |                      |                  |                  |
| 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 classified elsewhere                      | 95,070           | 94,890           | 96,756           | 1,608            | 1,608                | 1,608            | 1,608            |
| <b>Total assets</b>                                  | <b>1,083,557</b> | <b>1,340,583</b> | <b>1,495,332</b> | <b>1,369,461</b> | <b>1,400,077</b>     | <b>1,385,109</b> | <b>1,502,324</b> |
| 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 classified elsewhere                 | 27,092           | 43,112           | 40,588           | —                | —                    | —                | —                |
| <b>Total equity and liabilities</b>                  | <b>1,083,557</b> | <b>1,340,583</b> | <b>1,495,332</b> | <b>1,369,461</b> | <b>1,400,077</b>     | <b>1,385,109</b> | <b>1,502,324</b> |

## **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<br>R thousand     | Audited outcome |                  |                  | Revised estimate | Medium-term estimate |                  |                  |
|------------------------------------------------------|-----------------|------------------|------------------|------------------|----------------------|------------------|------------------|
|                                                      | 2006/07         | 2007/08          | 2008/09          | 2009/10          | 2010/11              | 2011/12          | 2012/13          |
| <b>Revenue</b>                                       |                 |                  |                  |                  |                      |                  |                  |
| <b>Non-tax revenue</b>                               | <b>255,634</b>  | <b>408,678</b>   | <b>702,716</b>   | <b>840,458</b>   | <b>946,884</b>       | <b>985,247</b>   | <b>963,335</b>   |
| 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          |
| <b>Transfers received</b>                            | <b>580,411</b>  | <b>638,980</b>   | <b>658,952</b>   | <b>721,723</b>   | <b>772,227</b>       | <b>831,920</b>   | <b>820,429</b>   |
| <b>Total revenue</b>                                 | <b>836,045</b>  | <b>1,047,658</b> | <b>1,361,668</b> | <b>1,562,181</b> | <b>1,719,111</b>     | <b>1,817,167</b> | <b>1,783,764</b> |
| <b>Expenses</b>                                      |                 |                  |                  |                  |                      |                  |                  |
| <b>Current expense</b>                               | <b>427,497</b>  | <b>494,999</b>   | <b>595,329</b>   | <b>657,701</b>   | <b>746,855</b>       | <b>784,964</b>   | <b>821,958</b>   |
| 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              |
| <b>Transfers and subsidies</b>                       | <b>397,386</b>  | <b>505,836</b>   | <b>766,319</b>   | <b>903,827</b>   | <b>972,256</b>       | <b>1,032,203</b> | <b>961,806</b>   |
| <b>Total expenses</b>                                | <b>824,883</b>  | <b>1,000,835</b> | <b>1,361,648</b> | <b>1,561,528</b> | <b>1,719,111</b>     | <b>1,817,167</b> | <b>1,783,764</b> |
| <b>Surplus / (Deficit)</b>                           | <b>11,162</b>   | <b>46,823</b>    | <b>20</b>        | <b>653</b>       | <b>(0)</b>           | <b>(0)</b>       | <b>(0)</b>       |
| <b>Statement of financial position</b>               |                 |                  |                  |                  |                      |                  |                  |
| 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          |
| <b>Total assets</b>                                  | <b>744,172</b>  | <b>1,075,513</b> | <b>1,390,814</b> | <b>1,355,909</b> | <b>1,675,914</b>     | <b>1,990,802</b> | <b>2,210,300</b> |
| 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 classied elsewhere                   | 209,458         | 239,011          | 318,452          | 513,726          | 832,443              | 1,133,334        | 1,354,418        |
| <b>Total equity and liabilities</b>                  | <b>744,172</b>  | <b>1,075,513</b> | <b>1,390,814</b> | <b>1,355,909</b> | <b>1,675,914</b>     | <b>1,990,800</b> | <b>2,210,299</b> |
| <b>Contingent liabilities</b>                        | <b>670,953</b>  | <b>1,340,904</b> | <b>1,508,120</b> | <b>1,500,000</b> | <b>1,200,000</b>     | <b>1,100,000</b> | <b>1,000,000</b> |

## 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 |                |                |
|------------------------------------------------------|-----------------|----------------|----------------|------------------|----------------------|----------------|----------------|
|                                                      | 2006/07         | 2007/08        | 2008/09        | 2009/10          | 2010/11              | 2011/12        | 2012/13        |
| R thousand                                           |                 |                |                |                  |                      |                |                |
| <b>Revenue</b>                                       |                 |                |                |                  |                      |                |                |
| <b>Non-tax revenue</b>                               | <b>127,088</b>  | <b>134,431</b> | <b>181,150</b> | <b>167,515</b>   | <b>212,121</b>       | <b>227,240</b> | <b>244,445</b> |
| 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         |
| <b>Transfers received</b>                            | <b>107,479</b>  | <b>127,164</b> | <b>144,146</b> | <b>166,185</b>   | <b>169,793</b>       | <b>180,729</b> | <b>189,877</b> |
| <b>Total revenue</b>                                 | <b>234,567</b>  | <b>261,595</b> | <b>325,296</b> | <b>333,700</b>   | <b>381,914</b>       | <b>407,969</b> | <b>434,322</b> |
| <b>Expenses</b>                                      |                 |                |                |                  |                      |                |                |
| <b>Current expense</b>                               | <b>240,549</b>  | <b>257,378</b> | <b>315,331</b> | <b>326,445</b>   | <b>368,649</b>       | <b>393,059</b> | <b>417,563</b> |
| 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                 | -               | -              | -              | -                | -                    | -              | -              |
| <b>Transfers and subsidies</b>                       | <b>-</b>        | <b>9,342</b>   | <b>10,500</b>  | <b>11,802</b>    | <b>13,265</b>        | <b>14,910</b>  | <b>16,759</b>  |
| <b>Total expenses</b>                                | <b>240,549</b>  | <b>266,720</b> | <b>325,831</b> | <b>338,247</b>   | <b>381,914</b>       | <b>407,969</b> | <b>434,322</b> |
| <b>Surplus / (Deficit)</b>                           | <b>(5,982)</b>  | <b>(5,125)</b> | <b>(535)</b>   | <b>(4,547)</b>   | <b>-</b>             | <b>-</b>       | <b>-</b>       |
| <b>Statement of financial position</b>               |                 |                |                |                  |                      |                |                |
| 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 classified elsewhere                      | 46              | 733            | 1,735          | 1,976            | 2,144                | 2,435          | 2,776          |
| <b>Total assets</b>                                  | <b>156,520</b>  | <b>184,054</b> | <b>257,934</b> | <b>251,733</b>   | <b>244,996</b>       | <b>246,040</b> | <b>245,808</b> |
| Accumulated surplus/debit                            | 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 classified elsewhere                 | 3,865           | 10,643         | 13,849         | 23,707           | 14,743               | 2,413          | -              |
| <b>Total equity and liabilities</b>                  | <b>156,520</b>  | <b>184,054</b> | <b>257,934</b> | <b>251,733</b>   | <b>244,996</b>       | <b>246,040</b> | <b>245,808</b> |

## **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 |               |               | Revised estimate | Medium-term estimate |               |               |
|-------------------------------------------------------|-----------------|---------------|---------------|------------------|----------------------|---------------|---------------|
|                                                       | 2006/07         | 2007/08       | 2008/09       | 2009/10          | 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        |
| <b>Total expense</b>                                  | <b>21,535</b>   | <b>24,047</b> | <b>27,670</b> | <b>31,755</b>    | <b>33,466</b>        | <b>34,836</b> | <b>36,579</b> |

### Africa Institute of South Africa, Pretoria: Financial information

| Statement of financial performance                   |               |               |               | Revised estimate | Medium-term estimate |               |               |
|------------------------------------------------------|---------------|---------------|---------------|------------------|----------------------|---------------|---------------|
| R thousand                                           | 2006/07       | 2007/08       | 2008/09       | 2009/10          | 2010/11              | 2011/12       | 2012/13       |
| <b>Revenue</b>                                       |               |               |               |                  |                      |               |               |
| <b>Non-tax revenue</b>                               | <b>1,265</b>  | <b>1,222</b>  | <b>1,141</b>  | <b>2,475</b>     | <b>2,872</b>         | <b>2,396</b>  | <b>2,517</b>  |
| 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         |
| <b>Transfers received</b>                            | <b>23,454</b> | <b>26,530</b> | <b>30,464</b> | <b>29,280</b>    | <b>30,594</b>        | <b>32,440</b> | <b>34,062</b> |
| <b>Total revenue</b>                                 | <b>24,719</b> | <b>27,752</b> | <b>31,605</b> | <b>31,755</b>    | <b>33,466</b>        | <b>34,836</b> | <b>36,579</b> |
| <b>Expenses</b>                                      |               |               |               |                  |                      |               |               |
| <b>Current expense</b>                               | <b>21,535</b> | <b>24,047</b> | <b>27,670</b> | <b>31,755</b>    | <b>33,466</b>        | <b>34,836</b> | <b>36,579</b> |
| 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           | -             | -                | -                    | -             | -             |
| <b>Total expenses</b>                                | <b>21,535</b> | <b>24,047</b> | <b>27,670</b> | <b>31,755</b>    | <b>33,466</b>        | <b>34,836</b> | <b>36,579</b> |
| <b>Surplus / (Deficit)</b>                           | <b>3,184</b>  | <b>3,705</b>  | <b>3,935</b>  | <b>-</b>         | <b>-</b>             | <b>-</b>      | <b>-</b>      |
| <b>Statement of financial position</b>               |               |               |               |                  |                      |               |               |
| 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 classified elsewhere                      | 1,331         | 2,285         | 2,427         | 1,200            | 1,100                | 1,000         | 900           |
| <b>Total assets</b>                                  | <b>10,786</b> | <b>13,998</b> | <b>17,790</b> | <b>23,258</b>    | <b>20,526</b>        | <b>19,720</b> | <b>18,966</b> |
| 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 classified elsewhere                 | -             | -             | -             | 12,345           | 10,288               | 8,026         | 5,538         |
| <b>Total equity and liabilities</b>                  | <b>10,786</b> | <b>13,998</b> | <b>17,790</b> | <b>23,258</b>    | <b>20,526</b>        | <b>19,720</b> | <b>18,966</b> |

## 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.

## Expenditure estimates

### Academy of Science of South Africa: Financial information

| Statement of financial performance<br>R thousand     | Audited outcome |              |               | Revised<br>estimate | Medium-term estimate |               |               |
|------------------------------------------------------|-----------------|--------------|---------------|---------------------|----------------------|---------------|---------------|
|                                                      | 2006/07         | 2007/08      | 2008/09       | 2009/10             | 2010/11              | 2011/12       | 2012/13       |
| <b>Revenue</b>                                       |                 |              |               |                     |                      |               |               |
| <b>Non-tax revenue</b>                               | <b>1,002</b>    | <b>835</b>   | <b>1,158</b>  | <b>1,168</b>        | <b>1,120</b>         | <b>1,072</b>  | <b>1,024</b>  |
| 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           |
| <b>Transfers received</b>                            | <b>4,960</b>    | <b>8,602</b> | <b>16,430</b> | <b>19,704</b>       | <b>16,260</b>        | <b>14,465</b> | <b>14,637</b> |
| <b>Total revenue</b>                                 | <b>5,962</b>    | <b>9,437</b> | <b>17,588</b> | <b>20,872</b>       | <b>17,380</b>        | <b>15,537</b> | <b>15,661</b> |
| <b>Expenses</b>                                      |                 |              |               |                     |                      |               |               |
| <b>Current expense</b>                               | <b>5,957</b>    | <b>8,167</b> | <b>12,693</b> | <b>20,872</b>       | <b>17,380</b>        | <b>15,537</b> | <b>15,661</b> |
| 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           |
| <b>Total expenses</b>                                | <b>5,957</b>    | <b>8,167</b> | <b>12,693</b> | <b>20,872</b>       | <b>17,380</b>        | <b>15,537</b> | <b>15,661</b> |
| <b>Surplus / (Deficit)</b>                           | <b>5</b>        | <b>1,270</b> | <b>4,895</b>  | <b>-</b>            | <b>-</b>             | <b>-</b>      | <b>-</b>      |
| <b>Statement of financial position</b>               |                 |              |               |                     |                      |               |               |
| 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 classified elsewhere                      | -               | -            | 78            | 80                  | -                    | -             | -             |
| <b>Total assets</b>                                  | <b>4,506</b>    | <b>5,414</b> | <b>11,593</b> | <b>11,596</b>       | <b>9,293</b>         | <b>8,319</b>  | <b>7,450</b>  |
| 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                 | -                    | -             | -             |
| <b>Total equity and liabilities</b>                  | <b>4,506</b>    | <b>5,414</b> | <b>11,593</b> | <b>11,596</b>       | <b>9,293</b>         | <b>8,319</b>  | <b>7,450</b>  |

## 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.

## 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.

## 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

| R thousand                     | Audited outcome |               |               | Revised estimate | Medium-term estimate |               |               |
|--------------------------------|-----------------|---------------|---------------|------------------|----------------------|---------------|---------------|
|                                | 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         |
| <b>Total expense</b>           | <b>48,780</b>   | <b>49,490</b> | <b>45,812</b> | <b>50,194</b>    | <b>53,610</b>        | <b>55,774</b> | <b>58,898</b> |

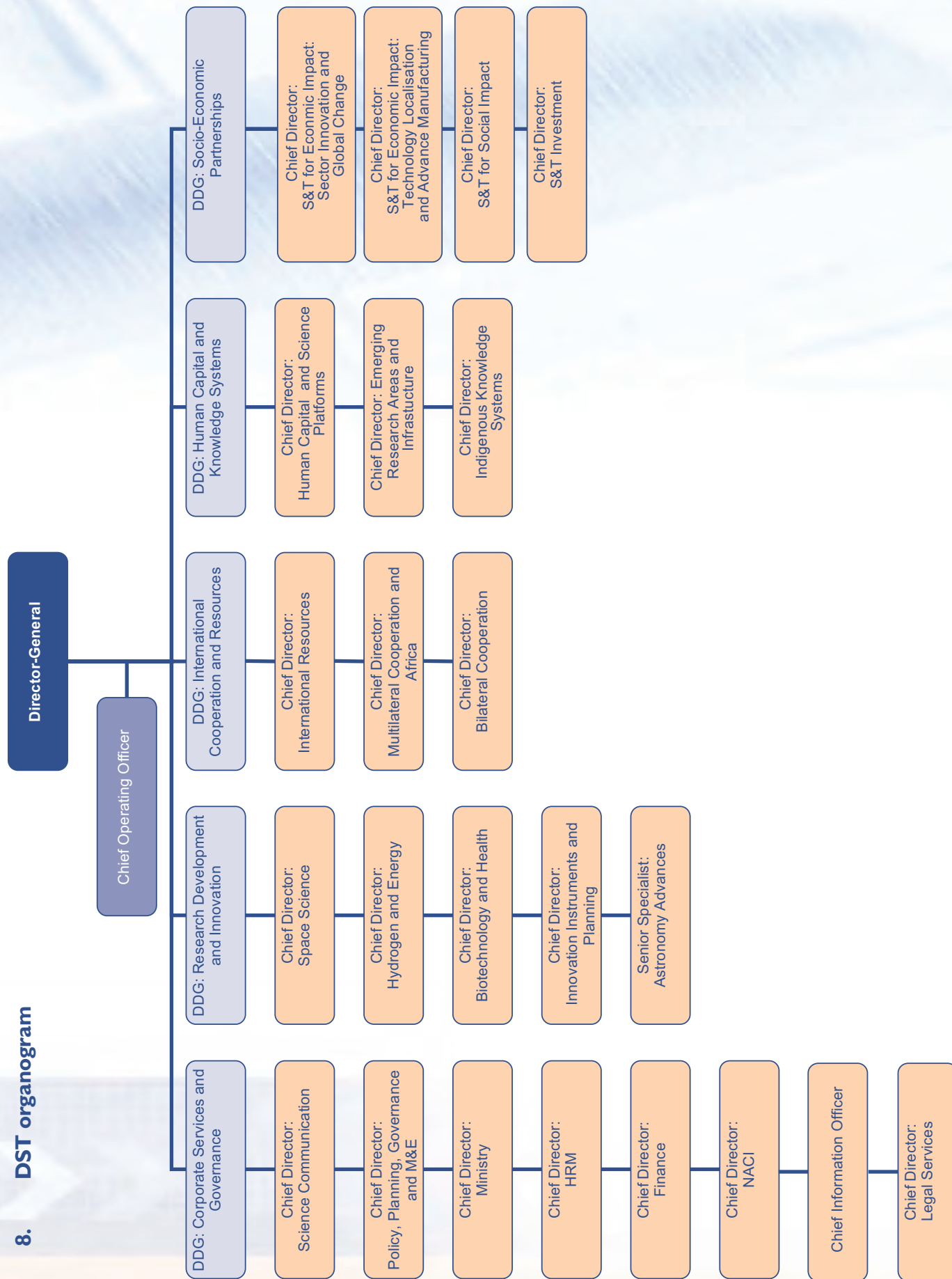
### Tshumisano Trust: Financial information

| Statement of financial performance     |               |               |               | Revised estimate | Medium-term estimate |               |               |
|----------------------------------------|---------------|---------------|---------------|------------------|----------------------|---------------|---------------|
| R thousand                             | 2006/07       | 2007/08       | 2008/09       | 2009/10          | 2010/11              | 2011/12       | 2012/13       |
| <b>Revenue</b>                         |               |               |               |                  |                      |               |               |
| <b>Non-tax revenue</b>                 | <b>1,557</b>  | <b>1,040</b>  | <b>1,444</b>  | <b>14,457</b>    | <b>15,700</b>        | <b>15,597</b> | <b>16,725</b> |
| Other non-tax revenue                  | 1,557         | 1,040         | 1,444         | 14,457           | 15,700               | 15,597        | 16,725        |
| <b>Transfers received</b>              | <b>46,680</b> | <b>52,155</b> | <b>51,544</b> | <b>36,437</b>    | <b>40,410</b>        | <b>40,927</b> | <b>45,773</b> |
| <b>Total revenue</b>                   | <b>48,237</b> | <b>53,195</b> | <b>52,988</b> | <b>50,894</b>    | <b>56,110</b>        | <b>56,524</b> | <b>62,498</b> |
| <b>Expenses</b>                        |               |               |               |                  |                      |               |               |
| <b>Current expense</b>                 | <b>48,780</b> | <b>49,490</b> | <b>45,812</b> | <b>6,479</b>     | <b>7,237</b>         | <b>7,569</b>  | <b>7,740</b>  |
| 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         | -                | -                    | -             | -             |
| <b>Transfers and subsidies</b>         | <b>-</b>      | <b>-</b>      | <b>-</b>      | <b>43,715</b>    | <b>46,373</b>        | <b>48,205</b> | <b>51,158</b> |
| <b>Total expenses</b>                  | <b>48,780</b> | <b>49,490</b> | <b>45,812</b> | <b>50,194</b>    | <b>53,610</b>        | <b>55,774</b> | <b>58,898</b> |
| <b>Surplus / (Deficit)</b>             | <b>(543)</b>  | <b>3,705</b>  | <b>7,176</b>  | <b>700</b>       | <b>2,500</b>         | <b>750</b>    | <b>3,600</b>  |
| <b>Statement of financial position</b> |               |               |               |                  |                      |               |               |
| 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         | -                | -                    | -             | -             |
| <b>Total assets</b>                    | <b>10,624</b> | <b>7,179</b>  | <b>8,121</b>  | <b>6,237</b>     | <b>6,262</b>         | <b>5,920</b>  | <b>5,890</b>  |
| 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 classified elsewhere   | -             | 276           | 272           | -                | -                    | -             | -             |
| <b>Total equity and liabilities</b>    | <b>10,624</b> | <b>7,179</b>  | <b>8,121</b>  | <b>6,237</b>     | <b>6,262</b>         | <b>5,920</b>  | <b>5,890</b>  |

## 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 | Intellectual 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                                                  |





Tel: +27 (12) 843 6300  
Fax: +27 (12) 349 1030  
[www.dst.gov.za](http://www.dst.gov.za)

Physical Address:  
DST Building 53  
(CSIR South Gate Entrance)  
Meiring Naudé Road, Brummeria, 0001

Postal Address:  
Department of Science and Technology  
Private Bag X894, PRETORIA, 0001



science  
& technology

Department:  
Science and Technology  
REPUBLIC OF SOUTH AFRICA