**1. Report of the Portfolio Committee on Science and Technology on Budget Vote 30: Science and Technology (2015/16), dated 13 May 2015.**

The Portfolio Committee on Science and Technology, having considered Budget Vote 30: Science and Technology in conjunction with the 2015-2020 Strategic Plans and the 2015/16 Annual Performance Plans of the Department of Science and Technology and its Entities, reports as follows:

1. **Introduction**

The Constitution of the Republic of South Africa, 1996 and the Rules of Parliament mandates the Portfolio Committee on Science and Technology (the Committee) to oversee the activities and performance of the Department of Science and Technology (the Department) and the Entities that report to it. Hence, the Committee annually reviews whether the Department and Entities’ performance plans are aligned to national strategic objectives and the appropriated budget.

This report depicts the deliberations of the Committee on the 2015-2020 Strategic Plans and 2015/16 Annual Performance Plans associated with Budget Vote 30: Science and Technology (Vote 30). The entities that report to the Department are the National Advisory Council on Innovation (NACI), the Technology Innovation Agency (TIA), the South African National Space Agency (SANSA), the National Research Foundation (NRF), the Academy of Science of South Africa (ASSAf), the Council for Scientific and Industrial Research (CSIR) and the Human Sciences Research Council (HSRC). The Department and its Entities briefed the Committee on 14, 15 and 22 April 2015, where they provided an overview of the strategic context within which they function, discussed priority performance indicators and their concomitant targets and the 2015/16 budget allocations. During these sessions, the Committee evaluated whether there was sufficient alignment between the programme objectives, the budget allocated and the national objectives outlined in the National Development Plan (Vision 2030).

1. **Strategic Overview of the Department of Science and Technology**

The Department’s 2015-2020 Strategic Plan introduces a new vision and mission to articulate what the Government wants to achieve through its investments and efforts in STI. The vision is for, “Increased well-being and prosperity through science, technology and innovation.” The mission is three-fold and seeks, “To provide leadership, an enabling environment, and resources for science, technology and innovation in support of South Africa’s development.”

* 1. **Policy context**

The National Development Plan (NDP) characterises science, technology and innovation (STI) as crucial for development since countries that have effectively alleviated poverty by growing their economies, have done so by investing in and developing strong STI environments and capabilities. Hence, the NDP states that South Africa’s National System of Innovation (NSI) needs to be expanded as well as be more effective and, therefore, be aligned with the sectors that will realise the country’s growth objectives. This requires that South Africa invest more in research and development (R&D), that the STI institutional arrangement must improve the link between innovation and the productive needs of industry, and that Government should collaborate with the private sector to raise the level of R&D in companies. Furthermore, public investments in research infrastructure should be focussed on and fulfil the needs of a modern economy.

The NDP outlines three phases of innovation to create an inclusive and dynamic economy that is driven by knowledge. The Department has translated these phases into STI implementable actions and its 2015-2020 Strategic Plan proposes the following:

* **Phase One (2012-2017) – Use knowledge to increase economic efficiency**

The NSI, using what has been achieved to date, will expand research capacity by developing human capital and building institutions. It will continue to support and help improve the productivity and capability of existing economic sectors, as well as support emerging economic sectors through technological innovation.

* **Phase Two (2018-2023) – Use knowledge to enhance industrialisation**

The NSI will continue to accelerate the demographic transformation of the STI sector and use knowledge to enhance economic efficiency. Government will increase R&D investment and commercialisation, and optimise the use of imported technology.

* **Phase Three (2025-2030) – Knowledge-based economy**

This phase is characterised by a significant increase in the number of knowledge workers and high-technology industries that will boost exports and increase South Africa’s capacity to commercialise indigenous technologies. Thereafter, the Department will strive to sustain and expand this progress. These efforts all require a strong, co-ordinated, effective and coherent NSI.

The 2014-2019 Medium-Term Strategic Framework (MTSF) represents the first phase of implementation of the NDP and commits Government to 14 key outcomes. The Department contributes to Outcomes 3, 4, 5 and 10. The specific actions and commitments led by the Department in the 2014-2019 MTSF are shown in Table 1.

**Table 1: Contribution of the Department of Science and Technology to the 2014-2019 Medium-Term Strategic Framework**

|  |  |  |
| --- | --- | --- |
| **Outcome** | **Sub-outcome** | **Action/commitment** |
| Outcome 3:  All South Africans are safe and feel safe | Sub-outcome 4:  Secure cyberspace | Develop R&D capacity |
| Outcome 4:  Decent employment through inclusive economic growth | Sub-outcome 10:  Research, development and innovation (RDI) investment supports inclusive growth | 1. Strengthen RDI partnerships between government and the private sector  2. Align strategies for emerging/new industries with the Industrial Policy Action Plan (IPAP) and monitor regularly for long-term growth and competitiveness, job creation and export potential  3. Review existing market-based and state incentives for effectiveness in increasing investment in innovation |
| Outcome 5:  A skilled and capable workforce to support an inclusive growth path | Sub-outcome 3:  Increase access to high-level occupational directed programmes in needed areas | 1. Expand access to communication technologies  2. Bursary support for postgraduate students  3. Award research infrastructure grants to higher education institutions, science councils and national facilities  4. Increase research outputs by NRF-funded researchers  5. Increase the number of research grants |
| Outcome 10:  Protect and enhance South Africa's environmental assets and natural resources | Sub-outcome 2:  An effective climate-change mitigation and adaptation response | Undertake research in climate sciences |
| Sub-outcome 3:  An environmentally sustainable, low-carbon economy resulting from a well-managed, just transition | Increase investment in RDI to support the transition to a green economy |

Source: Department of Science and Technology Strategic Plan for the Fiscal Years 2015-2020 and the 2014-2019 Medium-Term Strategic Framework.

* 1. **Policy mandate**

The 1996 White Paper on Science and Technology, which introduced the concept of the NSI, informs the Department’s mandate. A coherent and well-co-ordinated NSI would help South Africa achieve its development priorities. The Department currently supports the NSI by:

* Co-ordinating the development of country-level strategies, such as the 2002 National Research and Development Strategy (NRDS) and the 2007 Ten-Year Innovation Plan (TYIP), which identify specific priority areas that require supporting strategies.
* Working with all actors in the NSI to co-ordinate, facilitate and implement strategies, roadmaps and action plans to optimise co-operation and alignment.
* Providing the NSI network with measures, indicators and analysis, creating an evidence base for improving the NSI’s performance.
* Optimising publicly funded STI institutions to support Government’s priority outcomes.
* Funding human capital development (HCD) at postgraduate level.
* Creating systems and structures to co-ordinate government departments and agencies on STI.
* Unlocking STI resources and partnerships with international, continental and multilateral agencies.

Over the next five years, the Department aims to intensify its efforts to exploit and use knowledge for economic and inclusive development, and expand and transform South Africa’s research capability.

* 1. **2015-2020 Strategic outcome-oriented goals**

To position STI within the framework of the NDP, the Department will direct its efforts and resources toward the following five strategic outcome-orientated goals:

* Goal 1: Responsive, co-ordinated and efficient NSI – build on previous gains to create a responsive, co-ordinated and efficient NSI.
* Goal 2: Increased knowledge generation – maintain and increase the relative contribution of South African researchers to global scientific output.
* Goal 3: Human capital development – increase the number of high-level graduates and improve their representivity.
* Goal 4: Using knowledge for economic development – derive a greater share of economic growth from R&D-based opportunities and partnerships.

The Department presented their 4-dimension conceptual framework for knowledge exploitation to the Committee. This framework will be used to assess the impact of STI on the economy and how it can assist growth, diversify the economy and increase the country’s competitiveness. The Department also identifies that STI contributions can enhance and support decision-making, resulting in cost savings by government.

* Goal 5: Knowledge utilisation for inclusive development – accelerate inclusive development through scientific knowledge, evidence and appropriate technology.

To support the strategic goals, the Department has also identified the following priorities:

* Strengthening the STI policy and strategy environment by addressing current gaps; developing the first decadal plan for STI aligned with the NDP; investigating the desirability of a Science and Technology (S&T) Act and co-ordinating the budget process for STI institutions.
* Increasing public and private sector funding for the NSI, optimising resource deployment and use, and improved intergovernmental co-ordination.
* Enhance the capacity for monitoring and evaluation of the entire NSI.
* Improving the effectiveness of instruments and incentives to stimulate R&D.
* Increasing support to facilitate the development of provincial and regional innovation strategies.
* Grow access to and ensure the development, acquisition and deployment of research infrastructure as a necessary enabler for RDI.
* Strengthening South Africa’s regional, continental and international STI partnership portfolio and expand these beyond research co-operation to focus more on technology and innovation partnerships.
* Strengthening the Department’s science engagement and communication strategy.

1. **Overview of Budget Vote 30: Science and Technology (2015/16)**

The Department’s budget has increased from R6.47 billion in the 2014/15 financial year to R7.48 billion in the 2015/16 financial year, an increase of R1 billion. Over the medium term, the budget allocation will increase to R7.56 billion in 2016/17 and R7.6 billion in 2017/18. The priority focus areas articulated in the 2011-2016 Strategic Plan continues, but are now framed within the broad goal of enhancing innovation and capacity building in Africa. Hence, the priority focus areas are improving STI HCD, with special attention to demographic transformation; promoting government-business-university investment in R&D; translating more effectively research outcomes into new products and services for the economy; ensuring consistent progress on the Square Kilometre Array (SKA) project; and contributing to the development of STI HCD in Africa. The Department with its Entities are responsible for ensuring the fulfilment of these priorities. Hence, 93 percent (R6.98 billion) of the Department’s budget will be spent on Transfers and subsidies. The allocation for Transfers and subsidies comprises R5.47 billion for the Department’s agencies and science councils, R1.25 billion for Public corporations and private enterprises, R149.6 million for Non-profit institutions and R114.6 million for Higher education institutions. The Department will spend R291.3 million (4 percent of total budget) on Compensation of employees and R205.1 million (3 percent of total budget) on Goods and services. Furthermore, in the 2014/15 Estimates of National Expenditure (ENE), the Department indicated that due to the lack of management advisory capacity, it was expecting to spend more on consultants over the medium-term. In 2014/15, the Department was allocated the following amounts for:

* Consultants and professional services: Business and advisory services – R18 million, it spent R23.8 million.
* Contractors – R11.6 million, it spent R11.4 million.
* Agency and support services: R17.7 million, it spent R15 million.

In 2015/16, the Department is allocated the following amounts for:

* Consultants and professional services: Business and advisory services – R14.5 million.
* Contractors – R11 million.
* Agency and support services: R16.9 million.

Expenditure in this category has to be monitored closely, in that the work of the Department should not be constrained by the inability to pay for needed expert services. However, strict terms should be applied to the awarding of contracts and the achievement of these terms should be rigorously managed.

* 1. **The Committee’s 2014 Budgetary Review and Recommendation Report (BRRR)**

Cognisant of the current fiscal strain, the Department submitted it’s 2015/16 Medium-Term Expenditure Framework (MTEF) Bid within the following context:

* The NSI cannot absorb any further cuts in funding without dire consequences.
* The efficient and effective allocation of resources is critical.
* The Department could not identify areas where funding could be reprioritised.
* The Bid submission continued to focus on infrastructure projects, sectoral bids that stimulate economic growth and support for sister departments.
* The Bid submission targeted interventions to support and grow technological innovation.

Hence, the funding requests focussed on the outer years of the current MTEF, and included:

* R1.5 billion for the Bio-economy Strategy,
* R230 million for the Information and Communication Technologies (ICT) Research, Development and Innovation Roadmap;
* R209.1 million for the National Intellectual Property Management Office (NIPMO);
* R477.5 million for TIA;
* Research infrastructure and buildings:
  + R15 million infrastructure for the ICT RDI Roadmap;
  + R168.6 million for general-purpose research infrastructure for entities, for example, laboratories at the CSIR and SANSA, and a data management centre and survey equipment for the HSRC; and
  + Buildings – R54.4 million for the completion of the Department’s building, R8 million for a building for ASSAf, and R67.6 million for critical upgrades to the HSRC Building.

The Committee endorsed the Department’s finding that it could not find any areas where funding could be reprioritised and recommended that National Treasury do not effect any budget cuts and, if possible, award the increased budget allocation requested by the Department. The Minister of Finance, in responding to the Committee’s 2014 BRRR as required by legislation, stated that, “The constrained fiscal framework has narrowed the scope to provide additional funding over the 2015 MTEF period. Institutions were therefore advised to fund priorities through reprioritising funds from their existing baselines”. Hence, the Department and its Entities, although acknowledging that STI and the expansion of the NSI is receiving serious attention from Government, remain under-resourced.

* 1. **Overview of budget allocation per Programme**

The Department’s budget funds five programmes and Table 2 shows how the budget is apportioned across these programmes. The programmes are:

* Programme 1 – Administration (of the Department)
* Programme 2 – Technology Innovation
* Programme 3 – International Cooperation and Resources
* Programme 4 – Research Development and Support
* Programme 5 – Socio-Economic Innovation Partnerships

**Table 2: Budget allocation of the Department of Science and Technology**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Programme**  **R’ million** | **2014/15**  **Expenditure estimate**  ***(percentage of total budget)*** | **2015/16**  **Expenditure estimate**  ***(percentage of total budget)*** | **Nominal percentage change**  **2014/15 – 2015/16** | **Real percentage change (inflation-adjusted)**  **2014/15 – 2015/16** |
| 1. Administration | 291.0 *(4.50)* | 299.8 *(4.01)* | 3.02 | -1.69 |
| 2. Technology Innovation | 991.6 *(15.33)* | 1 008.8 *(13.48)* | 1.73 | -2.93 |
| 3. International Cooperation and Resources | 119.7 *(1.85)* | 122.0 *(1.63)* | 1.92 | -2.75 |
| 4. Research Development and Support | 3 503.8 *(54.15)* | 4 247.1 *(56.76)* | 21.21 | 15.66 |
| 5. Socio-Economic Innovation Partnerships | 1 564.1 *(24.17)* | 1 804.5 *(24.12)* | 15.37 | 10.09 |
| **Total** | **6 470.2** | **7 482.2** | **15.6** | **10.3** |

The budget allocation is aligned to the priorities of strengthening and expanding STI HCD and ensuring that innovation and knowledge underpin the Government’s growth strategy. Hence, Programmes 2 (13.5 percent), 4 (56.8 percent), and 5 (24.1 percent) receive 94.4 percent of the Department’s total budget allocation and only Programmes 4 and 5 receive above inflation increases. Overall, the Department’s budget shows a real increase (inflation-adjusted) of 10 percent. Of concern, is the almost three percent real decrease in Programme 2’s allocation. This Programme has to ensure that the knowledge generated from research is exploited for economic gain. Central to this, is the Technology Innovation Agency (TIA). The problems experienced by TIA, which are now receiving attention, have hampered both the performance and financial strength of this Programme.

* + 1. **Programme 1: Administration**

Programme 1 provides strategic leadership, management and support services to the Department and has five sub-programmes. Namely, Ministry, Management, Corporate Services, Governance and Office Accommodation. Programme 1’s R299.8 million allocation (four percent of total budget) will mainly be spent on Compensation of employees (R141.9 million) and on Goods and services (R142.7 million). The Department has 470 posts and 264 posts reside within Programme 1. The high number of administrative posts versus that of the Department’s core function is due to Programme 1 being responsible for the budgets of and support to the Ministry and Director-General, as well as for the compliance functions related to the legislative instruments governing the operations of the Department and its Entities. Currently, this Programme is understaffed and under-resourced. Hence, the Department intends, in the next five years, to design and build an administrative unit that fulfils the planning, co-ordination, strategic and governance needs of the Department and the NSI.

The strategic objectives for Programme 1 are:

* To co-ordinate the identification, formulation and implementation of strategic initiatives, and ensure that the priorities of the Department and its Entities are aligned to national priorities.
* To develop and maintain good corporate governance systems for the Department and its Entities.
* To provide strategic communication for the Department and its Entities through marketing, media and branding initiatives, and the Science Engagement Strategy.
* To make the Department an employer of choice and acquire and retain appropriately skilled personnel.
* To provide an efficient and effective information technology service.
* To ensure effective and efficient financial and procurement services.

1. **Programme 1 Entity: National Advisory Council on Innovation (NACI)**

The mandate of NACI is to generate and deliver clear, evidence-based and autonomous advice to the Minister of Science and Technology and through her, the government of South Africa, on the role and contribution of science, mathematics, innovation and technology in promoting and achieving national objectives. The advice generated by NACI in support of the NDP, pertains to outcomes 4, 5, 6, 7 and 10. To ensure that the advice generated by NACI receives maximum attention and consideration, a new strategic approach to NACI’s mode of operation has been developed. NACI’s strategic goals are:

* Strategic Goal 1: To facilitate agenda setting for prioritisation of STI in order to achieve coordination and stimulate the NSI.
* Strategic Goal 2: To provide advice on conducive framework conditions for STI to contribute to economic growth.
* Strategic Goal 3: To monitor and evaluate the contribution of STI to South Africa’s economic growth and competitiveness.
* Strategic Goal 4: To establish NACI as a premier institution for providing rapid response STI advice.

During 2015/16, NACI has to develop a framework for a new STI Decadal Plan, a feedback report on the review of the 1996 Science and Technology White Paper, an Innovation Scorecard, a framework (model) for an innovation portal and generate three rapid advice reports on pertinent issues.

NACI’s 2015/16 budget allocation amounts to R18.7 million, with R10.3 million for the Compensation of employees and R8.4 million for Goods and services.

* + 1. **Programme 2: Technology Innovation**

Programme 2 enables R&D in space science and technology, energy security and the bioeconomy, and in the emerging and converging areas of nanotechnology, robotics, photonics and indigenous knowledge systems (IKS), and promotes the realisation of commercial products, processes and services from these R&D initiatives. In addition, through the implementation of enabling policies and interventions along the entire innovation value chain, to promote the protection and utilisation of intellectual property (IP), technology transfer and technology commercialisation. Programme 2 has five sub-programmes, namely, Space Science, Hydrogen and Energy, Bioeconomy, Innovation Priorities and Instruments (IPI) and the National Intellectual Property Management Office (NIPMO). Sixty-five percent (R646 million) of Programme 2’s budget constitutes Transfers and subsidies to Departmental agencies and accounts. More than half of Programme 2’s budget is directed at the IPI sub-programme, that is, R526 million of the R1 billion allocated to this Programme. The IPI sub-programme supports and strengthens the policy initiatives that aim to create and sustain an enabling environment for innovation, technology development and the commercialisation of products from publicly funded R&D. The lowest allocation in this Programme, R25.3 million, is awarded to NIPMO, a 44.5 percent real reduction from its 2014/15 allocation. This function has remained underfunded since its inception and the Department requested, R209.1 million over the current MTEF, to fund this sub-programme. Overall, the Programme has a 2.9 percent real decrease in its allocation.

The strategic objectives for Programme 2 are to:

* Facilitate and resource STI investments in space S&T, energy, bioeconomy, nanotechnology, robotics, photonics, IKS, IP management, technology transfer and technology commercialisation.
* Oversee, monitor and regulate key policy initiatives, including institutions/agencies, and support interventions in the key strategic areas of space S&T, energy, bio-innovation, nanotechnology, robotics and photonics.
* Co-ordinate and support high-end skills development in:
  + the strategic and emerging S&T areas of synthetic biology, structural biology, systems biology and functional genomics (collectively the South African Biodesign Initiative), space S&T, energy, bio-innovation, nanotechnology, robotics, photonics and indigenous knowledge systems.
  + IP management, technology transfer and technology commercialisation.
* Support, promote and advocate the development and translation of scientific R&D outputs into commercial products, processes and services that will contribute towards economic growth and a better quality of life.

1. **Programme 2 Entity: Technology Innovation Agency (TIA)**

TIA aims to support, stimulate and intensify technological innovation to improve economic growth. Its focus over the medium-term will be on the commercialisation of technology-based services, processes and products that will contribute to faster growth and the creation of sustainable jobs. Hence, TIA’s 2015-2020 strategic goals are to:

* Position TIA as a thought leader in technological innovation in South Africa.
* Provide South Africa with appropriate and effective support for innovation with high social and economic impact.
* Support and enhance technological innovation in Africa and globally through partnership initiatives.

These goals will be realised though the following strategic objectives:

* To provide customer-centric technology development funding and support in high impact areas.
* To provide thought leadership and an enabling environment for technology innovation in collaboration with other role players.
* To develop an effective and efficient internal environment to successfully execute the strategy.

The Parliamentary grant allocation to TIA remains R385 million after there was a decrease in budget allocation from R481.1 million in 2013/14 to R385.4 million in 2014/15, which was due to slower than expected spending. Funding for its projects amounts to R351.7 million and TIA also expects to source R108 million from external funding sources. The Department stated that the reduction was not expected to impact service delivery. However, several projects will need to scale back on existing commitments and TIA reduced its administrative costs (now 29 per cent of budget), mainly by reducing staff numbers. TIA also states that the reduction in funding affects its effectiveness as a role player in the innovation space. TIA is currently implementing an organisational redesign process to enhance its efficiency and effectiveness.

1. **Programme 2 Entity: South African National Space Agency (SANSA)**

SANSA aims to promote the peaceful use of space, foster international co-operation in space related activities, foster research in space science, advance scientific engineering through HCD, and facilitate the creation of an environment that is conducive to industrial development in space technologies. Hence, SANSA’s 2015-2020 strategic goals are to:

* Address South Africa’s challenges through space services and products.
* Lead high-impact collaborative R&D on a national scale.
* Develop national human capacity and ensure transformation.
* Enhance the competitiveness of the South African space industry.
* Develop active global partnerships.
* Ensure the growth and sustainability of SANSA.
* Transform SANSA into a high-performance Agency.

The Parliamentary grant allocation to SANSA is R124 million (R118 million in 2014/15), it also receives a R97.5 million ring-fenced grant for satellite development and expects to receive R62.8 million from contract income. Because this sector is dependent on highly specialised skills, which are also in short supply in South Africa, the compensation of employees will remain a key cost driver over the MTEF and will account for 38 percent of SANSA’s total expenditure. The satellite build programme is expected to create high technology skills and jobs and boost the emerging space industry. The acquisition of satellite data, which costs South Africa R36 million per year now, will be used to develop geospatial analysis applications to improve spatial and resource planning, management and usage.

* + 1. **Programme 3: International Cooperation and Resources**

Programme 3 supports South Africa’s foreign policy through science diplomacy. Hence, it develops, promotes and manages international relationships, opportunities and S&T agreements that both strengthen the NSI and enable an exchange of knowledge, capacity and resources between South Africa and its international partners, with a focus on supporting STI capacity building in Africa. Programme 3 has three sub-programmes, namely, Multilateral Cooperation and Africa, International Resources and Overseas Bilateral Cooperation. Of the R122 million allocated to Programme 3, almost 39 percent (R47.5 million) is transferred to Non-profit institutions. Of the remaining funds, 36 percent (R43.7 million) is allocated for the Compensation of employees and 14.1 percent (R17.2 million) for the payment of Goods and services. Of the portion that is allocated to Non-profit institutions, R39 million is for International Resources and R8.5 million is for African Multilateral Agreements.

Programme 3 needs a budget that will allow for strategic co-investment with international partners. The Department has shown that for every R1 it invests, it can secure up to R10 from an international partner. Bilateral and multilateral co-operation initiatives also requires South Africa to fund its own costs under bilateral agreements and cover its membership in multilateral organisations. Programme 3 receives a nominal increase in its 2015/16 allocation, but once adjusted for inflation, this represents a real decrease of 2.75 percent.

The strategic objectives for Programme 3 are to:

* Secure international funds to complement South Africa’s national investments in STI, including resources for the Department’s initiatives requiring external investment.
* Access international knowledge, capacities and resources, to enhance South Africa’s national STI capabilities, contributing to the attainment of the Department’s targets for HCD, especially for international PhD training.
* Strengthen co-operation in STI in Africa, to build capacities and support initiatives of the Southern African Development Community (SADC) and the African Union (AU,) for the advancement of both South Africa and Africa’s growth and development agenda.
* Maximise South Africa’s strategic interests in international co-operation in STI, in support of South Africa’s foreign policy objectives, and international trade and investment partnerships, creating a better South Africa, and contributing to a better and safer Africa in a better world.
  + 1. **Programme 4: Research Development and Support**

Programme 4 seeks to provide an enabling environment for research and knowledge production that promotes the strategic development of basic sciences and priority science areas through science promotion, HCD and the provision of research infrastructure and relevant research support, in pursuit of South Africa’s transition to a knowledge economy. Programme 4 has four sub-programmes, namely, Human Capital and Science Promotions, Science Missions, Basic Science and Infrastructure and Astronomy. Programme 4 receives R4.25 billion (56.8 percent) of the Department’s budget and allocates R4.20 billion to Transfers and subsidies. The Human Capital and Science Promotions sub-programme is allocated R2.3 billion and the Basic Science and Infrastructure sub-programme is allocated R1 billion. The CSIR receives R213 million for Cyberinfrastructure research, estimated to increase by 3.4 per cent over the MTEF. These allocations affirm the Department’s commitment to transform and develop human capital and provide research infrastructure for the NSI. Key investments include the SKA telescope project, increasing the number of PhD graduates, and increasing South Africa’s investment in R&D to at least 1 percent of GDP. The 2015/16 budget allocation to Programme 4 represents a real increase of 15.7 percent.

The strategic objectives for Programme 4 are to:

* Contribute to the development of representative, high-level human capital able to pursue locally relevant, globally competitive research and innovation activities.
* Ensure availability of and access to internationally comparable research and innovation infrastructure to generate new knowledge and train new researchers.
* Support and promote research that develops basic sciences through production of new knowledge and relevant training opportunities.
* Strategically develop priority science areas in which South Africa enjoys a competitive advantage, by promoting internationally competitive research and training activities and outputs.
* Promote public engagement on STI.

1. **Programme 4 Entity: National Research Foundation (NRF)**

The NRF promotes and supports research in all fields of science, and provides research funding and platforms through national facilities and science engagement activities. Its key goal is to ensure that South Africa contributes at least one percent to global R&D output by 2020 and that this knowledge output benefits society. Hence, the strategic objectives of the NRF are to:

* Promote globally competitive research and innovation.
* Enhance strategic international agreements.
* Establish and maintain research infrastructure and platforms.
* Grow NRF influence, impact and reputation.
* Provide cost-effective shared services.
* Improve talent management.
* Entrench science engagement.
* Provide best practice systems in support of grant making, reviews and evaluations.

The NRF receives a baseline allocation of R886 million (3.6 percent increase from 2014/15, but below inflation), a ring-fenced allocation of R1.9 billion and R1.4 billion from designated funding for specific projects and programmes from the Department and from other government departments and organisations. The increase in the ring-fenced allocation is due to an additional R350 million received from the Department for HCD and R120 million for the South African Research Chairs Initiative (SARChI). Expenditure on infrastructure mainly comprises the SKA project, which has been allocated R2.1 billion over the medium-term. There was, however, a reduction of R21.8 million over the medium-term due to contractual delays and delays in the testing phase. The NRF’s Research and Innovation Support and Advancement business unit is allocated 62 percent of the NRF’s total budget.

Future financial needs affecting the NRF include:

* The NRF Act is currently being amended to include a science engagement mandate. However, the NRF’s current science engagement initiatives are already underfunded.
* The Department of Trade and Industry (DTI) has decided to discontinue allocating, to the NRF, the Technology and Human Resources for Industry Programme (THRIP) funds for emerging researchers. Currently, THRIP represents the largest share of funding the NRF allocates to emerging researchers. The 2014 budget report of the Portfolio Committee on Trade and Industry stated the following: “In the previous financial year, the target to support students under THRIP was not met. The Portfolio Committee on Trade and Industry enquired how the DTI intended to meet this target given the historical failure to do so. The DTI informed the Portfolio Committee on Trade and Industry that the programme had been administered by the National Research Fund (NRF) but going forward it will be administered by the DTI. The DTI will ensure that the programme runs more effectively and efficiently and that it is more aligned to industrial research in future.” The Department and the NRF stated that DTI had informed them of the withdrawal of THRIP funds, but had not indicated the reasons for doing so. However, the 2015 Estimates of National Expenditure for the DTI still reflect THRIP funds as being transferred to the NRF until 2018, as well as increasing in amount.
* Ageing infrastructure at the National Research Facilities.
* Establishing the Astronomy sub-agency.

The NRF requested the Committee’s assistance to ensure that additional funds are secured, via the BRRR process, to meet the objectives of the Department and the Entities.

1. **Programme 4 Entity: Academy of Science of South Africa (ASSAf)**

ASSAf promotes outstanding achievement in all fields of scientific enquiry, grant recognition for excellence, and provides evidence-based scientific advice to government and other stakeholders. Hence, the strategic goals of ASSAf are to:

* Recognise and reward of excellence.
* Promote innovation and scholarly activity.
* Provide effective, evidence-based scientific advice.
* Promote public interest in and awareness of science and science education.
* Promote national, regional and international linkages.

The 2015/16 baseline allocation to ASSAf is R22.9 million, with additional funds estimated to take ASSAf’s total income to R26.9 million. Over the medium-term, R36.6 million (45 percent) of ASSAf’s budget is allocated to the Policy advisory and scholarly publishing programme. Evidence of ASSAf’s key function to provide scientific evidence-based studies, scholarly publishing, and co-operation with other science academies for the advancement of science in service of society. In 2015/16, ASSAf’s policy advice will focus on health studies, education studies, science for poverty alleviation, humanities, biosafety and biosecurity, climate change, energy security and the science-policy nexus. Since ASSAf’s activities are labour-intensive, expenditure on compensation of employees accounts for 46.5 percent of its allocated budget.

* + 1. **Programme 5: Socio-Economic Innovation Partnerships**

Programme 5 seeks to enhance the growth and development priorities of Government through targeted STI interventions and the development of strategic partnerships with all levels of government, industry, research institutions and communities. This programme has four sub-programmes, namely, Sector Innovation and Green Economy, Innovation for Inclusive Development, Science and Technology Investment, and Technology Localisation Beneficiation and Advanced Manufacturing. Programme 5 receives R1.8 billion (24 percent) of the Department’s total budget and allocates R1.76 billion to Transfers and subsidies. These transfers comprise R817. 5 million for Departmental agencies and accounts and R943.9 million for Public corporations and private enterprises. The Sector Innovation and Green Economy sub-programme receives 49 percent of the total allocation to establish high impact science research that would support the growth of environmental technologies and services in South Africa. The Technology Localisation, Beneficiation and Advanced Manufacturing sub-programme receives a 59 percent real increase in funding and over the medium-term will be allocated R1.3 billion compared to the R736.7 million allocated during the last three years. Overall, Programme 5 receives a 10 percent real increase in allocation.

The strategic objectives for Programme 5 are to:

* + Inform and influence how S&T can be used, through knowledge, evidence and learning, to achieve inclusive development.
  + Identify, grow and sustain niche high-potential STI capabilities for sustainable development and the greening of society and the economy.
  + Identify, grow and sustain niche high-potential STI capabilities that –
    - improve the competitiveness of existing industries with growth potential in aerospace, advanced manufacturing, chemicals, advanced metals, mining, ICTs and sector innovation funds;
    - facilitate the development of R&D-led new targeted industries.
* Enhance understanding and analysis that support improvements in the functioning and performance of the NSI.
* Strengthen provincial and rural innovation and production systems through analysis and catalytic interventions.
* Introduce and manage interventions and incentive programmes that increase the level of private sector investment in scientific or technological research and development.

Interventions in support of these objectives include: high potential R&D-led industrial development programmes, technology support programmes for industry (including programmes to increase the competitiveness of small and medium enterprises), introducing new approaches to government service delivery and planning, strengthening science-based policy development and decision-making, demonstrating technology-led opportunities for creating sustainable jobs and wealth creation, and strengthening the contribution of technology in sustainable human settlements.

1. **Programme 5 Entity: Human Sciences Research Council (HSRC)**

The HSRC aims to be a research organisation that advances social sciences and humanities to help address pressing social issues such as inequality and poverty and enhances human welfare and development. Hence, its strategic intent is to address key priorities facing South Africa through its research, and to generate new knowledge that helps us understand the changing human and social environment in which we live. During 2015/16, the HSRC will be implementing decisions made by the Department on the proposed measures to (a) enhance humanities centred research across the NSI and (b) enhance the impact of humanities research in society.

The HSRC’s total 2015/16 budget is R481.9 million, and comprises the Parliamentary grant of R288.7 million, an external research income target of R157.3 million and another external income target of R35.9 million. Personnel costs amount to R262.7 million (53 percent) of the total budget. The Department has also awarded the HSRC R19.8 million for the procurement of research survey infrastructure. The Research, Development and Innovation Programme receives R254.9 million of the total budget allocation and the Africa Institute of South Africa (AISA), now incorporated into the HSRC, has a ring-fenced budget allocation of R44.9 million.

The HSRC has identified the following challenges concerning fulfilling its mandate. These include:

* Misalignment between its research demands and its ICT capabilities/capacity.
* Attracting critical skills is hampered because the HSRC cannot match the remuneration offered by other organisations, and researchers are required to source contract research funding.
* Non-compliance with occupational health and safety regulations – Pretoria building. The current funding allocation for maintenance does not adequately address the problems being experienced and so far, submissions to National Treasury for a new building have been unsuccessful.
* The HSRC has to focus on more high impact, large multi-year projects that address big societal and policy challenges so that it can meet its target for external funding.
* Undue Donor/Funder influence on the research agenda and pressure to secure income.

The Department has requested that the HSRC, for future iterations of its Annual Performance Plan, consider the following issues:

* Clearer articulation of how the HSRC contributes to specific MTSF.
* Specification of a clear strategic research agenda for AISA in the HSRC, which complements the Africa focus of NSI agencies and collaborates with them on this focus.
* Reflect on the benefits, challenges, and plans for collaborating with other players in the NSI.
* Greater priority on research that informs policies on enhancing the economic activities of township and peri-urban areas.
* Effective interface and collaboration with the various South African Research Chairs and Centres of Excellence.
* Enhancing the impact of the work of the HSRC within current financial constraints (cost containment measures).
* Redoubling efforts at communicating significant achievements that have been made by the NSI.
* Highlighting efforts being made to secure greater value for money.

1. **Programme 5 Entity: Council for Scientific and Industrial Research (CSIR)**

The CSIR’s mandate is to foster industrial and scientific development in the national interest through multidisciplinary research and technological innovation. The strategic objectives of the CSIR are:

* Scientific and technological research in support of national development objectives.
* Financial sustainability and good governance.
* Build and transform human capital.

The R&D objective is implemented via the CSIR's Growth and Impact Strategy, which is structured around six Research Impact Areas (RIAs) and four Flagship Programmes. The RIAs focus on directed, multidisciplinary R&D, while the Flagship Programmes are large, integrated, impact-driven initiatives. The six RIAs comprise Health, Energy, Defence and Security, Built Environment, Natural Environment and Industry. The four Flagship programmes are Water sustainability, Health and nutrition, Safety and security and Transnet. R&D performance is measured through the following outputs; namely, the numbers of peer-reviewed publications, research technologies developed, patents and the production of research reports.

The CSIR derives its revenue from grants from the Department, contract R&D income from public and private sectors both locally and internationally, and income from IP and technology transfer initiatives. Contract income is expected to increase by an average of 8.8 percent over the medium-term through additional R&D work contracted to the CSIR. The total revenue generated from contract R&D activities is projected to increase to R2.2 billion by 2017/18. Transfers received from the Department will amount to R827.7 million in 2015/16, and constitutes approximately 33 percent of the CSIR’s total budget. The CSIR has set a 2015/16 budget target of R2.54 billion, which comprises a R&D income target of R1.8 billion. To develop and attract excellent research and engineering expertise, the CSIR has invested R747 million in scientific equipment and infrastructure over the past five years. In terms of large infrastructure projects, the CSIR will continue to establish the South African National Research Network (SANReN) on behalf of the Department, with a budget allocation of R113 300 in 2015/16 and R113 867 in 2016/17. The CSIR expects to invest approximately R761 million in research and development facilities over the medium-term to support biomanufacturing, biorefineries, advanced manufacturing, nanopolymer upscale facilities, and the modernisation of laboratories. To strengthen the science, engineering and technology base over the medium-term, expenditure on compensation of employees accounts for 53.4 per cent (R1.4 billion in 2015/16) of the CSIR’s total expenditure between 2014/15 and 2017/18. With a staff complement of 2 559 posts, and 2 697 funded posts, the CSIR expects to fill all vacant posts as candidates with specialised science, engineering and technology skills are recruited. The additional personnel will be crucial in ensuring ongoing R&D effort in selected focus areas.

1. **Committee Observations**

The Committee commended the Department and the Entities for the work they do and for formulating coherent strategies and performance plans. In concluding its deliberations on Budget Vote 30: Science and Technology, the Committee noted the following:

* Science, technology and innovation (STI) plays a crucial role in improving economic performance and social well-being. However, for the STI system to have an impact on the economy, the STI agenda must be strategically aligned to national priorities, and optimally resourced and co-ordinated. The Committee welcomed the efforts of the Department and the Entities to ensure that, in 2015/16, their strategic and performance plans show closer alignment to the objectives of the NDP and the actions outlined in the MTSF. The Department and the Entities are severely constrained, however, by a lack of adequate investment.
* The Department and the Entities have a mandate to deliver on Government’s national priorities. Hence, the Committee expressed its concern regarding the marginal increase in the Parliamentary grant allocations to the Entities. This increases the reliance of national institutions on external contract funding, which may then deflect the focus of the work done away from national interest to that of the contractor.
* The Committee stated that it is crucial that STI be placed at the centre of the work of government. Hence, the efforts of the Department to review the current STI policies and funding systems so that the NSI is expanded and better resourced and co-ordinated, is welcomed.
* The difficult economic climate has resulted in slower growth for R&D investment. However, it has been shown that increasing investment in strategic areas of STI helps economies recover faster and puts them in a position for greater benefit when the economy recovers. Since economic growth will be driven by STI, the Committee would like to see an increase in the gross expenditure on R&D and that Government's target of having 1.5 percent R&D expenditure as a proportion of GDP can be realised by 2019, if not sooner.
* The Committee welcomed the work of the Department to show how STI can positively influence economic growth and competitiveness. It is hoped that the results of these studies will be widely communicated, and the Department’s intention to enhance its public communication initiatives, should assist in this regard. Furthermore, the Committee intends to, as requested by the Minister of Science and Technology, assist the Department with promoting the work it does.
* The Department must strengthen the innovation capacity of the country and forge necessary linkages with all the instruments in the NSI, including innovation partnerships with the private sector. Strengthening the links between science and industry will benefit universities, research institutions as well as industry.
* Central to increasing R&D investment, is the role of industry. It is important that industry co-fund, invest and participate in RDI in the strategic sectors of the economy. The Committee acknowledges the increased uptake by companies of the R&D Tax Incentive, but urges the Department to intensify its efforts to increase broader awareness of the incentive and ensure that more companies, especially small and medium enterprises, participate.
* The Committee welcomes the on-going relationships the Department has with the Departments of Trade and Industry, Small Business Development and Education. The intergovernmental collaborative partnerships are instrumental in ensuring that the work done by the Department and the Entities is used and implemented, and cannot be overemphasized. These relationships are crucial to the success of the NSI.
* Enhanced co-ordination is also necessary at Executive as well as Parliamentary level amongst the various portfolio and select committees in instances where science and technology issues are transversal.

1. **Committee Recommendations**

The Portfolio Committee on Science and Technology, having considered the proposed Budget Vote 30: Science and Technology, recommends that:

* All mechanisms to increase the budget allocation to the Department of Science and Technology be pursued by the Ministers of Science and Technology and Finance.
* All efforts to ensure the increased influence of STI on economic planning and growth and the expansion of the NSI be prioritised and expedited. These include the Review of the White Paper on Science and Technology and the formulation of new models for STI budget co-ordination.
* The Department of Science and Technology interact with the Department of Trade and Industry to establish if there are any entities currently under the auspices of the Department of Trade and Industry that should be transferred to the Department of Science and Technology, and that they report to the Committee within six months.
* The House adopts Budget Vote 30: Science and Technology.

**The Democratic Alliance reserved their right to an opinion on the Vote.**

**Report to be considered.**