**3. Budgetary Review and Recommendation Report of the Portfolio Committee on Higher Education, Science and Technology on the performance of the Department of Science and Technology for the 2018/19 financial year, dated 29 October 2019**

The Portfolio Committee on Higher Education, Science and Technology, having considered the performance of the Department of Science and Technology - Vote 30 for the 2018/19 financial year, reports as follows:

1. **Introduction**
   1. **Mandate of the Portfolio Committee on Higher Education, Science and Technology**

The Portfolio Committee on Higher Education, Science and Technology (hereafter, the Committee) is mandated by the Constitution and the Rules of Parliament to oversee the activities and performance of the Department of Science and Technology (hereafter, the Department or DST) and the entities that report to it. Furthermore, the Committee must consider, amend and/or initiate legislation; consider international agreements and provide a platform for the public to participate and present views on issues and/or legislation specific to the science, technology and innovation (STI) system.

To enhance Parliament’s oversight role, the Money Bills Amendment Procedure and Related Matters Act (9 of 2009) was promulgated to provide Parliament with a procedure to make recommendations to the Minister of Finance to amend the budget of a national department. A key provision of this Act is that Portfolio Committees must annually compile Budgetary Review and Recommendation (BRR) Reports. These BRR Reports provide an assessment of service delivery performance given available resources; evaluates the effective and efficient use of resources; and may make recommendations on the forward use of resources. The BRR Reports are also source documents for the Committees on Appropriations when they make recommendations to the Houses of Parliament on the Medium-Term Budget Policy Statement (MTBPS).

* 1. **Purpose of and method to develop the 2019 Budgetary Review and Recommendation Report of the Portfolio Committee on Higher Education, Science and Technology**

The purpose of the BRR Report is to account, in accordance with National Assembly (NA) Rules 339 and 340, for work done by the Committee in considering the 2018/19 Annual Reports of the Department and entities, which were tabled in accordance with Section 40(1) of the Public Finance Management Act (1 of 1999) (PFMA) and referred by the Speaker to the Committee for consideration and report.

In preparation for the BRR Report, the Committee, during the 2018/19 financial year, considered the Department and entities’ prevailing Strategic Plans, the 2018/19 budget allocations and Annual Performance Plans, the quarterly performance and expenditure trends, and conducted oversight by having briefings on specific initiatives and programmes, which included site visits.

The Committee invited the Auditor-General of South Africa (AGSA) to explain the 2018/19 audit outcomes for the Department and the entities, and considered the Department’s 2018/19 Annual Report on 8 October 2019. The Committee decided to focus on four of the eight entities for the period under review. Hence, it considered the 2018/19 Annual Reports of the Council for Scientific and Industrial Research (hereafter, the CSIR), Human Sciences Research Council (hereafter, the HSRC), National Research Foundation (hereafter, the NRF), and Technology Innovation Agency (hereafter, the TIA) on 9 October 2019.

* 1. **Relevant policy documents**

Science, technology and innovation are considered crucial for the creation of wealth and improving the quality of life in modern society. In South Africa, the 1996 White Paper on Science and Technology introduced the concept of a National System of Innovation (NSI), which is defined as a network of institutions, organisations and policies that work together to develop and implement science and technology to achieve a common set of social and economic goals and objectives. The 2002 National Research and Development Strategy (NRDS) and the 2008 Ten-Year Innovation Plan (TYIP) are the key drivers of the NSI. The TYIP, particularly, aims to guide the country towards a knowledge-based economy through human capital development (HCD), knowledge generation and exploitation, knowledge infrastructure and enablers to convert knowledge into socio-economic outcomes. Hence; the TYIP seeks to enable multidisciplinary thinking and research that will result in the socio-economic changes envisaged in the National Development Plan (NDP).

The NDP identifies the need to increase the size, coherence and effectiveness of the NSI because STI is crucial for national development. Hence, the country must enhance its investment in infrastructure, improve the skills base and ensure that it better exploits the knowledge generated from its investments in research, development and innovation (RDI).

The advent of rapid global technological change and global megatrends require that governments, across the world, introduce new policy responses to ensure that the benefits of these changes accrue to nations and that the negative effects are mitigated. Therefore, Cabinet approved a new White Paper on Science, Technology and Innovation in March 2019. The 2019 White Paper on Science, Technology and Innovation sets the current long-term policy direction for the NSI and seeks to ensure an increasing role for STI to accelerate inclusive economic growth, increase the competitiveness of the economy, and improve the livelihoods of South Africa’s citizens. A new Decadal Plan for STI (to replace the 2008 TYIP) will serve as an implementation plan for the 2019 White Paper.

* 1. **Mandate of the Department of Science and Technology**

To position STI within the framework of the NDP, the Department directs 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 research and development (R&D)-based opportunities and partnerships.
  + Goal 5: Knowledge utilisation for inclusive development – accelerate inclusive development through scientific knowledge, evidence and appropriate technology.

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 Programmes and initiatives of the Department contribute to Outcomes 2 (long and healthy life), 4 (inclusive economic growth), 5 (skilled and capable workforce), 6 (efficient, competitive and responsive economic infrastructure network), 7 (sustainable rural communities) and 10 (environment and natural resources); as well as the Nine-Point Plan. The Nine-Point Plan seeks to stimulate and diversify South Africa’s economy. Specific areas where the Department contributes to the Nine-Point Plan include:

* + - Revitalisation of agriculture and agro-processing.
    - Increasing the impact of the Industrial Policy Action Plan (IPAP).
    - Beneficiation of mineral wealth.
    - Unlocking the potential of small business and rural and township enterprises.
    - Growing the oceans economy through Operation Phakisa.
    - Resolving the energy challenge by advancing alternative energy sources.
    - Scaling-up private sector participation in R&D.

1. **RESPONSE TO previous financial recommendations of THE PORTFOLIO Committee ON SCIENCE AND TECHNOLOGY**

The Minister of Finance responded, in National Treasury’s 2019 Budget Review, to the recommendations of the Committee’s 2018 Budgetary Review and Recommendation Report as follows:

Committee recommendation:

The Minister of Science and Technology should continue her engagement with the National Treasury to secure additional funding for the science and technology portfolio and that the committee supports all funding requests made in this regard.

Minister of Finance response:

The National Treasury recognises the importance of science, technology and innovation in growing the economy. The Department of Science and Technology has been allocated R25 billion over the medium term. Of this, the department transfers 92 per cent to its entities to fund research and development programmes that form the strategic foundation for scientific innovation. The department will also receive donor funding amounting to R118.8 million over the 2019 MTEF period for projects relating to the green economy and strengthening the smallholder essential oils value chain. Due to the constrained fiscal outlook, the scope to provide additional funding is limited. Departments, public entities and constitutional institutions are required to reprioritise funds within their existing baselines to fund any emerging priorities. Should the fiscal outlook improve, future recommendations for additional funding may be considered.

Committee recommendation:

The Minister of Science and Technology advises against all proposed funding reductions from the National Treasury and that the regulations regarding the non-acceptance of Memoranda of Agreement for remunerated services be reconsidered in light of the adverse effect it has had on entities like the Council for Scientific and Industrial Research (CSIR) who could not secure its targeted contract income.

Minister of Finance response:

Given the tight fiscal environment and the need for the National Treasury to direct spending to other pressing national priorities that are underfunded, reductions have been effected across all votes, particularly on entities with favourable financial positions and large cash reserves. Baseline reductions to science and technology spending have been kept to a minimum.

Committee recommendation:

National Treasury should elaborate on its view that, “the department’s six entities are adequately funded to deliver on their mandate given the yearly applications to the National Treasury to retain surplus funds.”[[1]](#footnote-1) The committee maintains that the performance delivery of the entities has been structured around the budgets that have been allocated to them, and not according to all the responsibilities that they are mandated to fulfil.

Minister of Finance response:

In 2018/19, the National Treasury applied stringent measures on the retention of surpluses, requiring

compelling evidence on the need to retain funds. Entities under the Department of Science and Technology are adequately funded to deliver on their mandate given the amount of transfers they receive in relation to their respective mandates. This is further supported by cash reserves in the entities’ bank accounts that accumulate interest, resulting in the requests to retain cash surpluses. Over the 2019 MTEF period the Department of Science and Technology will transfer the majority of its allocated budget to its entities to execute their mandates, and these entities also generate profits from their activities and the services they render to various stakeholders. Moreover, entities’ performance indicators indicate that they are able to achieve their targets with the allocated budget as shown in the various annual reports and annual performance plans submitted to the National Treasury.

1. **2018/19 financial performance OF THE DEPARTMENT OF SCIENCE AND TECHNOLOGY**

The Department’s budget allocation increased by R233.3 million from R7.6 billion in the 2017/18 financial year to ***R7.8 billion*** in the 2018/19 financial year. This denoted, when adjusted for inflation, a real decrease of 2.3%. The Department’s budget allocation was projected to increase to R8.2 billion in 2019/20 and R8.7 billion in 2020/21. Over the medium-term, Cabinet approved budget reductions of R186.1 million, which would be effected on spending on goods and services, and on the baseline budgets of entities.

In terms of economic classification, the apportionment of the Department’s 2018/19 budget allocation of R7.8 billion remained the same as in previous years and comprised Current payments of R603.3 million (7.8%), Transfers and subsidies of R7.2 billion (92%) and Payments for capital assets of R12.2 million (0.2%). The Department received donor funds (official development assistance) from the European Union, Finland and Austria totalling R45 million, and collected revenue totalling R32.7 million from the sale of old, uneconomical vehicles and the return of surplus project funds.

The budget allocation to each Programme comprised:

* + Programme 1– Administration – allocated R383.8 million
  + Programme 2– Technology Innovation – allocated R1.1 billion
  + Programme 3– International Cooperation and Resources – allocated R136.4 million
  + Programme 4– Research, Development and Support – allocated R4.4 billion
  + Programme 5– Socio-economic Innovation Partnerships – allocated R1.8 billion

The budget allocation was aligned to the priorities of strengthening and expanding STI human capital development and ensuring that innovation and knowledge underpin the Government’s growth strategy. Hence, Programmes 2, 4 and 5 as in previous financial years, received 93.3% of the Department’s total budget allocation. The marginal increase in Programme 4’s budget, once adjusted for inflation, represented a real decrease of 5% (the largest across the five programmes), with the Basic Science and Infrastructure sub-programme being subjected to a R49 million decrease in its allocation. Programme 4’s allocation was largely for Transfers and subsidies (R4.3 billion), the bulk of which was transferred to the National Research Foundation (NRF). Budget cuts within Programme 4 meant that the performance targets regarding the number of students who received bursaries, the number of students who received work preparation (interns), and the number of infrastructure grants awarded all had to be reduced.

During the October 2018 budget adjustment process, the Department’s budget allocation increased to R7.96 billion because of an additional R167.9 million specifically allocated for maintaining and enhancing the research and training activities of the South African Isotopes Facility of the iThemba Laboratory for Accelerator Based Sciences (iThemba LABS).

The Department effected virements that amounted to R73.4 million after the budget adjustment process, which represented 1% of the adjusted budget. An amount of R145 000 was moved between major items and R31 million was moved between Programmes. R58.9 million was shifted within Transfers and subsidies to fund the International Centre for Genetic Engineering and Biotechnology’s operations (as in previous years), intellectual property creator incentives, manufacturing of products and technology transfer related to indigenous knowledge systems, satellite launching capability and the South African Earth Observation Strategy.

The Department spent 99.2% (i.e. R7.89 billion of R7.96 billion, underspending by R66.5 million) of its 2018/19 budget (99.1% in 2017/18). Table 1 shows the expenditure by Programme and Economic classification. The variances in expenditure occurring in Programme 1 was due to the delays in filling identified critical posts, the cancellation of events, the discontinuation of the roof replacement, the savings on audit fees, and the delays in finalising an agreement for Microsoft licences. In Programme 2 the variance in expenditure was due to the late receipt of invoices for travel and subsistence and the hosting of the Indigenous Knowledge Bio-innovation Programme. In Programme 5 the variance in expenditure was due to the postponement of the intellectual property and technology transfer survey projects. The variance in expenditure in terms of Current payments was due to underspending in Programme 1 on employee compensation and goods and services. In Programmes 2 and 5, the variance in expenditure in terms of Current payments was due to underspending on goods and services. The variance in expenditure in terms of Payment for capital assets was largely due to underspending on machinery and equipment in Programme 1. The Department anticipated that it would underspend on goods and services as a result of R650 000 that was not requested from the National Treasury. The Department continued to ensure that they paid all their suppliers within the prescribed period, taking an average of nine days to settle the payments due.

**Table 1:** **Overview of the Department’s 2018/19 allocation and expenditure**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Programme** | **Main appropriation**  **R’thousand** | **Final appropriation**  **R’thousand** | **Actual expenditure**  **R’thousand** | **Variance**  **R’thousand** | **Expenditure as % of final appropriation** |
| Programme 1 – Administration | 383 802 | 380 349 | 340 493 | 39 856 | 89.5% |
| Programme 2 – Technology Innovation | 1 131 723 | 1 157 338 | 1 143 715 | 13 623 | 98.8% |
| Programme 3 – International Cooperation and Resources | 136 399 | 142 449 | 139 872 | 2 577 | 98.2% |
| Programme 4 – Research Development and Support | 4 360 304 | 4 519 058 | 4 516 626 | 2 432 | 99.9% |
| Programme 5 – Socio-economic Innovation Partnerships | 1 778 260 | 1 759 194 | 1 751 220 | 7 974 | 99.5% |
| **TOTAL** | **7 790 488** | **7 958 388** | **7 891 926** | **66 462** | **99.2%** |
| **Economic classification** | **Main appropriation**  **R’thousand** | **Final**  **appropriation**  **R’thousand** | **Actual expenditure**  **R’thousand** | **Variance**  **R’thousand** | **Expenditure as % of final appropriation** |
| Current payments | 603 305 | 600 969 | 546 152 | 54 817 | 90.9% |
| Transfers and subsidies | 7 174 989 | 7 343 539 | 7 336 589 | 6 950 | 99.9% |
| Payments for capital assets | 12 194 | 13 735 | 9 042 | 4 693 | 65.7% |
| **TOTAL** | **7 790 488** | **7 958 388** | **7 891 926** | **66 462** | **99.2%** |

As at 31 March 2019, the Department had 90 vacancies (total posts 490), which translated to a 18.4% vacancy rate. Furthermore, only 81% of the approved departmental organisational structure was funded, with staff in funded positions carrying out the functions of the unfunded positions, leaving many employees overburdened and overstretched.

The Department incurred R684 000 (R14.5 million in 2017/18) in irregular expenditure due to four incidences of non-compliance with supply chain management processes, the details of which were referred to the Accounting Officer for further action. Irregular expenditure awaiting condonation from the 2018/19 and prior (R34.4 million) financial years amounted to R35 million.

The Department incurred R526 000 (zero in 2017/18) in fruitless and wasteful expenditure related to the cancellation of an event; namely, the Mandela Mining Indaba.

* 1. **Auditor-General’s report on the financial statements of the Department of Science and Technology**

The AGSA awarded the Department an unqualified audit opinion with no findings; hence, a clean audit, as in the 2017/18 financial year. The AGSA further stated that no material findings on compliance with key legislation and that no significant deficiencies in internal control were identified. However, the AGSA did indicate to the Committee that the Department should ensure that the existing internal processes should be more closely adhered to so that all instances of irregular, and fruitless and wasteful expenditure can be prevented.

The Department’s Internal Audit Committee raised the adequacy and effectiveness of Information Technology (IT) controls in the areas of IT Service Continuity Management, User Access Management and Programme Change Management, as areas of concern needing Management’s intervention. This concern was further substantiated by the increase in audit findings by the AGSA pertaining to IT, which increased from five in 2017/18 to 11 in 2018/19, out of a total of 14 audit findings.

1. **2018/19 performance OF THE DEPARTMENT OF SCIENCE AND TECHNOLOGY**

The Department’s Programmes, with their concomitant achievement against the performance targets for the 2018/19 financial year, are shown in Table 2. Overall performance for the previous financial years is shown at the bottom of Table 2.

**Table 2: Programme performance for the 2018/19 financial year.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Programme** | **Number of targets** | **Achieved** | **Not achieved** | **Programme expenditure (%)** |
| Programme 1 – Administration | 5 | 5 | 0 | 89.5% |
| Programme 2 – Technology Innovation | 10 | 10 | 0 | 98.8% |
| Programme 3 – International Cooperation and Resources | 10 | 10 | 0 | 98.2% |
| Programme 4 – Research Development and Support | 10 | 8 | 2 | 99.9% |
| Programme 5 – Socio-economic Innovation Partnerships | 12 | 9 | 3 | 99.5% |
| **TOTAL** | **47** | **42 (89%)** | **5 (11%)** |
| **2017/18 performance** | **84%** | | |
| **2016/17 performance** | **89%** | | |
| **2015/16 performance** | **84%** | | |
| **2014/15 performance** | **85%** | | |

For 2018/19, the Department achieved an overall performance of 89%, achieving 42 of its 47 performance indicators. The five performance targets that were not achieved included:

**Programme 4:**

* + Awarded bursaries to 9 774 of the targeted 10 800 pipeline postgraduate (i.e., Honours, BTech and Masters) students. The Department stated that the target was not achieved due to below-inflation increases to the existing budget, as well as a portion of the budget being used to support Doctoral students. The Department ascribed the underachievement to variables that were not foreseen when the target was formulated. This would be addressed in the next performance plan.
  + The Minister could not submit the second biennial report on the State of Climate Change Science and Technology in South Africa to Cabinet, due to Cabinet’s busy schedule. The Department ascribed the non-achievement of this target to factors that were not within its control.

**Programme 5:**

* + Supported 84 of the targeted 90 Honours, Masters and Doctoral students in areas that support the green economy and sustainable development. The Department stated that new students were not funded as there was no guarantee of funding for students to complete their studies. The Department ascribed the underachievement to factors that were not within its control.
  + Five of the targeted six statistical reports or policy briefs were approved by EXCO or submitted to Cabinet. The policy brief; namely, the Impact of the R&D Tax Incentive, was not finalised due to the resignation of the project leader. The Department ascribed the underachievement to factors that were not within its control. However, a new project leader was assigned and it was expected that the report would be finalised in the first quarter of the 2019/20 financial year.
  + Due to on-going capacity challenges, the target for the time taken for pre-approval decisions for the R&D Tax Incentive was once again not met. The Department ascribed the non-achievement of this target to factors that were not within its control.
  1. **Selected performance against the five strategic outcome-oriented goals**

The Department continued to support national priorities by implementing its five strategic outcome-oriented goals, and selected performance in relation to these goals included:

**Goal 1: Responsive, co-ordinated and efficient NSI – build on previous gains to create a responsive, co-ordinated and efficient NSI.**

* The Department finalised the new White Paper on Science, Technology and Innovation, which was then approved by Cabinet in March 2019.
* A framework for the development of a new STI Decadal Plan was completed.

**Goal 2: Increased knowledge generation – maintain and increase the relative contribution of South African researchers to global scientific output.**

* Awarded research grants to 4 633 researchers, 40% of whom were black and 39% were women.
* Completed and commissioned the 64-Antennae MeerKAT Radio Telescope.

**Goal 3: Human capital development – increase the number of high-level graduates and improve their representivity.**

* Supported 13 153 students, comprising 4 572 Honours and final-year BTech, 5 202 Masters, and 3 380 Doctoral students.
* Placed 1 052 graduates and students in DST-funded work preparation programmes in science, engineering, technology and innovation (SETI) institutions.

**Goal 4: Using knowledge for economic development – derive a greater share of economic growth from R&D-based opportunities and partnerships.**

* Provided technology support to 3 182 small, medium and micro enterprises (SMMEs) to develop their technology capabilities to enable them to leverage procurement opportunities under the infrastructure build programmes of the state-owned enterprises.
* Through the Sector Innovation Fund (SIF), the Department supported a portfolio of industries; namely, horticulture, post-harvest innovation, viticulture, forestry, paper manufacturing, and agro-processing.
* In support of technology commercialisation and getting hydrogen fuel cell technology into the global market, HyPlat, a spin-off of the Hydrogen South Africa (HySA) Catalysis Centre of Competence, had its membrane electrode assemblies (MEAs) evaluated by a global original equipment manufacturer.
* The Department-funded solar energy programme, Solar Turtle, a spin-out company of the Renewable Energy Hub-and-Spokes Programme at Stellenbosch University, deployed 10 Solar Turtle energy kiosks in Lesotho to support rural women in their business initiatives.
* International interest in the Aeroswift Additive Manufacturing Project continued to increase. This novel, locally developed additive manufacturing machine, once industrialised, has the potential to create a new manufacturing segment in South Africa. A number of demonstration components have been completed, and some are employed in a flying aircraft.

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

* Up-scaled the Municipal Innovation Maturity Index, which is a tool for assessing the capabilities of municipalities to support innovation for improved basic service delivery.
* The Convention establishing the new international Square Kilometre Array (SKA) Observatory, which will govern the global SKA Radio Telescope project, and the Head Quarters Agreement, governing the International Centre for Genetic Engineering in Biotechnology, was signed in Rome.
* The Department through the Strategic Health Innovation Partnerships programme in conjunction with South African Medical Research Council (SAMRC), funded a Phase III clinical trial to assess the efficacy of levofloxacin preventive therapy in children that have been exposed to multidrug-resistant tuberculosis (MDRTB). The study resulted in the development of a paediatric levofloxacin dispersible formulation, which has been prequalified by the World Health Organization (WHO) and is available globally to children living in countries that procure medicines from the Global Drug Facility.
  1. **Auditor-General’s report on the performance report of the Department of Science and Technology**

The AGSA does not express an opinion or conclusion on the reported performance information. However, the AGSA does test the usefulness and reliability of performance information for selected Programmes. In this case, Programmes 2, 4 and 5 were selected. During the audit process the AGSA did not raise any material findings on the usefulness and reliability of the reported information for these Programmes.

1. **ENTITIES OF THE DEPARTMENT OF SCIENCE AND TECHNOLOGY**

The Department’s entities are funded through a Parliamentary grant (also called the baseline allocation), specific project and/or contract funds; or from income that is generated from research and commissioned projects, or from income that is generated from royalty, publishing, membership, registration and/or facility fees.

* 1. **Council for Scientific and Industrial Research**

The CSIR’s mandate is to foster industrial and scientific development in the national interest through multidisciplinary research and technological innovation. The CSIR has implemented a new strategy; namely, Project Synapse, which seeks to strengthen the CSIR’s industrial research activities and create closer ties with industry. Project Synapse will ensure a balance between scientific and industrial research so that the CSIR’s support for, and development of, South African industry is enhanced.

Annually, the CSIR enters into a Shareholder’s Compact with the Department, which lists the specific Key Performance Indicators (KPIs) against which its performance will be measured. The CSIR’s KPIs are structured around five strategic objectives (SO); namely:

* + **SO1: Build and Transform Human Capital**

The CSIR met seven of the 17 indicators in this category, i.e. 41%. It did not achieve the targets set for the total number of science, engineering and technology (SET) staff, number of black SET staff, number of female SET staff, number of SET staff with PhDs, total number of chief researchers, number and percentage of chief researchers who are black, number of chief researchers who are female, total number of principal researchers, and the number of principal researchers who are female.

At the end of the 2018/19 financial year, the CSIR had a total staff complement of 2 342 (2 618 in 2017/18 and 2 740 in 2016/17), of which 1 608 comprised the SET staff who were 62% black and 36% female. Staff comprising the professional and skilled categories made up 82.5% of the total staff complement. Three hundred and twenty (348 in 2017/18) staff had a Doctoral qualification and 586 (631 in 2017/18) staff had a Masters-level qualification.

Due to the restructuring process undertaken by the CSIR, employees who could not be placed in alternate positions within the organisation were issued, on 28 March 2019, with a notice of termination and a termination agreement setting forth the restructuring package they qualified for in terms of the CSIR’s Retrenchment Policy. The CSIR’s 2018/19 Annual Report states that, among other, 45 employees received a voluntary severance package and 28 employees were retrenched.

* + **SO2: Conduct High-quality Research to Foster Scientific Development**

The CSIR met three of the four indicators in this category, i.e. 75%. It did not meet the target for contract R&D income, as in 2017/18. The CSIR generated R1.7 billion in contract R&D income against a target of R1.9 billion, and the variance was mainly attributed to the delays in securing and finalising a number of planned contracts; the tender process requirements of National Treasury; changes in the funding landscape; models of key funders that require the CSIR to increase co-funding on various initiatives; and the general global economic decline that has resulted in budget cuts and non-renewal of contracts with key customers.

* + **SO3: Conduct Relevant Research to Foster Industrial Development**

The CSIR met both indicators in this category, i.e. 100%.

* + **SO4: Infrastructure Renewal and Development**

The CSIR met the target in this category, i.e. 100%.

* + **SO5: Financial Sustainability and Governance**

The CSIR met one of the four indicators in this category, i.e. 25%. The targets that were not achieved included:

* + - Total income for the period amounted to R2.6 billion and this was R218 million below target. The shortfall in total income was attributed to constrained financial performance in the operating units;
    - The CSIR achieved a Level 3 B-BBEE status against a Level 2 target. Additional measures, such as a greater focus on attracting and/or developing enterprises with credible B-BBEE credentials and promoting, managing and enhancing the role that people with disabilities play within the organisation, have been initiated to ensure that the organisation regains its Level 2 status; and
    - The CSIR did not achieve the annual target of ≤ 0.2 disabling injuries due to seven disabling injuries suffered during the year.

The overall average performance of the CSIR for 2018/19 was 68%, which is an improvement on the 46% average performance achieved in 2017/18.

The CSIR is funded through a combination of baseline and ring-fenced grants from the Department and earns contract R&D income from the public and private sectors; locally and internationally. Grant funding is invested in research programmes, research infrastructure, as well as in R&D skills development. The total operating income of the CSIR was R2.5 billion (as in 2017/18, R2.7 billion in 2016/17 and 2015/16). The Parliamentary grant, recognised as income, amounted to R752 million (R722.4 million in 2017/18). The CSIR’s total contract R&D income was R1.75 billion (R1.77 billion in 2017/18, R1.95 billion in 2016/17 and R1.97 billion in 2015/16). This included a R78 million ring-fenced allocation from the Department. The continued investment in scientific infrastructure and equipment remained a priority to ensure that world-class facilities and equipment were acquired and maintained. The net profit amounted to R7.7 million (net loss of R13.8 million in 2017/18 and R77.2 million net profit in 2016/17). CSIR cash and cash equivalents were at R1.2 billion at the end of March 2019, compared to R1.1 billion at the end of March 2018. Staff remuneration accounted for 62.3% (60.2% in 2017/18) of the CSIR’s total operating expenditure.

The R7.7 million net profit was realised through extensive cost containment measures and improvements to internal processes. The challenges that continued to negatively affect the operating environment of the CSIR included:

* + Government’s policy on contracting with state-owned entities limited the uptake of CSIR-developed technologies by government. With regard to the latter, R382 million in government opportunities was lost due to tender processes;
  + The adverse economic climate, tight fiscal environment, decline in national R&D investment, and reductions in the Parliamentary grant; and
  + The negative impact of the wage freeze far outweighed the minimal potential savings made.

The CSIR incurred irregular expenditure of R5.7 million in 2018/19 (R2.9 million in 2017/18) due to 10 instances of non-compliance with supply chain management regulations. However, it did not result in any losses or damages to the organisation as the relevant value was obtained from the transactions. Irregular expenditure relating to prior years but identified in 2018/19 amounted to R620 000. Fruitless and wasteful expenditure of R95 087; comprising R72 960 to settle an employee’s liability to a recruitment agent to retain the employee in the CSIR and R22 127 for an unnecessary service rendered to the CSIR due to a lack of consultation of the line manager by an employee, was incurred in the 2018/19 financial year.

The AGSA, for the 11th consecutive year, awarded the CSIR an unqualified audit opinion with no findings regarding the financial statements, performance information, compliance with relevant legislation and deficiencies in internal control; hence, a clean audit.

* 1. **National Research Foundation**

The NRF supports, promotes and advances research and human capacity development in all fields of science and technology; develops, supports and maintains national research facilities; supports and promotes science awareness and engagement activities; and promotes the development and maintenance of the NSI. A key strategic goal is to ensure that South Africa contributes at least 1% to global R&D output by 2020 and that this knowledge output benefits society.

In 2018/19, the NRF achieved 62% (64% in 2017/18 and 63% in 2016/17) of its performance targets. Targets that were not achieved related to not attaining the targeted gender representation at senior management level, higher than planned staff turnover, less learners and educators reached through science awareness initiatives, supporting less black researchers than planned, and the National Research Facilities supporting less students, having lower numbers of users and investing less than planned on infrastructure. The NRF invested R2.3 billion in the national research and knowledge enterprise and supported 4 708 (24%) of the 19 637 researchers in the system in 2018/19. The top three research domains that received 57% of the R2.3 billion invested, comprised 29% disbursed to the biological and chemical sciences, 16% disbursed to the arts, humanities and social sciences, and 12% disbursed to the medical and health sciences. With regard to human capital development, the NRF supported 7% (4 730) of all Honours, 9.2% (5 435) of all Masters, and 15.6% (3 519) of all Doctoral students in 2018/19.

The NRF’s total 2018/19 income of R4.1 billion (R4.7 billion in 2017/18 and R4.5 billion in 2016/17) decreased by 8.6% in real terms and comprised the Parliamentary grant of R905 million, ring-fenced funding from the Department of R2.6 billion, contract income of R470 million, and other income of R141.5 million. Total expenditure was R4 billion.

The key factors that impacted the 2018/19 total income of the NRF included:

* A nominal decrease of 2.3% in the Parliamentary grant due to the transfer of the National Zoological Gardens (NZG) to the South African National Biodiversity Institute;
* A 9% increase in ring-fenced funding due to additional funding for the National Equipment Programme;
* A nominal decrease of 62% in contract income; and
* A 17% decrease in other income due to the exclusion of the NZG.

The NRF’s 2018/19 Annual Report states that, “the current resourcing model of the NRF is not ideal to enable the organisation to direct its resources effectively towards achieving expected outcomes in the delivery of its mandate. The current model results in some 75% of the total budget of the NRF being predetermined. This does not allow the organisation to respond strategically to emergent national priorities. A process has been initiated to develop an appropriate framework for funding the NRF mandate in consultation with National Treasury and the Department.” Furthermore, the 2018/19 Annual Report states that, “A major and ongoing challenge remains centred on a need to increase public investment to resource the mandate of the organisation. There is a significant need to increase the reach and quantum of funding for postgraduate students and researchers. Currently, the NRF supports less than 10% of registered postgraduate students and approximately 20% of researchers and academics at universities. Equally important is the renewal and acquisition of essential research infrastructure to enable support to researchers and postgraduate students.”

The AGSA awarded the NRF an unqualified audit with findings. The findings related to the NRF not taking effective and appropriate steps to prevent irregular expenditure of R4.4 million. The NRF also incurred fruitless and wasteful expenditure related to two incidences that amounted to R6 000 due to a penalty fee and a flight that was missed due to a shuttle arriving late.

* 1. **Human Sciences Research Council**

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. Key outputs in relation to its mandate include, fostering public dialogue and producing publications, researching and analysing developmental problems, promoting the African research agenda, developing research capacity for the humanities, and developing policy briefs that will inform Government policy and evaluate its implementation. Furthermore, the HSRC’s research programmes and centres specifically focus on poverty and inequality.

The performance measurements and quantifiable performance targets for the reporting period are in five areas, summarised by the acronym ADEPTS:

* + Knowledge **A**dvancement through peer reviewed publications, policy briefs, collaboration and public communications – achieved all 8 performance targets, 100%.
  + Contributing to **D**evelopment and social progress in Africa – achieved 2 of 3 performance targets, 67%.
  + Creating and **E**nhancing a skilled and capable workforce – achieved 5 of 6 performance targets, 83%.
  + **P**reserving and archiving research data as a resource for future use by researchers and other users – achieved both performance targets, 100%.
  + Contributing to ongoing institutional **T**ransformation – 2 performance targets, neither achieved, 0% (as in 2017/18).
  + Developing and implementing strategies for financial **S**ustainability – achieved 1 of 2 performance targets, 50%.

The overall performance of the HSRC for 2018/19 was 78%, achieving 18 of 23 performance targets (70% in 2017/18).

The targets that were not achieved include:

• Development – not achieving the number of African research fellows hosted at the HSRC.

• Enhancing –the numbers of Doctoral students not completing their research internships.

• Transformation – not achieving the gender and race targets for senior researchers.

• Sustainability – not securing the targeted percentage of contract income.

In 2018/19, the HSRC received revenue from Parliament (R264.1 million), research revenue (R179.2 million) and other sources (R41.7 million) that amounted to R484.99 million (R555.7 million in 2017/18 and R459.5 million in 2016/17). The total expenditure was R485.6 million, which included R293.2 million (60%) for staff costs and R94 million (R175 million in 2017/18) for research costs. The HSRC recorded a deficit of R552 000.

The current financial model of the HSRC has a strong dependence on external funding to support research and the broader mandate of the HSRC. The Parliamentary grant funding received is mainly used to cover core institutional costs, notably salary costs of critical staff. According to current projections, the HSRC will have to secure a greater proportion of its operating budget from external sources if it is to continue providing the quality and scale of research, which is essential for addressing the problems of poverty and inequality.

The HSRC incurred irregular expenditure of R1.1 million due to procurement that was not made in accordance with applicable legislation. The total amount of irregular expenditure awaiting condonement was R1.3 million. The HSRC also incurred fruitless and wasteful expenditure of R193 000 due to overpayments to staff and interest fees.

The AGSA awarded the HSRC an unqualified audit opinion with findings due to material non-compliance by not preventing irregular expenditure. This is a regression from the clean audit awarded in 2017/18.

* 1. **Technology Innovation Agency**

The TIA presented its 2018/19 Annual Report as tabled in Parliament. However, the Committee had serious reservations about the TIA report and found the report and presentation to be incomplete and misleading, because it excluded information about the former Chief Executive Officer (CEO) and the circumstances under which the CEO had left the organisation. It further excluded appendices referred to in the report. The Committee was also concerned that the Chairperson of the Board was absent from the meeting since he does not reside in South Africa.

1. **Finance and Service delivery performance assessment**

The Department has consistently demonstrated that it can spend, to a significant degree, its budget allocation according to spending targets, and that it has taken the necessary steps to ensure that the same progress is made with achieving its performance targets. For the 2018/19 financial year, the Department’s budget allocation declined in real terms by 2.3%, it spent 99.2% of its budget and achieved 89% (84% in 2017/18) of its performance targets, which is an improvement on its performance and financial expenditure of 2017/18. A recurring issue for the Department is that due to ongoing capacity constraints (i.e. technical expertise and numbers of staff) it continues to not meet the targets set for administering the R&D Tax Incentive. The CSIR, NRF and HSRC achieved 68%, 62% and 78% of their performance targets, respectively, which is an improvement on the performance achieved during 2017/18 by the CSIR and HSRC.

The Department and the entities have also continued their efforts to ensure that operational costs are kept within acceptable margins so that the bulk of the publicly allocated and externally sourced funds are used to fulfil core mandates. In this regard, the Department continued to execute its operations with 8% of the total budget allocated to it. The CSIR, NRF and HSRC spent 35%, 37% and 20%, respectively, of their total income on operations. The CSIR and HSRC, due to their mandate to conduct research and provide evidence-based policy advice, respectively spent 62% and 60% of their total income on salaries. However, after successive years of budget cuts and below inflation increases in the Parliamentary grant, the Department and its entities are increasingly compelled to find additional forms of funding. Furthermore, due to the weak state of the economy, the external funding the entities rely on to execute their functions has also declined; and increasingly, public entities are finding that they have to compete with the private sector for Government contracts to ensure financial sustainability.

The AGSA indicated that there were no serious concerns within the science and technology portfolio and the shortcomings in corporate governance, identified in previous financial years, has received attention; hence, the steady improvement in the number of audit findings relating to the 2018/19 financial year. However, despite the Department and entities all having internal controls and processes, these were not adequately implemented to prevent incurring irregular, and fruitless and wasteful expenditure, even though the former decreased from R52 million in 2017/18 to R12 million in 2018/19. Fruitless and wasteful expenditure increased from R300 000 in 2017/18 to R800 000 in 2018/19. With regard to the irregular expenditure incurred by the NRF and CSIR, no material losses were incurred by these organisations. The audit finding relating to the HSRC incurring irregular expenditure also cost it a clean audit, decreasing the number of clean audits in the portfolio from 75% to 50%. The AGSA also recommended that because the CSIR is largely a self-funded entity, it should improve the management of its debt recovery to ensure its sustainability. The AGSA made no findings on the performance information submitted by the Department and the entities.

The performance reported in the 2018/19 Annual Reports of the Department, CSIR, NRF and HSRC show significant effort and achievement with regard to realising the potential of STI in addressing national priorities and supporting sustainable socio-economic development. Overall, the Department with its entities have shown that they can spend their allocated budget and achieve a significant percentage of their performance targets, as well as ensuring that they closely adhere to legislative prescripts in managing the allocations received from the public purse.

1. **COMMITTEE OBSERVATIONS**

The Committee commended the Department and the entities for their efforts in delivering on some of the key areas for social and economic development in line with the goals of the NDP and against stringent financial constraints. The Committee’s observations highlight some of the key areas emanating from the interactions with the Department, entities and relevant stakeholders, which require further attention and discussion:

* 1. The Committee noted the Department’s name change from Science and Technology to Science and Innovation.
  2. The allocated budget for the Department was R7.96 billion for the reporting period. This decreased allocation, in terms of inflation, is of concern given the crucial role that STI has to play in enhancing productivity, growing a sustainable and inclusive economy and improving the socio-economic conditions of the country.
  3. It is known that science related inflation is higher than standard inflation; hence, allocations in line with standard inflation only marginally assist the STI objectives; and allocation increases that are below standard inflation, further exacerbate the sub-optimal funding environment that prevails.
  4. The Department with its entities, spent their allocated budget, achieved a significant percentage of their performance targets, and adhered to legislative prescripts in managing their public allocations. The Committee questioned whether these achievements could be attributed to their performance targets not being sufficiently ambitious due to the constrained budget.
  5. The Committee maintained that the Department and entities’ responsibility toward their mandate is compromised as their performance targets have been structured around the allocations received.
  6. Furthermore, the Committee questioned whether the STI mandate, which seeks to facilitate inclusive economic growth and socio-economic development, promote environmental sustainability, improve service delivery and government decision making, as well as enhance the efficiency of institutions, is fully implemented at the current levels of funding.
  7. Another concern is the below inflation increases in the Parliamentary grants that are specifically allocated to entities to fulfil their core, legislated mandates. This makes the entities reliant on sourcing external funding to fulfil government-specific mandates, which poses the risk that R&D focus may shift away from Government’s priorities. The Department and the entities have a mandate to deliver on Government’s national priorities in line with the goals set for the NSI by the NDP Vision 2030. The Committee is concerned about the evident financial sustainability challenges affecting the attainment of these goals.
  8. South Africa’s investment in R&D as a percentage of Gross Domestic Product (GDP) stands at around 0.82%, which has been stagnant over the last few years. It has been conclusively shown that during fiscal strain, economies that significantly increase their investment in STI are able to respond faster and more comprehensively to fiscal improvement than economies that decrease their spending, or allow it only to increase at the existing rate of growth.
  9. The Committee is concerned by the declining level of investment in RDI by both the private and public sectors; and that the R&D Tax Incentive has not sufficiently stimulated the desired levels of private sector investment.
  10. The Committee encouraged the Department to continue its focus on R&D in the existing areas of competitive advantage and in areas where existing markets are set to grow.
  11. The Committee noted the anticipated amendments to the PFMA that would facilitate the uptake of locally-developed technology.
  12. The Committee considered the increased participation of women in SETI as important, and acknowledged the application of Ministerial Guidelines to support both female postgraduate students and researchers, and the implementation of a gender-based budgeting framework by the DST and its entities with regard to procuring services from and assistance for innovation-based businesses.
  13. Intergovernmental co-ordination and partnerships are instrumental in ensuring that the work done by the Department and the entities is used and implemented. These relationships are crucial to ensuring that crosscutting activities are better co-ordinated, and resources are not wasted. The Committee noted the collaborative relations with other government departments, with specific reference to Environmental Affairs, Health, Home Affairs, Social Development as well as Local Government.
  14. Enhanced co-ordination is also necessary at Parliament among the various portfolio and select committees in instances where science and technology issues are transversal. The Fourth Industrial Revolution may be such a tool in forging tighter working relationships.
  15. The Committee acknowledged the Science Engagement Strategy, implemented with the Department of Basic Education and by the NRF’s South African Agency for Science and Technology Advancement (SAASTA), to orientate and get young learners interested in science from an early stage. SAASTA collaborates with provincial education departments on specific outreach programmes such as the National Science Week and Science centres. Awareness and understanding of science and knowing what South African STI institutions are doing, is key to stimulating and improving the public discourse around the advantages of implementing a science policy for social wellbeing and economic growth. However, existing awareness initiatives have been reduced due to budget cuts.
  16. The Committee noted the finalisation of the Decadal Plan for the implementation of the 2019 White Paper on STI and expects a briefing on it in the next parliamentary term.
  17. The Committee noted the audit findings of the AGSA with regard to the Department and the entities for the 2018/19 financial year. The Committee was pleased with the unqualified audit opinions attained; however, expressed concern regarding the findings related to internal controls deficiencies.
  18. The Committee was dissatisfied with the lack of detail reflected in the financial presentation of the Department.
  19. The Committee found that the information pertaining to transformation of the sector was limited to race and gender. Details regarding youth and disabled beneficiaries, as well as their geographic location and institutional affiliation, was not always provided. Thus, it was difficult to ascertain the impact of initiatives geared toward addressing the imbalances in society.
  20. The Committee was concerned that the limited use of one or two languages to communicate information about the NSI could disadvantage other language groups from participating in the sector.
  21. When the Department and entities reported on some of the work undertaken, the importance of partnerships with municipalities, institutions and industry to support or develop innovative solutions for service delivery was noted. However, it was not clear how these institutions and municipalities were selected, whether there was successful uptake of the projects and what the impact thereof was.
  22. The Committee welcomed the merger of the Ministries of Higher Education and Science and Technology and the preliminary discussions on the possible synergies between the two Departments. Initial areas identified include the possibility of science councils accessing the research subsidy allocated to Universities and the NRF collaborating with the National Student Financial Aid Scheme (NSFAS).

1. **RECOMMENDATIONS**

The Portfolio Committee on Higher Education, Science and Technology recommends the following:

* 1. Mechanisms to increase the budget allocation to the Department of Science and Innovation be explored and pursued by the Minister of Higher Education, Science and Technology and that the Committee would support all efforts to secure additional funding for the science and innovation portfolio.
  2. The Minister further advises against proposed funding reductions by the National Treasury, based on the key motive that economic transformation, growth and the nation’s progress are strategically linked to our investment in science, technology and innovation.
  3. For STI to support the country to reach its economic goals, Government will have to ensure that the minimum target of 1.5% of GDP spent on R&D, be attained as envisaged in the NDP.
  4. The Committee be updated on the Small Business Innovation Fund after the commitments by the National Treasury have been formalised.
  5. The Department increase its focus on joint programmes and projects with other government departments, to address some of the national challenges, more specifically in areas of water scarcity, electricity and information and communication technologies, and that reporting on these include the impact.
  6. The Committee, aware of the complexity of measuring and reporting on the impact of investment in science, recommends that the Department continue to explore mechanisms to better report on the impact of science and technology.
  7. The Department and entities ensures that when it enters into agreements to secure contract funding for research and development, these agreements do not compromise the intentions of the research agenda to address national priorities.
  8. The Committee anticipates the approval of the Decadal Plan, which endorses the finance model for the uptake of the programmes outlined in the White Paper on Science, Technology and Innovation and speaks to the implementation thereof. The Department to brief them on this Plan once approved.
  9. The Committee be briefed on the R&D Tax Incentive Programme with regard to strategies to further stimulate private sector investment and also how it proposes to address the internal administrative and operational challenges to implement this Programme successfully.
  10. The Committee be briefed on the developments regarding access to the research subsidy and the collaboration between the NRF and the NSFAS.
  11. The Department and entities, when presenting their Annual Report, should report in a more illustrative manner on programmes, targets and allocations, what was spent and achieved. In future, the Department is requested to submit more financial detail when they report on the budgetary aspects of their plans.
  12. The Department and entities strengthen their internal control functions and ensure full compliance with legislative prescripts to avoid future findings from the Auditor-General.
  13. The Committee rejected the TIA report and recommends that the TIA, represented by the Chairperson of the Board, re-appear before the Committee, presenting a full account of its 2018/19 finances and performance, including the omitted information about its former CEO as well as the appendices referred to in the report, but not attached.

**Conclusion**

The Committee thanks the Minister, Deputy Minister, Department and the entities for their co-operation and commitment.

The Committee expressed its thanks and appreciation to the staff and officials supporting the Committee.

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

**Report to be considered.**

1. As stated in the Minister of Finance’s response to the Committee’s 2017 BRR Report. National Treasury, 2018 Budget Review. [↑](#footnote-ref-1)