Annual Report 2015/16

Innovation for a better future

science & technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

NACI
NATIONAL ADVISORY COUNCIL ON INNOVATION

NATIONAL ADVISORY COUNCIL ON INNOVATION

2015/16 ANNUAL REPORT

Innovation for a better future

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THE NACI COUNCIL (2014-2018)

The fourth NACI Council took office in August 2014. Its members are drawn from diverse backgrounds, including the private sector, academia, science councils and government.

Chairperson
Prof. C de la Rey

Acting CEO
M Cele
(from 1 August 2015)

Ms C Busetti

Prof. R Diab

Prof. A Eberhard

Prof. G Gray

Dr A Jammine

Dr S Moephuli

Ms Z Monnakgotla

Mr D Naidoo

Mr K Nassiep

Ms N Nyembezi-Heita

Dr M Qhobela
(from 16 November 2015

Mr A Ngcaba

Dr S Sibisi

Prof. C Soudien
(from September 2015)

Mr G Strachan

Prof. J Thomson

Ms L Zondo

Dr S Moephuli

Dr O Shisana
(1 August 2014 till 24 July 2015

PART A: GENERAL INFORMATION

1. CHAIRPERSON'S OVERVIEW

On behalf of the National Advisory Council on Innovation (NACI) I am delighted to present the 2015/16 Annual Report. NACI remains an important actor in the National System of Innovation (NSI). It assesses the state and contribution of the NSI towards sustainable and inclusive socio-economic development. The assessment involves systematic monitoring, evaluation and analysis of the NSI activities, capabilities, and its impact on society and the economy. The ultimate goal is to enable science, technology and innovation (STI) policy learning necessary to bolster performance.

The NSI is relatively performing better in certain areas when compared to some countries. For instance, South Africa's technology payments as percentage of GDP in 2014 was 0.5%, a high value in comparison to the Brazil Russia India China (BRIC) group of countries (0.2% in average) but lower than that of South Korea (0.7%). Also, South Africa's scientific output as measured by the number of publications in internationally accredited journals increased at an average rate of 11% per year over the 2005-2014 period, representing an average growth of around 808 publications per year. This growth is much higher than the world average, resulting in a steady increase in South Africa's share of the world's journal publications (from 0,49% in 2003 to 0,81% in 2014).

Notwithstanding, the NSI experiences some challenges such as: the level of R&D expenditure as percentage of GDP is still very low (0.73% in 2013) compared to China (2.01%), Russia (1.13%), Brazil (1.15% in 2012) and South Korea (4.15%) and Business Expenditure on Research and Development (BERD) as percentage of general expenditure on R&D (GERD) declined to 46%, from 60% in 2008/09. A high proportion of business R&D expenditure in 2013/14 was seen in the services (47%) and manufacturing (32%) sectors. About 37% of R&D expenditure funded from abroad goes to BERD and government's funding of BERD (6%) is very low as compared to the 2008/09 level of 27%.

NACI is mandated to provide a systemic view of what is being done (including its efficacy), what needs to be done, and recommend steps to be undertaken to improve science technology and innovation (STI) policy performance. NACI's work also includes providing advice on how to confront both immediate or pressing and long-term concerns using STI. To this extent, some examples are highlighted in the Annual Report:

NACI continued to perform its dual advisory function, which is to generate advice proactively or in response to the Minister's request. The Minister's requested advice include the review of progress since the 1996 White Paper on Science and Technology, the crafting of a new White Paper and Decadal Plan for STI, the establishment of National Innovation Data and Information Portal and analysis of the Research and Development Survey Results.

Proactively, NACI identified and provided advice to the Minister on (a) water and sanitation, energy, food security nexus; (b) gender mainstreaming and race inclusion, skills sustainability; (c) the role of indigenous technologies; (d) sustainable use of biomass; and (e) produce an indicators booklet on South African Science, Technology and Innovation.

I sincerely hope that NSI stakeholders (including policy makers, the private sector and non-government organisations), and the public will find this 2015/16 Annual Report.

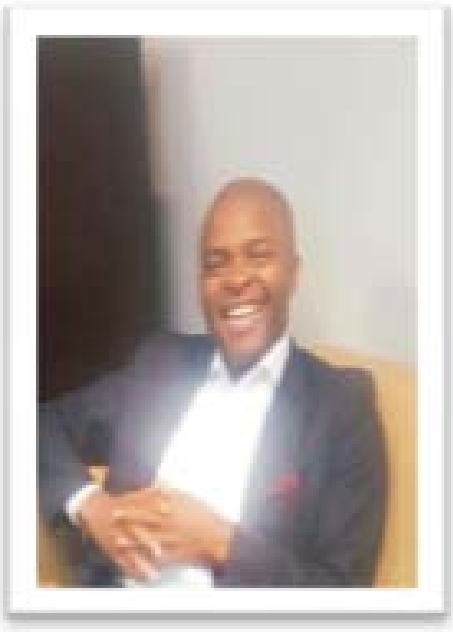
I take this opportunity to express my sincere gratitude to all the members of the NACI Council, as well as NACI experts who participated in our working group committees for their invaluable contribution to the work of NACI during the year.

My special appreciation to the Minister of Science and Technology, the Honourable Naledi Pandor, who demonstrated consistent support for NACI activities

On behalf of the Council, I wish to extend our gratitude to the, Acting CEO of NACI and the NACI Secretariat as a whole, for ensuring the completion of the year's work programme.

Prof. C de la Rey
Chairperson: NACI

2. ACTING CEO'S REPORT



The 2015/16 financial year was important to NACI in many respects. It offered both challenges and opportunities. NACI underwent the process of envisioning, which resulted into a new vision, goals and Strategic Plan to be implemented until 2021. The Strategic Plan enables NACI to implement its legislative mandate. In doing so, NACI needs to consider the political, socio-economic and science technology and innovation policy context and strive to find solutions to the persisting systemic challenges.

Collaborations and strategic engagement (especially round-table discussion) with NSI actors was critical in implementing 2015/16 plan. Below are some of NACI's the collaborative engagements.

- NACI in collaboration with the Agricultural Research Council (ARC) and the National Research Foundation (NRF), the Centre of Excellence for Food Security at the University of Western Cape successfully co-hosted a roundtable discussion on the state of food security in South Africa in August 2015.
- In collaboration with the South Africa Venture Capital and Private Equity Association (SAVCA), NACI hosted a roundtable discussion on a government supported venture capital industry in South Africa in January 2016.
- In collaboration with the Mapungubwe Institute for Strategic Reflection (MISTRA), NACI co-hosted a round table discussion on alternative available energy choices in light of frequent power outages, in July 2015.

I would like to extend my sincere gratitude to the Minister, Chairperson, Council, Director General of the Department of Science and Technology for their leadership, support and guidance. Finally, I would like to thank my colleagues at the Secretariat for their contribution.

Dr Mlungisi Cele
Acting CEO: NACI

3. CORPORATE OVERVIEW

3.1 Objectives

The National Council on Innovation Act, 1997 (Act No. 55 of 1997), mandates NACI to advise the Minister of Science and Technology and, through the Minister, Cabinet, on the role and contribution of science, mathematics, innovation and technology, including indigenous technologies, in promoting and achieving national objectives, namely, to improve and sustain the quality of life of all South Africans, develop human resources for science and technology, build the economy, and strengthen the country's competitiveness in the international arena.

During the 2015/16 financial year, the Council's advisory services focused on the following:

- The coordination and stimulation of the national system of innovation.
- The coordination of science and technology policy and strategies with policies and strategies in other sectors.
- The establishment and maintenance of information systems to support science, technology and innovation policy.
- The investigation of developments in the fields of science, technology and innovation which might require new legislation.

3.2 Vision

A leading advisory body for government on science, technology and innovation within a well-coordinated, responsive and functioning national system of innovation

3.3 Mission

To provide evidence-based advice to the Minister of Science and Technology and, through the Minister, Cabinet, on science, technology and innovation matters, through research expertise and engagement with stakeholders.

3.4 Values

- Service excellence.
- Professionalism.
- Integrity.
- Respect and people-centredness.
- Transparency and accountability.

PART B: PEFORMANCE INFORMATION

1. ACTIVITIES, PERFORMANCE AND OUTPUTS

The NACI has a dual advisory function, namely to provide advice at the request of the Minister for Science and Technology and to provide advice acting on its own initiative in response to its mandate. In respect of own initiative advice, critical issues and challenges that impact on the Science, Technology and Innovation system are identified by the Council.

1.1 OUTPUTS FROM THE PREVIOUS COUNCIL'S WORK PROGRAMME

The National Advisory Council on Innovation (NACI) has achieved what it set out to do in the 2015/16 financial year. It has established a system to provide rapid responses to requests for advice, produced 11 advisory opinions and submitted them to the Ministry, hosted eight round tables/stakeholder engagements, and produced seven research reports on topical matters related to the national system of innovation (NSI). NACI also collaborated on 17 initiatives with local or international institutions. The following outputs are derived from projects inherited from the previous Council.

1.1.1 The analysis of skills sustainability in government infrastructure flagship projects

Using case studies, NACI investigated the extent to which skill sustainability was considered and planned for in the construction and development phases of large and important infrastructure development projects. The case studies (on Eskom Medupi, Ficksburg Bulk Water Supply, Bombela Gautrain and the Jeffreys Bay Wind Farm) covered broad areas of national significance such as power supply, water supply and transport. They explored the extent to which the approach followed in a project contributed to the development of a skills ecosystem that could be sustained after the project had been completed. The findings pointed to the value of considering skills planning in the design of government megaprojects, and suggested that this should be done taking into account a number of issues, including the possibility of using a skills ecosystem approach to coordinate the use of individuals with particular skills so that they could get sustained work, through similar projects, keeping their skills current and continually improving them.

1.1.2 Gender mainstreaming and race inclusion in the STI public sector environment

NACI commissioned a study titled: "A Diagnostic Review of Science, Technology and Engineering Skills in the Public Sector: Gender and Race". The study set out to establish the extent of gender-mainstreaming and racial inclusion in the public sector portion of the science, engineering and technology (SET) workplace. The study entailed a diagnostic review of the SET skills supply and demand in the public sector in the context of developing a knowledge-based economy. The key findings of the study, extracted from a sample of 28 institutions, found that, that more than a third of SET graduates and professional employees were men, and more than half were Africans. Men made up the largest proportion of SET employees in the technician and technologist levels. The representation of the African race group was substantially higher at this level that at the graduate and professional levels. Nearly all (92%) of SET artisan employees were men, the majority of which were Africans.

1.1.3 Bioeconomy metrics and survey development framework

The South African Bio-economy Strategy (2014) defines the bioeconomy as activities that make use of bio-innovations, based on biological sources, materials and processes, to generate sustainable economic, social and environmental development. The development of the bioeconomy holds great potential for improving the quality of life in South Africa and stimulating economic development through increases in food security, new developments in healthcare, and more environmentally friendly technologies.

The challenges facing the bioeconomy include the need to make it stronger and more competitive, as well as establishing the conditions for a safer, cleaner, healthier, and more sustainable future for the country. Creating the right policy and regulatory framework for the bioeconomy to thrive would be an important aspect of ensuring a successful implementation of the strategy. NACI undertook a study that was aimed at advising the Minister on establishing a framework to assist and guide the development of indicators to measure the growth of the bioeconomy in South Africa. Indicators are needed to solidify government understanding of the sector, and would also facilitate the financial and human resource investments necessary to grow the bioeconomy sector.

1.1.4 The potential role of indigenous technologies in meeting the targets of the NDP

A study was carried out to assess the potential of South Africa's indigenous technologies to complement conventional ones to help address challenges such as poverty, unemployment and inequality, and to contribute to meeting the socioeconomic targets of the NDP. The study also evaluated the South African policy framework and supporting initiatives in this area in order to determine whether or not they provided an enabling environment for the development of such technologies. It was found that the Indigenous Knowledge System (IKS) policy and existing initiatives were to some extent enabling. The study revealed a number of projects demonstrating promising technologies to contribute to the targets of the NDP, as well as identifying possible hindrances to realising the potential benefits of IKS. The study proposed interventions to address challenges and enhance the impact of indigenous technologies, including the mainstreaming of IKS in the NSI, the coordination of IKS activities across government and the NSI, deepening the role of indigenous crops in food security, public engagement, monitoring and evaluating the impact of IKS.

1.2 REQUESTS RECEIVED FROM THE MINISTER

1.2.1 Review of the 1996 White Paper on Science and Technology

In response to a request from the Minister of Science and Technology, NACI reviewed the 1996 White Paper on Science and Technology against its stated objectives. The review analysed the NSI policy context and international trends in respect of the broad notion of innovation, highlighting the importance of the doing, using and interacting approach to innovation theory and practice, as were areas requiring further attention by policy making departments in the NSI.

A number of achievements with regard to implementing the White Paper were identified, including (a) the establishment of the requisite institutional landscape for science, technology and innovation (STI); (b) the introduction of policies and strategies covering research and development (R&D) in general, as well as certain specific areas; (c) improved output in terms of the performance of science and technology institutions; and (d) the funding of the science and technology base, e.g. in respect of infrastructure.

Several areas that require further government attention were also identified, including (a) interdepartmental coordination and coherence within the NSI; (b) human resource development to support STI; (c) the promotion of an information society; (d) government incentives for innovation; and (e) effective use of the science budget.

1.2.2 High-Level Framework for a Decadal Plan on STI

At the request of the Minister NACI seeks to contribute to agenda setting and policy prioritisation in science, technology and innovation by framing a "Decadal Plan on STI". The high-level framework for a decadal plan will be based on the outcome of the White Paper Review on science and technology. To date, a Task Team to oversee this work has been put in place, and the process is ongoing.

1.2.3 National STI Information Portal

To enhance monitoring and evaluation mechanisms within the NSI, the Minister requested NACI to conceptualise and develop an STI information portal. It is anticipated that this will be a challenging undertaking, and may require significant resources. The portal is intended to be a single point of access for STI data and information, and to serve as a common reference point for information about the NSI. In addition to being a platform for repository of STI data and information, the portal will interface to other systems.

Measuring the performance of and government investments in the NSI will ensure better planning and resourcing of STI programmes in the face of competing demands and austerity measures. The portal will be useful as a common source of evidence in forming perspectives about the NSI. During the 2015/16 financial year, a proposed framework for the innovation portal was completed, taking into account all stakeholder inputs. The framework report has been submitted to the Minister.

1.2.4 Analysis of the Declining Business Expenditure on R&D

The Minister requested NACI to provide an in-depth analysis the on the declining business expenditure on R&D (BERD), as indicated by the results of 2012/13 R&D survey and by the 2015 South African Science, Technology and Innovation Indicators booklet.

BERD as a proportion of GERD declined from 58.6% in 2008/9 to 44.3% in 2012/13. Our analysis showed that the lack of private investment in R&D and other fixed capital investments can be attributed to a low business confidence in the country. Only 6% of government funding of R&D goes to the business sector compared to a proportion of 27% in 2008/09. NACI distilled some key policy recommendations from these analyses for policy advice.

1.3 RAPID ADVICE

1.3.1 Rapid Advice on Energy

NACI provided two rapid advisory letters on energy. One was on energy efficiency and demand-side management addressed matters pertaining to the supply-demand balance and, ultimately, the security of electricity supply.

1.3.2 Rapid Advice on Water and Sanitation

NACI provided a rapid advisory letter on water and sanitation to contribute to the meeting of National Development Plan (NDP) targets such as affordable access to water and sanitation, a reliable water supply to meet the needs of main urban and industrial centres, increasing the efficient use of water in agriculture, and protecting the natural water environment. The key issues highlighted in the response are (a) the challenge of ageing infrastructure; (b) lack of a clean, safe and regular water supply; (c) lack of skills and capacity; and (d) inadequate R&D investment in water and sanitation.

1.3.3 Rapid Advice on Food Security in South Africa

The rapid advisory letter on food security looked at the main factors affecting South Africa's food security needs. It was highlighted that, although South Africa is a net exporter of food products, including staple foods such as maize, it has been reported that up to 14 million South African families experience household food insecurity. Food insecurity is common in sparsely populated rural areas, mostly in the former homeland territories. More work still needs to be done in the areas of research, policy, training and financial investments in the agricultural sector in order curb food insecurity in South Africa.

1.4 THE 2015 SOUTH AFRICAN INDICATORS

The South African Science, Technology and Innovation Indicators Booklet is an annual publication produced by the NACI Council to assess the performance and state of the NSI. In the reporting period, the booklet was published by the Council and points to the following key issues:

Science and technology needs to increasingly play a greater role to improve the quality of health care in the country. Over the past few years, South Africa`s life expectancy at birth has been increasing up to a level of 57.4 years in 2014. A very low figure when compared to other countries as Brazil (74.5), Russia (70.1), India (68.0), China (75.8) and South Korea (81.9); There is an observed increase in the country's global share of academic publications from 0.51% in 2005 to 0.81% in 2014, bearing in mind that the country's share of world GDP is about 0.3%. Growth in the number of citations relative to the world rose very impressively from an index value of 1.03 in 2013 to 1.74 in 2014 indicating that the South Africa is doing well in terms of academics being cited for academic research;

South Africa's share of patents in chemical engineering stands at around 6%, with a very high patent rate in special machines. In relation to the world's patents on chemical engineering, South Africa produces 0.13%. South Africa's reliance, however has been in low value-add and high volume products in the chemical sector. It is imperative that new sources of growth and competitiveness are sought such as advanced manufacturing, pharmaceuticals and nano-technologies;

Research capacity is critical in the stimulation of industrial competitiveness through innovation, creation and retention of jobs and improvement in quality of life. The number of researchers per thousand in South Africa is very low. Although there has been an increase in the percentage of SET graduations over the past ten years, the level of SET graduations is still relatively low. In 2014, about 30% of all graduates were in SET compared to much higher ratios in comparative countries (e.g 47% of all graduates in South Korea are in SET).

There is a low percentage of Grade 12s obtaining quality passes in the National Senior Certificate (NSC). In 2015, the number of students who obtained 50% for Mathematics was 51,500 and those who obtained 60% or more was only 31,000. A 50% pass in Matric Mathematics and Physical Science is a better measure for looking at entry into technical jobs as envisaged in the country's Growth Path.

There is an observed improvement in the number of Doctoral degrees awarded in science and technology domains, although the overall ratio of science and technology Doctoral degrees has been declining relative to the total number of Doctoral degrees awarded.

There is progress with regard to transformation through education, though not in the manner meaningful to impact economic growth. There is an observed steady increase of Blacks, in particular Africans who are obtaining Doctoral degrees since 2013 in fact the increase surpasses the number of White counterparts obtaining the same degree. However, these increases do not necessarily translate to absorption in the labour market. A similar conclusion is reached when one looks at the proportion of researchers across the different sectors between 2013 and 2014. The largest proportion of researchers is observed in the higher education sector (65%) than in the business sector (22%). In the business sector in particular, most the researchers are dominantly whites (68%). It would be worthwhile for government to look at the extent and nature of which may warrant further policy interventions to facilitate employment opportunities.

1.5 ADVICE PROVIDED TO THE MINISTER

In the period under review, the Council delivered the following advisory letters to the Minister of Science and Technology.

Table :Advice Delivered in 2015/16

Title	Date submitted to Ministry
Outcome of the NACI Council plenary discussion on coordination and coherence	22 May 2015
Issues relating to the sustainable use of biomass in South Africa	19 August 2015
Issues affecting food security in South Africa	7 September 2015
The potential role of indigenous technologies in meeting the targets of the NDP	11 November 2015
Indicators to monitor the implementation of South Africa's Bio-economy Strategy	1 December 2015
Water and sanitation challenges	3 February 2016
Key issues in South Africa's prospective nuclear procurement programme	25 February 2016
Can energy efficiency and demand-side management still come to the rescue?	9 March 2016
Gender mainstreaming and race inclusion in the STI public sector environment	7 March 2016
Skills sustainability in government planning of infrastructure flagship projects	7 March 2016
The results of the 2015 South African STI Indicators booklet	30 March 2016

Table 2: Summary of NACI's performance against strategic goals and objectives

Strategic Goal 1: Setting the agenda for prioritisation of STI to achieve coordination and stimulation of the NSI					
Strategic objective: To provide advice to the Minister of Science and Technology and Cabinet on the medium to long term priorities for STI.					
Performance indicator	**Original annual target**	**Amended annual target**	**Actual performance**	**Deviation**	**Reason for Deviation**
An approved high level framework for a decadal plan on STI	A draft high-level framework for a decadal plan on STI approved by the Council by 30 November 2015 and submitted to the Minister by March 2016	A Council task team and plan for the development of the high-level framework for decadal plan finalised by 31 March 2016	Achieved	Digression from original time frame and output	The development of a decadal plan should be informed by the results of the review of prog ress since the 1996 White Paper. This was intended to be finalised in the 4th quarter of the financial year.
Strategic Goal 2: To advice on conducive framework conditions for STI in order to contribute to economic growth.					
Strategic objective: To review the White Paper on Science and Technology and associated strategies.					
Performance indicator	**Original annual target**	**Amended annual target**	**Actual performance**	**Deviation**	**Reasons for deviation**
An approved feedback report on the White Paper policy review process	A feedback report on the White Paper review process approved by Council and submitted to Minister by 30 November 2015	A feedback report on the White Paper review process to be submitted to the Minister by 31 March 2016	Achieved	Digression from original time frame	The Council established a reference group made up of local and international experts to peer review the report/s of the review process. The final report was finalised at the first meeting of the Council in February and feedback provided to the Minister by 31 March 2016.
Strategic Goal 3: Monitoring and evaluating the contribution of STI to South Africa's economic growth and competitiveness					

Strategic objective: To develop the "State of Innovation Report" at appropriate intervals					
Performance indicator	**Original annual target**	**Amended annual target**	**Actual performance**	**Deviation**	**Reasons for deviation**
An innovation scorecard for assessing the state of innovation in the country	An innovation scorecard approved by the Council in 30 November 2015 and submitted to the Minister by 30 March 2016	Final innovation scorecard report to be submitted to the Minister by 30 March 2016	Achieved	Digression from original time frame and output	Further work needed to be done on the scorecard. In addition, the NACI 's flagship project, that is, STI indicators booklet needed to be produced.
Strategic objective: To advise on a data repository framework for innovation					
A framework for a data repository to manage STI information	A framework of data repository to manage STI information approved by the Council by November 2015 and submitted to the Minister by 30 March 2016	Target not amended	Achieved	None	
Strategic Goal 4: Establishing NACI as premier institutions to deliver rapid response STI advice					
Strategic objective: To develop the "State of Innovation Report" at appropriate intervals					
Performance indicator	**Original annual target**	**Amended annual target**	**Actual performance**	**Deviation**	**Reasons for deviation**
Rapid advice on energy, water and food security	3 rapid response advisory briefs on energy, water and food security approved by the Council and submitted to the Minister by 30 March 2016	1 brief advice on energy by December 2015	Achieved	Digression from original time frame	The Council resolved that final advice should include both the dimensions of energy efficiency and demand-side management and procurement of nuclear which was finalised in March 2016

1.6 EVENTS AND STAKEHOLDER ENGAGEMENTS

The NACI mandate -, which is, to advice the science and technology Ministry and through the Ministry, Cabinet – is pervasive and informs the work of all in government. It is therefore imperative, that in executing its mandate, the Council must engage extensively with stakeholders in the NSI. Details of stakeholder engagements for the year under review are listed in Tables 3, 4 and 5 below.

Table 3: NACI's participation in local events

Event	Location	Attendees	Date
International Association for Management of Technology 2015 conference	Cape Town	Mr P Letaba	8-11 June 2015
The national innovation indicators for South Africa: An overview of where South Africa is	Cape Town	Dr N Moleleki Mr P Letaba Ms R Maila	26-29 Aug. 2015
South African International Renewable Energy Conference	Cape Town	Ms Nozipho Maome Ms Thandokazi Teti	4-7 Oct. 2015
NACI/Southern African Venture Capital and Private Equity Association Dinner on the South African venture capital industry	Johannesburg	NACI Council and Secretariat	21 Jan. 2016
ASSAf-International Network for Government Science Advice Workshop on science advice for African scientists	Cape Town	Dr M Cele Dr T Netshiluvhi	26-27 Feb. 2016

Table 4: Strategic engagements and roundtable discussions initiated by NACI

Event	Location	Attendees	Date
Lecture on shaping the future of a nation through STI policy advice and benchmarking by Prof. Howard Alper for NACI	Pretoria	NACI Council and Secretariat	24 April 2015
NACI stakeholder consultation workshop on indicators and the framework for a data repository	Pretoria	NACI Council and Secretariat	15 May 2015
NACI-MISTRA round table discussion on energy choices	Pretoria	NACI Council and Secretariat	17 July 2015
NACI/WRC Dialogue on Water	Pretoria	NACI Council and Secretariat	28 July 2015
NACI/Agricultural Research Council/National Research Foundation round-table on food security	Pretoria	NACI Council and Secretariat	11 August 2015
NACI workshop on Manufacturing and Innovation	Sandton	NACI Council and Secretariat	17 September 2015
NACI round table on Technological innovation and Entreprenuership	Pretoria	NACI Council and Secretariat	6 Oct. 2015

Table 5: NACI's Participation in International Events

Event	Location	Attendee	Date
Portland International Conference on Management of Engineering and Technology	Portland, USA	Mr Petrus Letaba	02 – 06 August 2015
Organisation for Economic Co-operation and Development Working Party of National Experts on Science, Technology an d Innovation Indicators	Paris, France	Mr Petrus Letaba	15-20 March 2016
Organisation for Economic Cooperation and Development Working Party on Technological Innovation Policy Meeting	Paris, France	Dr Mlungisi Cele	17-19 June 2015
Organisation for Economic Cooperation and Development Committee for Scientific and Technological Policy Ministerial Meeting	Daejeon, South Korea	Dr Mlungisi Cele	20-22 Oct. 2015
International Conference of the Africa Network of Researchers in Learning, Innovation and Competence Building Systems	Kigali, Rwanda	Dr N Moleleki	17-19 Nov. 2015

1.7 A SNAPSHOT OF THE DISCUSSIONS DRAWN FROM NACI STAKEHOLDER ENGAGEMENTS

1.7.1 Poor mathematics and science results, the country's biggest economic challenge

Twelve years ago, one and a quarter million students began schooling in public schools. In 2014, however, only 2,5% of them managed to obtain a 60% pass for mathematics, and only 1,6% managed to obtain 60% for Physical Science. Improving access to Mathematics and Physical Science, especially in underprivileged schools, will be necessary if the National Development Plan is to achieve its targets. While there has been a gradual increase in science, engineering and technology enrolments at undergraduate level, relative to overall enrolments, it is unlikely that the country will accrue significant benefits without a real improvement in school-level Mathematics and Physical Science passes.

1.7.2 Technology development crucial for entrepreneurship

NACI's own assessment of the national system of innovation shows an innovation system whose inputs are increasing, both in terms of money and students, but does not seem to be yielding an adequate return on investments. South Africa pays much more to access technology than it receives from selling its technology abroad. Approximately $2 billion is paid for accessing technology, while about $100 million is received for selling technology – an undesirable technology balance of payments. The impact of foreign direct investment has been unclear, as they have been fluctuating widely. One of the possible causes of such fluctuations could be recent big deals such as Walmart's purchase of Massmart, or Barclays' purchase of Absa. Overall, South Africa did not attract any significant investments owing to its technology development environment.

1.7.3 Manufacturing and Innovation

In relation to wealth creation, one of the objectives of the NDP is to upscale manufacturing that is labour intensive and closer to townships, and to promote IT-enabled service exports to attract business process outsourcing from countries such as the United States of America, the United Kingdom and India. South Africa has become relatively successful in certain niche areas of the services industry, but it is unlikely that the NDP's objective to grow the economy by least 5,4% per annum will be met.

Small, high-technology players play a disproportionate role in supporting innovation. The main constraint to innovation is a lack of skills – PhDs are needed, but not in this area, which requires high, intense technology skills. Lack of financing is also a significant problem. In Silicon Valley, the venture capitalist market expects only one of 20 possibilities chosen to survive, but that one to be enormously successful. South Africa seemingly does not have the market to follow this approach. As a country we need to understand that we are outside certain markets, and do not offer the conditions for the Silicon Valley type of approach to work. One aspect that the country needs to look at is development finance and the role of the institutions in that context. Otherwise, it is very difficult to see the country rising above 3% of gross domestic product before 2019.

1.8 MEDIA COVERAGE OF NACI EVENTS

The Chief Directorate: Science Communication assisted with media coverage of NACI events and with issuing invitations. The following table shows the topical issues that generated public discussion or opinion and the type of media houses that covered the topics:

Table: 6 Media coverage

Media	Headline	Date
News 24	Poor math and science results a huge challenge, warns NACI	15/05/2015
SABC	SA scientific research and technological innovation on the rise reports NACI	15/05/2015
Engineering News	Manufacturing sector's contribution to GDP slips to 13.9% in 2014	15/05/2015
Media Club	Innovation research needs more investment	19/05/2015
Mail & Guardian	Improved math and science results crucial to technology entrepreneurship	22/05/2015
LMS Magazine	South Africa's state of innovation	26/05/2015
eNCA	Energy experts explore the idea of shale gas	17/07/2015
News24	Municipalities holding South Africa back on smart energy	17/05/2015
SABC	Fracking in South Africa discussed	17/07/2015

PART C: GOVERNANCE INFORMATION

1. GOVERNANCE REPORT

The Science and Technology Laws Amendment Act, 2011 (Act No. 16 of 2011), provide that the NACI Council must meet at least once per quarter to ensure proper oversight over the advisory work programme. In addition, the Guidelines to NACI and its Operations require that the NACI Executive Committee meet as often as is necessary to direct the work programme of the Council and to deal with urgent matters.

1.1 Meetings

The dates and attendance of Council and Executive Committee meetings held in 2015/16 are shown in the tables below.

Table 7: Council meeting attendance 2015/16

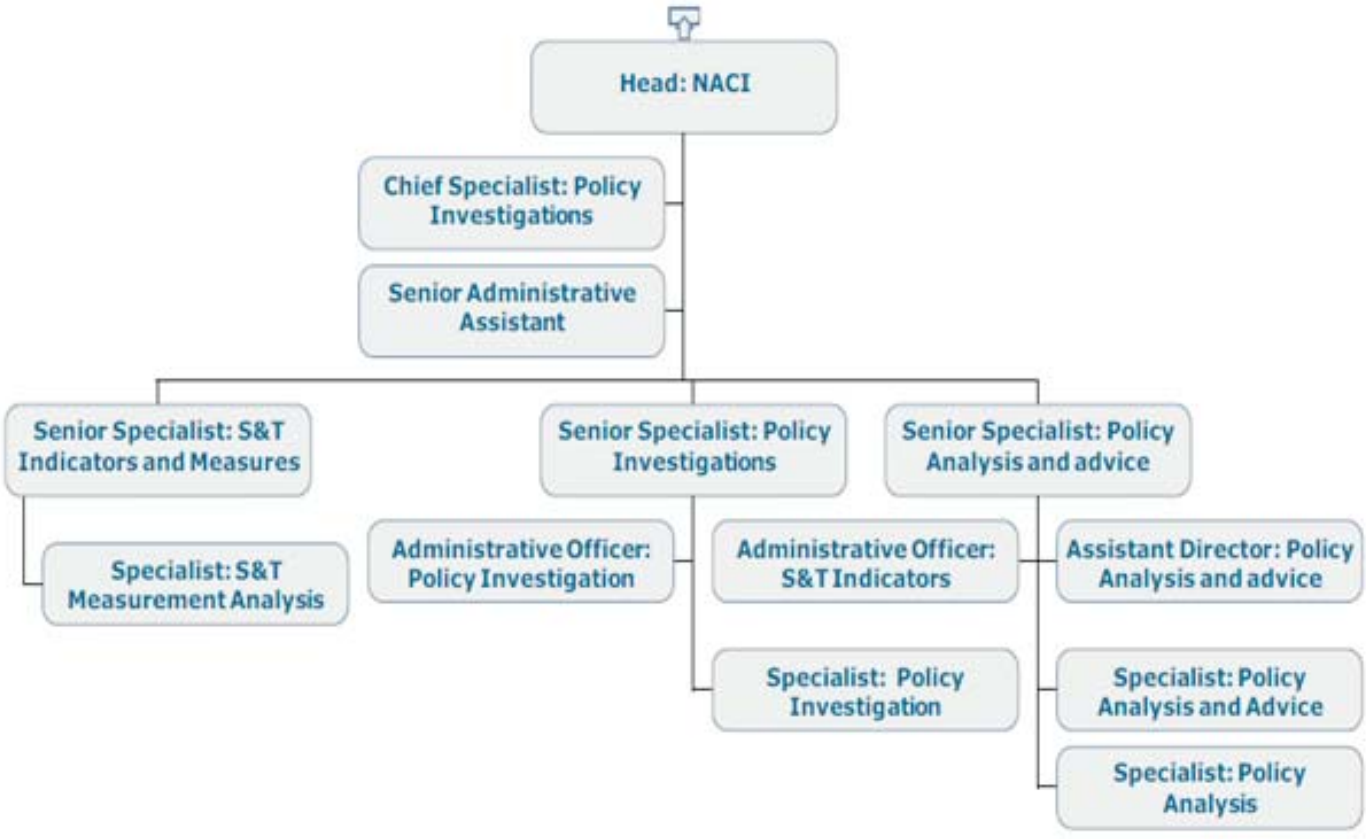
Council member	Meetings attended			
Date of meeting	20/05/15	19/08/15	11/11/15	24/02/16
Prof. C de la Rey (Chairperson)	✓	✓	✓	x
Dr M Cele (Acting CEO)	not yet appointed	✓	✓	✓
Ms C Busetti	✓	✓	✓	x
Prof. R Diab	✓	✓	✓	✓
Prof. A Eberhard	x	✓	✓	x
Prof. G Gray	x	✓	✓	✓
Dr A Jammine	✓	✓	✓	✓
Dr S Moephuli	✓	✓	x	✓
Ms Z Monnakgotla	x	✓	✓	✓
Mr D Naidoo	✓	✓	x	✓
Mr K Nassiep	x	✓	✓	✓
Ms N Nyembezi-Heita	x	✓	✓	✓
Dr M Qhobela	not yet appointed	not yet appointed	not yet appointed	✓
Mr A Ngcaba	x	✓	x	x
Dr S Sibisi	x	x	✓	x
Prof. O Shisana	x	resigned	resigned	resigned
Prof. C Soudien	not yet appointed	not yet appointed	x	x
Mr G Strachan	x	x	x	✓
Mr S Tshabalala	x	x	✓	resigned
Prof. J Thomson	x	✓	✓	✓
Ms L Zondo	x	✓	✓	✓

Table 8: ExCo meeting attendance 2015/16

ExCo Member	Meeting date and Attendance				
	20/04/15	18/06/15	21/07/15	30/10/15	03/02/15
Prof. C. De la Rey	✓	✓	✓	✓	✓
Dr M Cele	not yet appointed	not yet appointed	not yet appointed	✓	✓
Mr D Naidoo	x	✓	✓	✓	x
Mr G Strachan	✓	x	x	x	✓
Prof. J Thomson	✓	✓	✓	✓	✓

PART D: HUMAN RESOURCE MANAGEMENT

To implement its advisory programme, the NACI Council is supported by the NACI Secretariat. The Secretariat comprises 13 people, including the Acting CEO, as indicated in the human resources organogram below.



During the period under review a skills audit process was initiated in the Secretariat. It is hoped that an expanded and well trained staff complement will improve NACI's capacity to carry out policy investigations in a broader range of innovation areas, and to respond rapidly with advice on topical issues in the NSI.

PART E: FINANCIAL INFORMATION

NACI's allocated budget for 2015/16 was R18, 7 million, including the Compensation of Employees budget. The expenditure on goods and services from the annual budget was R8, 6 million of which NACI spent R4, 6 million. Accumulated savings in respect of Compensation of Employees occurred as a result of the vacancy of the CEO position.

Table 9: NACI Budget and Expenditure Breakdown as of 31 March 2015

Description	Expenses	Commitments	Allocated Budget	Available funds
	(R'000)			
Compensation of Employees	8,149		10,111	1,962
Goods and Services	3,984	28	8,631	(4,647)
Total	**12,133**	**28**	**18,742**	**6,609**

Notes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