

2. INNOVATION STAKEHOLDERS

Introduction⁴⁸

Innovation Stakeholders in South Africa include Government Departments or Agencies, private companies, research institutes, universities and NGOs that provide funding, support or services to the innovation community in South Africa. Section II of this Report provides general information on all the identified stakeholders. For ease of reference throughout the document a table is inserted at the right top corner of each paragraph, indicating the respective stakeholders' enabling role as potential funder, supporter or intellectual property creator.

2.1. GOVERNMENT

2.1.1. DEPARTMENT OF SCIENCE AND TECHNOLOGY (DST)

<http://www.dst.gov.za>

IP Creation	Funding	Policy	Support
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Overview

The Department has the following five (5) priorities in support of its mission:

- Boosting human capital development for science, technology and innovation, with a special focus on transformation, addressing gender and racial imbalances in the make-up of South Africa's science and technology workforce
- Promoting government-business -university investment in R&D increasing it to 1,5% of GDP by 2020;
- Development of entrepreneurial skills to translating more effectively the outcomes of investments in research into the development of new products and services for the South African economy;
- Ensuring consistent progress of the SKA project with construction starting on schedule in 2018; and
- The fifth priority is promoting science, technology and innovation in Africa by contributing decisively to science, technology and innovation capacity-building elsewhere in Africa.

Legislative mandates

- a) Academy of Science of South Africa Act (2001)

⁴⁸ The content of Section 2 was sourced from stakeholders' websites or annual reports that are in the public domain. In most instances the text has not been edited. Copyright is retained by the stakeholders.

This act establishes the Academy of Science of South Africa (ASSAf) as a juristic person with the following objective: (a) to promote common ground in scientific thinking across all disciplines, including the physical, mathematical and life sciences, as well as human, social and economic sciences; to encourage and promote innovative and independent scientific thinking; (b) to encourage and promote innovative and independent scientific thinking; (c) to promote the optimum development of the intellectual capacity of all people; (d) to provide effective advice and facilitate appropriate action in relation to the collective needs, opportunities and challenges of all South Africans; and (e) to link South Africa with scientific communities of the highest levels, in particular within the Southern African Development Community (SADC), the rest of Africa and internationally.

b) Astronomy Geographic Advantage Act, 2007

The Act provides for the preservation and protection of areas in South Africa uniquely suited to optical and radio astronomy, and for intergovernmental cooperation and public consultation on matters concerning areas.

c) Human Sciences Research Council Act, 2008

This act provides for the continued existence of the Human Sciences Research Council (HSRC), which carries out research that generates critical and independent knowledge relative to all aspects of human and social development. The Africa Institute of South Africa (AISA) Repeal Bill, gazetted on 17 December 2013, resulted in the incorporation of the Africa Institute (AISA) into the HSRC effective 01 April 2014. This strengthened the global and continental focus of HSRC research, as already required in terms of the HSRC Act.

d) Income Tax Act (1962)

Section 11D of the Income Tax Act gives the Minister of Science and Technology authority to approve scientific and/or technological research and development (R&D) undertaken or funded in South Africa by the private sector for a 150% tax deduction on qualifying R&D expenditure.

e) Intellectual Property Rights from Publicly Financed Research and Development (IPR) Act, 2008

The act provides for effective use of intellectual property (IP) emanating from publicly financed R&D through the establishment of the National Intellectual Property Management Office (NIPMO), the Intellectual Property Fund, and offices of technology transfer at higher education institutions and science councils.

f) National Advisory Council on Innovation Act, 1997

This Act establishes the National Advisory Council on Innovation to advise the Minister of Science and Technology and, through the Minister, the cabinet on the role and contribution of science, mathematics,

innovation and technology in promoting and achieving national objectives.

g) National Research Foundation Act, 1998

This Act establishes the National Research Foundation (NRF) to promote basic and applied research, as well as the extension and transfer of knowledge in the various fields of science and technology.

h) Natural Scientific Professions Act, 2003

This Act establishes the South African Council for Natural Scientific Professions and legislates the registration of professional natural scientists, natural scientists-in-training, natural science technologists and natural science technologists-in-training.

- Scientific Research Council Act, 1988

This Act refers to the activities of the Council for Scientific and Industrial Research, which undertakes directed research and development for socio-economic growth.

- South African National Space Agency Act, 2008

This Act establishes the South African National Space Agency to promote space science research, cooperation in space-related activities, and the creation of an environment conducive to industry's development of space technologies.

- Technology Innovation Agency Act, 2008

This act established the Technology Innovation Agency (TIA) to promote the development and exploitation of discoveries, inventions, innovations and improvements in the public interest.

Policy mandate

The DST derives its mandate from the 1996 White Paper on Science and Technology, which introduced the concept of the NSI – a set of interacting organisations and policies through which a country creates, acquires, diffuses and puts into practice new knowledge to help achieve individual and collective goals. A coordinated and efficient NSI would help achieve the country's national development priorities by promoting change through innovation, enabling all South Africans to enjoy the economic, socio-political and intellectual benefits of STI.

The DST supports the NSI in a number of ways. It:

- Coordinates the development of country-level strategies, such as the National Research and Development Strategy (NRDS) and the Ten-Year Innovation Plan (TYIP), which identify specific

priority areas that require supporting strategies.

- Works with all actors in the NSI to coordinate, facilitate and implement strategies, roadmaps and action plans to optimise cooperation and alignment.
- Provides the NSI network with measures, indicators and analysis, creating an evidence base for improving the NSI's performance.
- Optimises publicly funded STI institutions to support government's priority outcomes.
- Funds Human Capital Development at postgraduate level.
- Creates systems and structures to coordinate government departments and agencies on STI.
- Unlocks STI resources and partnerships with international, continental and multilateral agencies

DST Programmes

Programme 1: Institutional Planning and Support & Corporate Services

Programme 2: Technology Innovation: The Programme aims to enable research and development (R&D) in strategic and emerging focus areas (space science, energy, biotechnology, nanotechnology, robotics, photonics, and indigenous knowledge systems) intellectual property management, technology transfer and technology commercialisation in order to promote the realisation of commercial products, processes and services from R&D outputs through the implementation of enabling policy instruments.

Programme 3: International Cooperation and Resources: The Programme aims to strategically develop, promote and manage international relationships, opportunities and S&T agreements that strengthen the national system of innovation (NSI) and enable an exsite2016 of knowledge, capacity and resources between South Africa and its regional and international partners. The Programme also supports South African foreign policy through science diplomacy.

Programme 4: Research Development and Support: The Programme aims to provide an enabling environment for research and knowledge production that promotes strategic development of basic sciences and priority science areas, through science promotion, human capital development, the provision of research infrastructure and relevant research support, in pursuit of South Africa's transition to a knowledge economy.

Programme 5: Socio-economic Innovation Partnerships: To enhance the growth and development priorities of government through targeted science and technology-based innovation interventions and the development of strategic partnerships with other government departments, industry, research institutions and communities.

Centres of Excellence

<http://www.nrf.ac.za/coes.php>

IP Creation	Funding	Policy	Support
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Centres of Excellence (CoEs) are physical or virtual centres of research which concentrate existing capacity and resources to enable researchers to collaborate across disciplines and institutions on long-term projects that are locally relevant and internationally competitive in order to enhance the pursuit of research excellence and capacity development.

The DST-NRF CoE funding instrument was launched in 2004 with the establishment of seven CoEs. Since then, three additional CoEs were established between 2009 and 2013 with five new CoEs established in 2014. The five key performance areas of the CoEs are:

- Research/knowledge production;
- Education and training;
- Information brokerage;
- Networking; and
- Service rendering.

Over the past decade the Advisory Boards for each of the CoEs have played an important steering and oversight role in ensuring the success of the CoEs.

Centres of Competence

<http://www.hysainfrastructure.org/>

IP Creation	Funding	Policy	Support
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The Department of Science and Technology of South Africa developed the National Hydrogen and Fuel Cells Technologies (HFCT) Research, Development and Innovation (RDI) Strategy. The National Strategy was branded Hydrogen South Africa (HySA). The overall goal of HySA is to develop and guide innovation along the value chain of hydrogen and fuel cell technologies in South Africa. The overall vision of the HFCT RDI strategy is to bring about wealth, jobs and IPR creation through the initiation of new high-technology industries based on minerals found on South African soil, especially Platinum Group Metals (PGMs). Allied to this is the goal of the developing cost competitive solution for the generating hydrogen locally focusing on using renewable energy, and the supporting enabling goal of developing a range of high-level skills, generally in accordance with the required human capital development strategy.

HySA has been established consisting of three Centres of Competence – HySA Infrastructure, HySA Catalyst and HySA Systems. The HySA Infrastructure (Hydrogen Production, Storage and Delivery) Centre of Competence, HySA Infrastructure in short, co-hosted by the North-West University (NWU) and Council for Scientific and Industrial Research (CSIR).

R&D Tax Incentives

<http://www.dst.gov.za/rdtax/>

IP Creation	Funding	Policy	Support
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The South African government offers the R&D tax incentive under section 11D of the Income Tax Act (Act No. 58 of 1962) in order to promote private sector R&D investment in the country. R&D is required in order to boost innovation in the business sector, by improving the capability for developing new products and processes and improving existing ones. This is crucial for improving competitiveness and growth of the South African economy. The incentive allows any company undertaking scientific and or technological R&D in the country to deduct 150% of its R&D spending when determining the taxable income. The incentive is available to businesses of all sizes and in all sectors of the economy.

The Department of Science and Technology (DST) shares responsibilities for the delivery of the incentive with the South African Revenue Service (SARS) and the National Treasury. The incentive is part of a package of policy instruments to promote R&D and innovation in the country. In South Africa the R&D Tax Incentive is a major form of government fiscal support for private-sector R&D. There is a range of direct funding programmes, such as the Support Programme for Industrial Innovation (SPII) and the Industrial Innovation Partnership Programme (IIP), and grants/loans and equity support provided through the Technology Innovation Agency, which target market-ready technology development and commercialisation. The Technology for Human Resources in Industry Programme (THRIP) fosters R&D collaboration between private-sector companies and universities and science councils.

DST Entities

The DST has eight entities that report it.

1. Technology Innovation Agency (TIA)
2. Human Science Research Council (HSRC)
3. Council for Scientific and Industrial Research (CSRI)
4. National Research Foundation (NRF)
5. Academy of Sciences of South Africa (ASSAF)

6. South African National Space Agency (SANSA)
7. National Advisory Council on Innovation (NACI)
8. National Intellectual Property Management Office (NIPMO)

Below is a brief description of each of the entities, highlighting some of their key programmes that are relevant for collaboration with the EU.

Technology Innovation Agency (TIA)

www.tia.org.za

IP Creation	Funding	Policy	Support
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Overview

The Technology Innovation Agency enables and supports technological innovation across all sectors of the economy to deliver socio-economic benefits for South Africa and to enhance its global competitiveness. We support the development and commercialisation research from higher education institutions, science councils and private entities.

Vision: To be a leading innovation agency that supports and stimulates technological innovation to improve the quality of life for all South Africans.

Mission: To facilitate the translation of South Africa's knowledge resources into sustainable, socio-economic opportunities.

Goals

- To position TIA as a thought leader in technological innovation in South Africa.
- To provide South Africa with an appropriate and effective support for innovation with high social and economic impact.
- To support and enhance technological innovation in Africa and globally to partnership initiatives.

Strategic Roles

- To catalyse partnerships between SMMEs, industries, universities and science councils to develop an enabled environment supporting sector-specific innovations for global competitiveness.
- To provide risk funding and support for innovators to progress ideas towards market entry and

commercialisation.

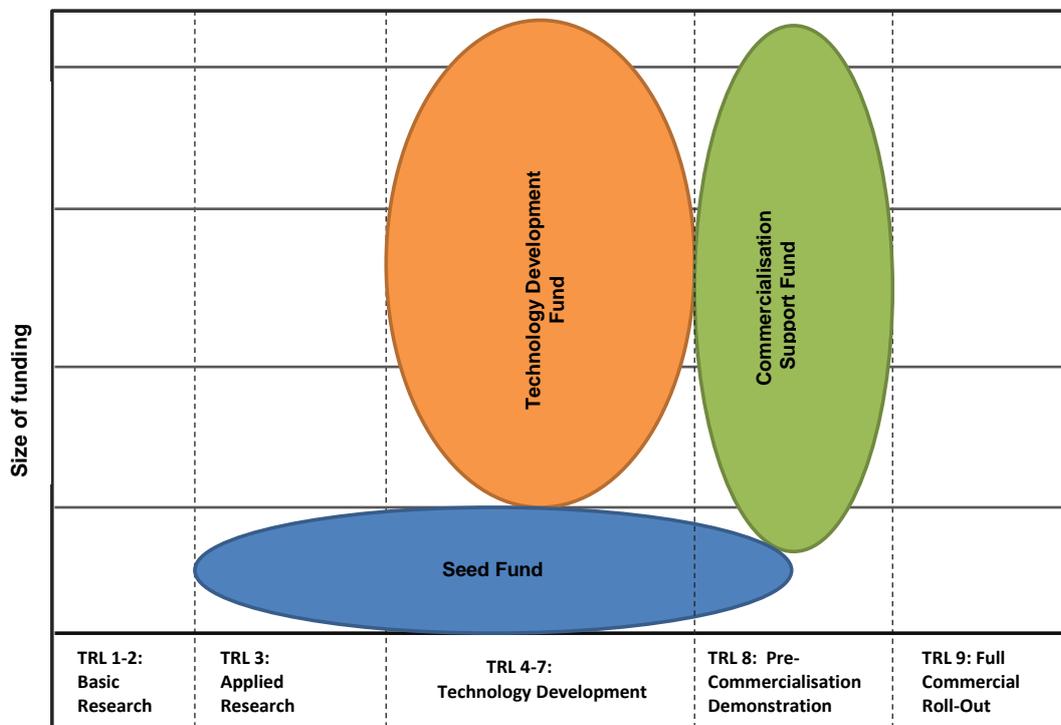
- To attract and facilitate late-stage funding for the commercialisation of market ready technologies from companies, venture capital firms, and development finance institutions.
- To reduce barriers of access to expensive high-end skills and equipment for innovators through our Technology Stations and Technology Platforms services.
- To be continually gathering valuable intellectual capital on best practice in technology innovation to inform and provide advice on policy issues, frameworks and mechanisms relating to the advancement of technology innovation.

Funding Instruments

Seed Fund - To assist researchers from higher education institutions, science councils, technology entrepreneurs and SMMEs to advance their research outputs and ideas for proof of concept, development of prototypes and business cases that could be used for further development.

Technology Development Fund - To assist innovators to advance technologies along the innovation value chain, from proof of concept to technology demonstration.

Commercialisation Support Fund - To prepare innovators for follow-on funding, through limited support for market testing and validation. In this instance, TIA's role is to connect technology innovators to onward business and investment opportunities.



Innovation Support Programmes

Technology Innovation Cluster Programme (TICP) – are collaborative initiatives by different players in a particular industry that play along the value chain such as entrepreneurs, companies, suppliers, manufacturers and research institutions. Through this Programme, TIA catalyzes the relationships and streamlines various initiatives and related intellectual property developed by these players to increase the related sector’s capacity to develop effective technology solutions and contribute to overall global competitiveness of the sector.

Technology Stations Programme (TSP) - enables Universities of Technology to provide technology services to small and medium enterprises. TIA provides financial support to institutions that house Technology Stations to facilitate technical support to SMMEs in terms of technology solutions, services and training. The Stations are equipped with state-of-the-art equipment and are resourced with highly competent individuals in specialised fields to develop new products and processes for industry and R&D led entrepreneurs through serving as technology nurseries.

Technology Platforms Programme (TPP) - provides funding to facilitate access to key technical infrastructure and expertise that enables technological innovation in strategic technology areas. TIA funding ensures that Technology Platforms acquire cutting-edge research equipment, facilities and associated world-class expertise to lower barriers for public and private users to engage in technology innovation.

Innovation Skills Development Programme (ISD) – aims to stimulate a culture of innovation thinking within the national system of innovation, thus increasing the rate of translation of innovative ideas into novel technologies, products and services. The Programme provides focused and targeted training interventions to strengthen entrepreneurial capacity of researchers and innovators towards the commercialisation of their research outputs.

Youth Technology Innovation Programme (YTIP) - aims to promote a culture of technology innovation and entrepreneurship among young South Africans between the ages of 18 and 30. It enables the youth to develop new technologies that can solve market and societal challenges, receive vouchers to access mentorship and business support services and ultimately be prepared to access other TIA funds and programmes.

Global Cleantech Innovation Programme (GCIP) – a partnered programme with the United Nations Industrial Development Organization (UNIDO) to implement the “Global Cleantech Innovation Programme for SMEs in South Africa”. The Programme aims to promote the development of SMMEs with technology solutions that can tackle the most pressing energy, environmental and economic challenges in South Africa in fields such as Energy Efficiency, Renewable Energy, Water Efficiency, amongst others.

Human Sciences Research Council (HSRC)

www.hsrc.ac.za

IP Creation	Funding	Policy	Support
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Overview

The HSRC was established in 1968 as South Africa's statutory research agency and has grown to become the largest dedicated research institute in the social sciences and humanities on the African continent, doing cutting-edge public research in areas that are crucial to development. Its mandate is to inform the effective formulation and monitoring of government policy; to evaluate policy implementation; to stimulate public debate through the effective dissemination of research-based data and fact-based research results; to foster research collaboration; and to help build research capacity and infrastructure for the human sciences.

The Council conducts large-scale, policy-relevant, social-scientific research for public sector users, non-governmental organisations and international development agencies. Research activities and structures are closely aligned with South Africa's national development priorities.

The HSRC has a staff complement of 533 members, with a group of 150 dedicated professional researchers located in four provinces (Gauteng, Western Cape, KwaZulu-Natal, and Eastern Cape). Researchers are supported by a strong physical and institutional infrastructure, including technical and support positions, to enable the organisation to respond efficiently to research needs. The integrated research programmes of the HSRC provide a firm foundation for the undertaking, promoting, and coordinating of research efforts in the social sciences and humanities. In addition, they allow the HSRC to provide single points of entry, with a critical mass of researchers, for interdisciplinary and problem-orientated research in the following programmes and centres:

The Africa Institute of South Africa (AISA) in the HSRC undertakes basic, applied, and comparative research, devoted to the study of Africa and African diasporas. The Institute makes a contribution to addressing the many dimensions of the study of Africa in Africa, and reversing the marginality, in global terms, of knowledge production in Africa. AISA seeks to advance the broader objectives of the HSRC by aligning with the strategy and research programmes of the parent organisation. AISA aims to serve as a knowledge hub for conducting and disseminating multidisciplinary research in Africa.

Academy of Science of South Africa (ASSAf)

<http://www.assaf.co.za/>

IP Creation	Funding	Policy	Support
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Overview

The Academy of Science of South Africa (ASSAf) is the officially recognised national science academy of South Africa through the ASSAf Act, *Act No. 67 of 2001*, which came into operation in May 2002. ASSAf is also governed by the Science and Technology Laws Amendment Act, *Act No. 16 of 2011*. ASSAf's strength resides in the quality and diversity of its membership; internationally renowned scholars elected by their peers, who give of their time voluntarily in the service for society. The Academy is able to use its membership as a collective resource for providing evidence-based scientific advice on issues of public interest to government and other stakeholders. ASSAf regularly publishes its findings and recommendations. It acknowledges the achievements of South African scientists in order to develop the intellectual capacity of the nation and promote innovative, scholarly thinking.

Through its membership, which represents the collective voice of the most active scholars in all fields of scholarly enquiry, ASSAf aims to generate evidence-based solutions to national problems. The dual mandate of ASSAf is to:(1) promote and inspire outstanding achievements in all fields of scientific enquiry and to grant recognition for excellence; and, proactively or upon request undertake studies on matters of public interest with a view to providing evidence-based scientific advice to government and other stakeholders. In fulfilling its mission, the Academy:

- Recognises scholarly achievement and excellence in the application of scientific thinking for the benefit of society;
- Mobilise members to ensure that they are available to contribute their expertise in the service of society;
- Conduct systematic and evidence-based studies on issues of national importance;
- Produce authoritative reports that have a significant impact on policy-making;
- Regularly hosts workshops/symposia on a variety of topics
- Promote the development of an indigenous system of South African research publications and increase their quality, visibility, accessibility and impact;
- Publish science-focused periodicals that will showcase the best of southern African research to a wide national and international audience;
- Develop productive partnerships with national, regional and international organisations with a view to building its capacity in science and its application within the National System of Innovation (NSI); and
- Communicate effectively with relevant stakeholders through various media and fora.

Scholarly Publishing

Scholarly publishing is regarded as a major intervention into the NSI in South Africa, the strategic goal of which is to enhance the national capacity to produce and publish research, on the one hand, and to increase the quality and visibility of South African research publications, on the other. The Academy achieves this goal through peer review of South African scholarly journals, the implementation of the open access platform for scholarly journals, the hosting of a National Scholarly Editors' Forum and a National Scholarly Book Publishers' Forum. A major thrust of the Academy's scholarly publishing is the production and dissemination of the flagship journal, the South African Journal of Science, and the science magazine, Quest: Science for South Africa.

Scientific Electronic Library Online (SciELO)

The Scientific Electronic Library Online (SciELO) is an open-access (free to access and free to publish) searchable database of selected, high quality South African scholarly journals. The project is inspired by a global movement towards the implementation of online journals, pioneered by the SciELO project, based in Brazil. SciELO SA is managed by the ASSAf, funded by the South African Department of Science and Technology and endorsed by the South African Department of Higher Education and Training (DHET).

At the end of September 2015, the collection has grown to 65 titles with an average of one new title per month being added and available on the SciELO SA platform. It is expected that at least 180 journals will eventually be published on the platform. The SciELO SA collection was certified in April 2013 as a regular operational collection indexed in the SciELO Network Global Portal. This greatly enhances the visibility of South African journals and will increase impact factors of our local journals. All SciELO journals appear on the Web of Knowledge (WoK) search portal as the SciELO Citation Index.

South African National Space Agency (SANSA)

<http://www.sansa.org.za/overview/history>

IP Creation	Funding	Policy	Support
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Overview

The South African National Space Agency Act, 36 of 2008, established the National Space Agency (SANSA) to provide for the promotion and use of space and cooperation in space-related activities, foster research in space science, advance scientific engineering through human capital and support the creation of an environment conducive to industrial development in space technologies within the framework of national government policy. SANSA comprises a Corporate office which oversees the overall operational capability of the following Space Programmes:

- **Earth Observation** - Collect, process and distribute earth observation data to support South Africa's policy-making, decision-making, planning, disaster management, resource & environmental

management, economic growth and sustainable development initiatives.

- **Space Operations** - Providing state-of-the-art ground station facilities and services, including satellite tracking, telemetry and command as well as launch support, in-orbit testing, mission control and satellite-based navigation.
- **Space Science** - Creating and utilising knowledge, developing human capital and advancing science by studying everything above the surface of the Earth, from the planet's atmosphere to the edges of the universe.
- **Space Engineering** - Leading the technical development of space and subsystems to support the South African Space Programme in order to meet the strategic objectives of the country.
- **Science Advancement and Public Engagement** - Increasing the uptake and appreciation of science among our youth and improving the overall scientific literacy and engagement of the general public.
- **Human Capital Development** - Training South Africans in key areas of national importance, developing scarce and transferable skills and contributing to transforming the country into a knowledge-based economy.

Council for Scientific and Industrial Research (CSIR)

<http://www.csir.co.za/>

IP Creation	Funding	Policy	Support
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Overview

The Council for Scientific and Industrial Research (CSIR) is a world-class African research and development organisation established through an Act of Parliament of 1945. The CSIR undertakes directed, multidisciplinary research and technological innovation that contributes to the improved quality of life of South Africans. The organisation plays a key role in supporting government's programmes through directed research that is aligned with the country's priorities, the organisation's mandate and its science, engineering and technology competences.

Key issues that the CSIR seeks to address through various interventions include: creating a vibrant economy and employment opportunities; building a capable state that is able to consistently deliver high-quality services for all South Africans; contributing to the development of economic and social infrastructure like transport, energy, water resources and ICT networks.

Focus Areas

The CSIR supports South Africa's national priorities through research, development and implementation

in the areas of health, industry, defence and security, energy, as well as the natural, built and digital environments. The CSIR also focuses on emerging research areas, i.e. those areas of science that could be unique to local circumstances or successful internationally and need to be established for local competitiveness. Examples include nanotechnology, synthetic biology and mobile autonomous intelligent systems.

National Research Centres

The CSIR houses specialist facilities of strategic importance for African science. These include information and communications technologies; laser technology; and space-related technology.

South African National Research Network (SANReN)

<http://www.sanren.ac.za/overview/>



The South African National Research Network (SANReN) is part of a comprehensive South African government approach to cyberinfrastructure to ensure successful participation of South African researchers in the global knowledge production effort. Together with the Centre for High Performance Computing (CHPC) and the Very Large Databases (VLDB) project, SANReN forms a key component of this cyber infrastructure as a core scientific infrastructure for South Africa.

The roles and responsibilities of the de facto South African NREN (SA NREN) are distributed between the Tertiary Education and Research Network of South Africa (TENET) and the South African National Research Network (SANReN) Competency Area (CA) at the Council for Scientific and Industrial Research (CSIR).

The SANReN CA is responsible for the design, acquisition and roll-out of national and international capacity for the SA NREN, as well as the development and incubation of advanced services. It forms part of a comprehensive South African government approach to cyberinfrastructure, geared at ensuring the successful participation of South African researchers in the global knowledge production endeavour.

SANReN is managed and implemented by the CSIR's Meraka Institute and is a key component of the National Integrated Cyberinfrastructure System (NICIS), alongside the Centre for High Performance Computing (CHPC) and the Data Intensive Research Initiative of South Africa (DIRISA).

TENET's main purpose is to secure, for the benefit of South African universities and associated research and support institutions, Internet and Information Technology services. TENET is a service organisation and is committed to service excellence and to services that are strongly aligned and consistent with the organisational requirements of the user community. TENET operates the SANReN Network under the terms of a collaboration agreement with the CSIR.

TENET and the SANReN CA co-operate closely in building and supporting the South African NREN as a research, education and innovation platform for the benefit of its customers and users, and for the realisation of associated national development objectives.

The Biomanufacturing Industry Development Centre (BIDC)

The Biomanufacturing Industry Development Centre (BIDC) programme is a three-year project established to translate biotechnology-based R&D into market-ready products and services. The project is housed with the CSIR and offers competency throughout the value chain i.e. from laboratory scale validation through to demonstration of technology, prototyping and pilot manufacturing.

The BIDC programme is a hub for open-innovation in biomanufacturing and has a strong focus on supporting start-up and Small, Medium and Micro-sized Enterprises (SMMEs) with the development of new technologies and products. It provides incubated companies with access to ready-to use biomanufacturing facilities and supporting research and development (R&D) laboratories. The programme also provides access to experts in the fields related to bioprocess development, prototyping, pilot manufacturing and scale-up capabilities. The hub includes laboratories for molecular biology, applied biochemistry, biocatalysis and fermentation, as well as laboratory and pilot scale process development. These facilities are complemented by high-end analytical infrastructure and skills within the CSIR Biosciences Unit.

The programme is funded by the Development Bank of Southern Africa (DBSA) through the Jobs Fund Programme and by the Department of Science and Technology's (DST) Industry Innovation Support Fund. The BIDC programme and its facilities are accessible to the National System of Innovation (NSI) and can provide contract R&D, process development, process optimisation, scale-up, regulatory support, commercial manufacturing services and incubation of SMMEs to enable the development of a vibrant and sustainable bioeconomy in South Africa and throughout the continent.

Hosted Sector Initiatives

- a) National Integrated Cyber Infrastructure System

The National Integrated Cyber Infrastructure System (NICIS) promotes scientific and industrial development through the provision of high-performance computing capability, high-speed network capacity and a national research data infrastructure integrated hierarchically into globally connected systems and into local system systems, providing seamless access for the research and education communities of South Africa. It is a national initiative of the Department of Science and Technology and implemented by the CSIR.

The Centre for High Performance Computing (CHPC) is one of three pillars of the NICIS. It provides massive parallel processing capabilities and services to researchers in industry and academia. The other main pillars are the South African National Research Network (SANReN), which provides high-speed connectivity and advanced networking services, as well as the Data Intensive Research Initiative of South Africa (DIRISA), which implements services that enable sound data management practices and support efficient data-driven scientific and engineering discoveries.

b) Aerospace Industry Support Initiative

The Aerospace Industry Support Initiative (AISI) is an initiative of the Department of Trade and Industry (the dti), managed and hosted by the CSIR. The AISI is a government initiative with a specific aim of improving the competitiveness of the local aeronautics, space and defence sectors. The AISI takes its strategic direction from government's objectives with a specific emphasis on industrialisation of technology. The dti utilises the CSIR and its position in the National System of Innovation to give industry access to national expertise and infrastructure, to improve its capabilities and offerings. The AISI achieves impact in industry through focused programme-level interventions. The programmes are designed to assist industry in overcoming challenges faced by industry, and in doing so, ensuring that industry becomes more competitive. The programmes are supplier development, industry development and technology support and sector strategic support initiatives.

c) Agrément South Africa

Agrément South Africa assesses and certifies innovative non-standardised construction products, systems, materials, components and processes - which are not fully covered by a South African Bureau of Standard standard or code of practice - for fitness for purpose. Agrément South Africa is a Department of Public Works agency managed by the CSIR.

d) NEPAD-SANBio

The Southern Africa Network for Biosciences (SANBio) is a shared biosciences research, development and innovation platform for working collaboratively to address some of southern Africa's key biosciences issues in health, nutrition and health-related intervention areas such as agriculture and the environment. SANBio was established in 2005 under the African Union - New Partnership for Africa's Development, as one of five networks established under the African Biosciences Initiative to cover the Southern Africa Development

Community (SADC) region. The network comprises 12 SADC member states and operates as a regional hub (the CSIR in South Africa) and country nodes model. The current NEPAD-SANBio member states are Angola, Botswana, Malawi, Mauritius, Mozambique, Namibia, Lesotho, South Africa, Seychelles, Swaziland, Zambia and Zimbabwe.

NEPAD-SANBio responds to two priority areas of the Science, Technology and Innovation Strategy for Africa 2024, which is a 10-year strategy that is part of the long-term AU Agenda 2063, namely to eradicate hunger and ensure food and nutrition security and to prevent and control diseases and ensure well-being. The strategy envisages the accelerated transition of largely commodity-based African economies to innovation-led, knowledge-based economies. Such economies are underpinned by robust science, technology and innovation.

The CSIR was selected by the member states to host the secretariat on behalf of all stakeholders. The NEPAD-SANBio Hub is designed to make a significant contribution to achieving the objectives of the network by providing access to world-class research and translational infrastructure and expertise in multidisciplinary and diverse scientific fields. Through the NEPAD-SANBio Hub, the southern African region can leverage the extensive experience and world-class facilities at the CSIR to accelerate technology development.

In pursuing its vision of being a globally recognised biosciences network for improved livelihoods in Southern Africa, NEPAD-SANBio facilitates innovation in support of the development of knowledge economy in Southern Africa. It does so by supporting an effective and dynamic regional research network; enhancing human and infrastructure capacity; and developing and commercialising innovation products in health and nutrition.

e) National Cleaner Production Centre of South Africa

The National Cleaner Production Centre of South Africa (NCPC-SA) is a national programme of government that promotes the implementation of resource efficiency and cleaner production (RECP) methodologies to assist industry to lower costs through reduced energy, water and materials usage, and waste management. It is hosted by the CSIR on behalf of the Department of Trade and Industry.

The NCPC-SA is a member of the United Nations Industrial Development Organisation and the United Nations Environmental Programme's global RECP network and plays a leading role in the African Roundtable on Sustainable Production and Consumption.

The NCPC-SA's service offerings include:

- Raising awareness, advocacy and demonstration of the benefits of RECP
- Technical support to industry through RECP methodologies and tools
- Facilitating the implementation of RECP in industry

- Capacity building and development of RECP skills.

f) Technology Localisation Implementation Unit

The Technology Localisation Implementation Unit (TLIU) is an initiative of the Department of Science and Technology (DST) and is hosted and incubated by the CSIR. The TLIU was established by the DST to implement the deliverables of its Technology Localisation Plan, which include increasing the productive capacity of local firms.

The TLIU supports the industry through:

- Benchmarking and technology capability evaluation services
- Access to technology platforms or shared technology facilities
- Access to technical expertise
- High-end technical skills development programmes
- Design and tooling support
- Technology transfer benefits

The TLIU also provides funded technology support to enable more local firms to supply goods to state-owned companies. The support provided assists local firms to enhance their technological capability and supports the placement and hosting of interns. The unit has assisted original equipment manufacturers to procure items that were previously imported from local suppliers.

Successful localisation is viewed as increased local content in capital programmes and operations.

Waste RDI Roadmap for South Africa

In 2012, the Department of Science and Technology (DST) and the CSIR embarked on a process to develop a waste research, development and innovation (RD&I) roadmap to guide South Africa's public and private sector investment in waste RD&I over the next 10 years. The roadmap was published in 2015.

The successful implementation of the roadmap is expected to assist government and industry in significantly increasing the diversion of waste away from landfills towards value-adding alternatives, through more effective decision-making, faster insertion of context-appropriate technology, strengthened RD&I capability and capacity and the transfer of know-how and technology.

National Foundry Technology Network

The National Foundry Technology Network (NFTN) is a key foundry industry support initiative that is funded by the Department of Trade and Industry and hosted by the CSIR. The aim of the NFTN is to facilitate the development of a globally competitive foundry industry in South Africa through appropriate skills training, technology transfer and diffusion of state-of-the-art technologies in close collaboration with existing industry associations. The NFTN facilitates and initiates projects that will deliver the following outcomes:

The provision of appropriate skills and professional training through the provision of a formal foundry career path

- Product and process improvement interventions
- Appropriate foundry technology innovation and transfer
- SMME/BBBEE development and promotion
- Information dissemination and technology diffusion.

The Applied Centre for Climate & Earth System Science

The Applied Centre for Climate & Earth System Science (ACCESS) is a consortium of several agencies, research councils, research programmes, universities and research groups that have combined efforts to deliver a range of outputs aligned to the Department of Science and Technology Global Change Grand Challenge. It is a platform for integrated and end-to-end research and education, services and training outputs and outcomes related to the opportunities and challenges emanating from a varying and changing environment, collectively referred to as Earth systems science. ACCESS provides an opportunity for unprecedented cooperation across a range of disciplines, which reflects the inter-connected nature of the southern African Earth System.

National Intellectual Property Management Office (NIPMO)

IP Creation	Funding	Policy	Support
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Overview

The management of intellectual property (IP) emanating from publicly financed research and development (R&D) has become a critical factor in ensuring that the public derives greater returns from the increasingly significant R&D investments made by government. The South African Government introduced the Intellectual Property Rights from Publicly Financed Research and Development Act 51 of 2008 (referred to as the IPR Act) to provide a regulatory framework for the management of IP emanating from publicly financed R&D. The National Intellectual Property Management Office (NIPMO) was established in mid-2011 in terms of the Act to promote and manage the objects of the Act. These include to ensure that IP emanating from publicly financed R&D is identified, protected (where applicable), utilised and commercialised for the

benefit of the people of the Republic of South Africa. The Act furthermore seeks to ensure, amongst others, that human ingenuity and creativity is acknowledged and rewarded and that the people of the Republic of South Africa, particularly small enterprises and BBBEE entities, have preferential access to opportunities arising from the production of knowledge from publicly financed R&D and the resultant IP. NIPMO has been set up as a specialised service delivery unit within the Department of Science and Technology Programme 2 - Technology Innovation, pending its establishment as a Government Component in future.

National Advisory Council on Innovation (NACI)

www.naci.org.za

IP Creation	Funding	Policy	Support
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Overview

The National Council on Innovation Act, 1997 (Act No. 55 of 1997), provides the mandate for NACI (2015). The Act mandates NACI to advise the Minister for 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.

The 2011 National Development Plan (NDP) highlights the centrality of science, technology and innovation (STI) in national development. The NDP notes that developments in STI fundamentally alter the way people live, communicate and transact, with profound effects on economic growth and development. The NDP further indicates that countries that are able to tackle poverty effectively by growing their economies are characterised by strong STI.

NACI has begun to identify ways in which its work could contribute to the realisation of some aspects of the NDP. As part of a programme of action, NACI identified the water-energy-food security nexus as a focus that responds to the NDP both directly and indirectly. Projects (involving NSI actors) have already started and produced results, some of which have been provided to the Minister in the form of special advice letters. NACI intends to continue focusing on the water-energy-food security nexus. NACI has adopted a new vision and goals that are intended to help contribute to the development of an NSI that is coherent, coordinated and responsive to national priorities, another expectation of the NDP. NACI compiles annually the South African Science, Technology and Innovation Indicators booklet that is intended to assess the state of innovation in South Africa

The Council's advice programme translates into the following outputs for the 2016/17 financial year:

- a high-level framework for a decadal plan on science, technology and innovation in South Africa

- a framework for a data repository to manage science, technology and innovation information
- an innovation scorecard to be a barometer of innovation performance in the economy
- advice on water-energy-food nexus

National Research Foundation (NRF)

www.nrf.ac.za

IP Creation	Funding	Policy	Support
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Overview

The mandate of the NRF is “to support and promote research through funding, human resource development and the provision of the necessary research facilities in order to facilitate the creation of knowledge, innovation and development in all fields of science and technology, including indigenous knowledge and thereby to contribute to the improvement of the quality of life of all the people of the Republic”. In executing this mandate, the organisation supports the Constitutional commitment to “improve the quality of life of all citizens and free the potential of each person”. The NRF also supports and promotes awareness of and engagement with science in order to improve the level of science literacy and public participation in science, technology, engineering, mathematics and innovation (STEMI). The NRF implements its mandate through the following Programmes.

Research and Innovation, Support and Advancement (RISA)

The RISA supports and promotes human capacity development, knowledge generation and platform provisioning through the provision and administration of, among other initiatives, a world class granting system. The work of the programme is informed by a range of national policies, priorities and strategies, including the strategy for Human Capacity Development for Research, Innovation and Scholarships and the 2013 Ministerial guidelines for improving equity in the distribution of the DST-NRF bursaries and fellowships. RISA endeavours to:

- Provide best practice systems in support of grant making, reviews and evaluations;
- Promote globally competitive research and innovation;
- Enhance strategic international engagements; and
- Establish and maintain research infrastructure and platforms.

Agency for Science and Technology Advancement (SAASTA)

SAASTA is a business unit of the National Research Foundation (NRF) with the mandate to advance public awareness, appreciation and engagement of science, engineering, innovation and technology in South Africa.

SAASTA's contribution to the NRF's vision is to grow the pool of quality learners today who will become the scientists and innovators of tomorrow. All science promotion or awareness programmes within the NRF reside under three key strategic areas that combine to form an integrated and seamless approach.

- Through education we build up the supply of tomorrow's scientists and innovators.
- Through communication we celebrate South African achievements in science and technology and build the public's appreciation of the benefits of science.
- By growing the awareness of science through exploration, exhibitions and actual experience, we instil in people an enthusiasm about the wonder and application of the subject, while encouraging greater public engagement in SET issues.

Applied Research, Innovation and Collaboration (ARIC)

The Applied Research, Innovation and Collaboration (ARIC) directorate promotes and develops applied research within the National System of Innovation (NSI). Applied research in this context is seen as research that moves outcomes through the innovation value chain towards commercialisation, and informs policy, legislation and implementation that underpins societal well-being. The objective of ARIC are:

- Strengthening of current applied research platforms at NRF primarily through expanding and building on THRIP.
- Engaging other sectoral partners to collaborate with higher education to promote joint applied research initiatives in pursuit of societal needs, the strengthening of the human capital base.
- Developing joint research capacity and/or infrastructure requirements for the benefit of society.
- Advancing the course of applied research.
- Strengthening the understanding, appreciation & sensitivity of the complexity within which applied research outcomes need to be embraced, absorbed and integrated into society.

Human and Infrastructure Capacity Development (HICD)

<http://www.nrf.ac.za/division/hicd/instruments>

The aim of the Human and Infrastructure Capacity Development (HICD) Directorate is to develop institutional research capabilities and infrastructure in parallel with the appropriate human capital to drive the research and development strategies within the National System of Innovation (NSI).

HICD instruments are categorised according to these groupings:

- *infrastructure funding programmes*, National Equipment Programme (NEP) - The NEP provides funding and support for research and training within the NSI with the aim of improving the competitiveness of South African research and training by contributing to the:
 - Improvement of the research infrastructure
 - Expansion of the capacity to undertake research and training
 - Promotion of collaboration nationally, in line with the national research priorities
- *human capacity development programmes*

Thuthuka aims to develop human capital and to improve the research capacities of designated researchers including Black, Indian, Coloured, female and disabled researchers, in partnership with public HEIs, Science Councils and other research institutions. Thuthuka grants are limited to academics and researchers, with academic and/or joint academic and administrative professional appointments, at public HEIs, Science Councils and other research institutions.

Sabbatical Grants to Complete Doctoral Degrees - This grant has been designed to accelerate the completion of doctoral degrees in order to increase the research and postgraduate supervisory capacity at universities and research institutions. The award is made to full-time academic and research staff for a six or twelve-month sabbatical.

- *collaborative research with National Facilities* - This grant provides funding to researchers at South African universities to conduct research projects at National Research Facilities and incentivises quality research outputs from researchers at the facilities.
- nanotechnology flagship projects - NFP grants promote research projects demonstrating the benefits of nanoscience and nanotechnology and their impact on some of the challenges facing South Africa. Human capacity development and collaboration are key drivers of the NFP initiative.
- *The Human Capacity Programme (HCP)* offers a range of bursaries and scholarships for student and postdoctoral training; Value-adding initiatives that aim to retain researchers within the NSI; The DST-NRF Internship Programme for unemployed SET graduates; and Strategic projects to increase human resources in scarce skills areas.

Research Chairs and Centres of Excellence (RCCE)

The Research Chairs and Centres of Excellence (RCCE) directorate brings together two strategic investments of the South African government, namely, the South African Research Chairs Initiative (SARChI) and the Centres of Excellence (CoEs). These funding instruments have a long-term investment trajectory and are designed to significantly expand the scientific research and innovation base of South Africa in a way that supports implementation of the National Research and Development Strategy. In this regard, South Africa

must produce a greater number of highly skilled individuals; particularly in Science, Engineering, Technology and Mathematics (STEM), to achieve the goal of “an equitable, sustainable, and inclusive growth path that brings decent work and sustainable livelihoods, education, health, safe and secure communities, and rural development”. Both the CoEs and SARChI are key drivers, within public research institutions, that aspire to contribute to the realisation of South Africa’s transformation into a globally competitive, knowledge-based economy in which the generation of knowledge translates into socio-economic benefits.

The South African Research Chairs Initiative (SARChI)

The South African Research Chairs Initiative (SARChI) was established in 2006 by the Department of Science and Technology (DST) and the National Research Foundation (NRF). It is designed to attract and retain excellence in research and innovation at South African public universities through the establishment of Research Chairs at public universities in South Africa with a long-term investment trajectory of up to fifteen years. The main goal of the Research Chairs initiative is to strengthen and improve research and innovation capacity of public universities for producing high quality postgraduate students and research and innovation outputs. The key objectives of SARChI are to:

- Expand the scientific research and innovation capacity of South Africa;
- Improve South Africa’s international research and innovation competitiveness while responding to social and economic challenges of the country;
- Attract and retain excellent researchers and scientists;
- Increase the production of masters and doctoral graduates; and
- Create research career pathways for young and mid-career researchers, with a strong research, innovation and human capital development output trajectory.

The instrument is designed to bring new research leadership capacity into public universities, while at the same time retaining those that are already at the universities. To this effect a 60/40 target for external vs internal candidates was set to encourage recruitment from outside South African universities, i.e., from industry and abroad, including African scholars and South Africans in the diaspora. Since inception, 150 Research Chairs were awarded to 21 public universities across the country in open and directed categories; priority research areas; science and technology for poverty alleviation; innovation, engineering and technology development; and within the national science and technology missions.

Centres of Excellence (CoEs)

Centre of Excellence for Integrated Mineral and Energy Resource Analysis (CIMERA)

<http://www.cimera.co.za>

CIMERA was launched on 24 April 2014 at the University of Johannesburg. The CoE focuses on the integration of leading academic research with strategic applications in wealth generation and human resource development in South Africa as well as the rest of Africa. This centre generates knowledge that helps in ensuring that a proper alignment of activities within the South African government's strategic focus on mineral and fossil fuel resources. The centre also focuses on the origin, distribution and character of Earth mineral and fossil energy resource systems with the aim of ensuring their sustainable utilisation not only in South Africa but Africa as a whole.

The Centre of Excellence in Human Development (CoE-Human)

<http://www.wits.ac.za/coe-human>

The CoE-HUMAN is the only DST-NRF Centre of Excellence established in human and social studies. It takes human development to be the processes, on an individual and social level, towards fulfilment, not only of basic needs but of values including freedom, security, achievement and belonging.

The Centre of Excellence in Food Security

<http://www.foodsecurity.ac.za>

Launched on 15 April 2014, the Centre of Excellence in Food Security is co-hosted by the University of the Western Cape and University of Pretoria. It was established in the context of changing food systems facing ecological, social, economic and physical challenges and its focus is on the generation of energy and knowledge to improve access to sustainable and sufficient amounts of nutritious food for poor, vulnerable and marginal populations. The research that the centre will undertake will identify science-based programme interventions and policy mechanisms which will help South Africa in overcoming food insecurity and to ensure sound and good nutrition for its citizens.

The Centre of Excellence in Scientometrics and Science, Technology and Innovation (STI) Policy

<http://www.sun.ac.za/scistip>

The DST-NRF CoE in Scientometrics and Science, Technology and Innovation (STI) Policy, launched on 03 April 2014, is co-hosted by the University of Stellenbosch and the Tshwane University of Technology and housed in the Centre for Research on Evaluation, Science and Technology (CREST). The work done by the CoE focuses on the sociology of science, science policy issues and knowledge production in higher education. Its work will lead to improved decision making in STI policy and consolidate the national information systems in science and technology in South Africa.

The Centre of Excellence in Mathematical and Statistical Sciences (MaSS)

<http://www.wits.ac.za/coe-mass>

The Centre of Excellence in Mathematical and Statistical Sciences was launched at the University of the Witwatersrand on 01 April 2014. Its focus is centred on the main theme of 'Mathematics of the Earth and Environment', which is split into two sub-themes reflecting the pure and applied nature of the mathematical sciences - mathematics paradigms for the Earth and the environment; and mathematical, statistical and computational modelling of the Earth and the environment. The research undertaken by the CoE will assist in generating information relevant to environmental studies and help to address some of the challenges faced in climate studies while ultimately contributing knowledge to help curb global warming.

The Centre of Excellence in Palaeosciences

www.ancient-earth.co.za

The Centre of Excellence is hosted by the University of the Witwatersrand. The research thrust for the CoE comprises of five themes that will address research questions relating to the South African palaeosciences heritage record. The themes are conceptually linked to serve the ambitions of four overarching key research questions, which will inform the research approach:

- How does the South African palaeosciences record improve our understanding of the origins of species?
- What are the key behavioural transitions in hominid prehistory, including the origins of modern human behaviour?
- What are the Earth systems that drive evolution?
- What are the roles of extinctions and radiations in the evolutionary process?

The National Institute for Theoretical Physics (NITheP)

www.nithep.ac.za/about.html

The National Institute for Theoretical Physics (NITheP) is jointly hosted by Stellenbosch University (SU), the University of Witwatersrand (Wits) and the University of KwaZulu-Natal (UKZN). They are located in the Stellenbosch Institute for Advanced Studies (STIAS) building. NITheP seeks to sustain a stimulating theoretical physics research.

The Centre of Excellence in Epidemiological Modelling and Analysis (SACEMA)

www.sacema.org

The South African Centre of Excellence in Epidemiology Modelling and Analysis (SACEMA) is hosted by the University of Stellenbosch. SACEMA uses mathematics to understand, predict and ultimately combat diseases.

The Centre of Excellence in HIV Prevention (CAPRISA)

www.caprisa.org

Young women in South Africa have among the highest rates of HIV infection in the world. The Centre of Excellence in HIV Prevention aims to identify the risk factors responsible for these high rates and to develop new technologies and strategies to reduce the spread of HIV in women, especially young women, in South Africa.

The Centre of Excellence in Tree Health Biotechnology (CTHB)

<http://fabinet.up.ac.za>

Centre of Excellence in Tree Health Biotechnology at the Forestry and Agriculture Biotechnology Institute (FABI) is hosted by the University of Pretoria. The centre seeks to concentrate on understanding and combating diseases affecting South Africa's indigenous trees. The primary goal of the CTHB is to promote the health of trees native to South Africa through the use of biotechnology.

The Centre of Excellence for Biomedical Tuberculosis Research (CBTBR)

www.tuberculosis.org.za

Centre of Excellence for Biomedical Tuberculosis (TB) Research (co-hosted by the University of Cape Town, University of Stellenbosch and the University of the Witwatersrand). This research centre contributes to local and global research efforts that are aimed at developing new tools for controlling tuberculosis and to use the research as a vehicle for training a new generation of high-quality biomedical research scientists.

Centre of Excellence in Catalysis (C*change)

<http://www.cchange.ac.za>

Hosted by the University of Cape Town the Research centre focuses on chemical catalysis mainly for

the conversion of gas liquid fuels and for downstream processing that adds value to bulk chemicals. Academics and researchers at 10 partnering universities nationwide concentrate on three specific research areas of highest interest to the South African economy and society – synthesis gas conversion, paraffin activation and value addition to unique olefinic feedstocks. In addition to its scientific focus on chemical transformations, the Centre will serve as an agent of change for the development of a new generation of research leaders incorporating the full diversity of South Africa’s rich scientific potential.

The Centre of Excellence Birds as Keys to Biodiversity Conservation

www.fitzpatrick.uct.ac.za

The Percy FitzPatrick Institute of African Ornithology (affectionately known as the Fitztute) is located at the University of Cape Town, South Africa, where it is housed within the Department of Biological Sciences. Situated at the tip of Africa, the Fitztute is uniquely positioned to take advantage of the vast untapped biological resources of the continent. Members of the department are committed to developing a greater understanding of these, through the training of scientists and the pursuit of primary research, from evolutionary ecology to conservation biology. The Institute is also home to the Niven Library, which holds what is probably Africa’s most comprehensive Ornithology collection and reprints of the Institute’s vast publication record.

The Centre of Excellence in Strong Material (SM)

www.wits.ac.za/strongmaterials

This centre is hosted by the University of the Witwatersrand) and studies hard materials, metal alloys, metal oxides, ceramics, diamond-like materials and composites including carbon nanotubes. The CoE-SM works with over 50 researchers who supervise postgraduate students and postdoctoral fellows.

The Centre of Excellence for Invasion Biology (CIB)

<http://academic.sun.ac.za/cib/>

The centre, hosted by the University of Stellenbosch, concerned with the biology of invasive species, with special emphasis on the impact that invasive species have on southern Africa’s biodiversity, agriculture and eco-tourism.

The Centre of Excellence in Tree Health Biotechnology (CTHB)

www.fabinet.up.ac.za

Centre of Excellence in Tree Health Biotechnology at the Forestry and Agriculture Biotechnology Institute (FABI) is hosted by the University of Pretoria. The primary goal of the CTHB is to promote the health of trees native to South Africa through the application of biotechnology tools.

National Research Facilities

The National Research Facilities provide unique research infrastructure platforms through a multi-location network of institutions. These platforms support research areas of strategic importance and provide researchers and research institutions with access to “big science” equipment. It is through the National Research Facilities that South Africa can compete and cooperate with international counterparts. The National Research Facilities provide the infrastructure required to generate and support internationally competitive research.

The facilities have the mandate to:

- Ensure access to state-of-the-art infrastructure;
- Produce internationally competitive research;
- Coordinate and manage large international projects;
- Provide human resources training in a high-tech environment by providing lectures, student supervision and experiential training in collaboration with higher education institutions (HEIs);
- Use multidisciplinary and multi-institutional programmes as platforms for the training and education of students;
- Develop strong technical competencies to produce high-quality instrumentation and equipment in niche areas;
- Grow scientific and technical collaborations with HEIs locally; and
- Build sustainable international collaborations (particularly in Africa) and enhance the science and technology profile of South Africa internationally.

List of NRF National facilities:

Hartebeesthoek Radio Astronomy Observatory (HartRAO) <http://www.hartrao.ac.za>

iThemba LABS (Laboratory for Accelerator Based Sciences) <http://www.tlabs.ac.za/>

South African Institute for Aquatic Biodiversity (SAIAB) <http://www.saiab.ac.za/about-us.htm>

National Zoological Gardens of South Africa (NZG) <http://www.nzg.ac.za/aboutus/index.php>

South African Environmental Observation Network (SAEON) <http://www.saeon.ac.za/>

Hartebeesthoek Radio Astronomical Observatory <http://www.hartrao.ac.za/summary/sumeng.htm>

The South African Astronomical Observatory (SAAO) <http://www.saa.ac.za/>

Square Kilometre Array (SKA) <http://www.ska.ac.za/qa/index.php>

2.1.2. DEPARTMENT OF TRADE AND INDUSTRY

1. Overview

The DTI's strategic objectives are to:

- Facilitate transformation of the economy to promote industrial development, investment, competitiveness and employment creation;
- Build mutually beneficial regional and global relations to advance South Africa's trade, industrial policy and economic development objectives;
- Facilitate broad-based economic participation through targeted interventions to achieve more inclusive growth;
- Create a fair regulatory environment that enables investment, trade and enterprise development in an equitable and socially responsible manner; and
- Promote a professional, ethical, dynamic, competitive and customer-focused working environment that ensures effective and efficient service delivery.

These five strategic objectives will be achieved through the collective efforts of the dti's internal divisions and its Council of Trade and Industry Institutions (COTII), which are linked through a value chain to generate public value for the country's economic citizens and deliver high-quality products and services to the dti's varied clients and stakeholders. These products and services include policies, legislation and regulations, financial support and investment incentives, information and advisory support, as well as value-added partnerships. The dti also aims to achieve its objectives through the pursuit of a more targeted investment strategy; improved competitiveness of the economy; broadened economic participation of previously disadvantaged individuals (PDIs) into the mainstream economy; and policy coherence.

2. Financial Assistance (Incentives)

The dti provides financial support to qualifying companies in various sectors of the economy. Financial

support is offered for various economic activities, including manufacturing, business competitiveness, export development and market access, as well as foreign direct investment.

12I Tax Allowance

Aquaculture Development and Enhancement Programme (ADEP)

Automotive Investment Scheme (AIS)

Black Industrialists Scheme (BIS)

Business Process Services (BPS)

Capital Projects Feasibility Programme (CPFP)

Cluster Development Programme (CDP)

Critical Infrastructure Programme (CIP)

Clothing and Textile Competitiveness Improvement Programme (CTCIP)

Export Marketing and Investment Assistance (EMIA)

Manufacturing Competitiveness Enhancement Programme (MCEP)

Manufacturing Investment Programme (MIP)

Production Incentive (PI)

Sector-Specific Assistance Scheme (SSAS)

Shared Economic Infrastructure Facility (SEIF)

Support Programme for Industrial Innovation (SPII)

Strategic Partnership Programme (SPP)

3. DTI Innovation Funding Instruments

The DTI has two principal funding instruments aimed to support innovation and commercialisation of technologies in South Africa.

Support Programme for Industrial Innovation (SPII)

www.spii.co.za

IP Creation	Funding	Policy	Support
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The Support Programme for Industrial Innovation (SPII) is designed to promote technology development in South Africa's industry, through the provision of financial assistance for the development of innovative products and/or processes. SPII is focussed specifically on the development phase, which begins at the conclusion of basic research and ends at the point when a pre-production prototype has been produced.

The SPII offers two schemes namely, the:

- SPII Product Process Development (PPD) Scheme; and
- SPII Matching Scheme.

Technology and Human Resources for Industry Programme (THRIP)

<http://thrip.nrf.ac.za/SitePages/Home.aspx>

IP Creation	Funding	Policy	Support
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Technology and Human Resources for Industry Programme (THRIP) is intended to leverage collaborative partnerships between government and industry (working with academia) for research and development in science, engineering and technology on a cost-sharing basis, to produce highly skilled human resources and technology solutions, for improved industry competitiveness. The objective of the programme is to increase the number of people with appropriate skills in the development and management of research-based technology for industry. The objective will be achieved by implementing amongst others:

- Improved knowledge exchange and technology transfer through increased interaction and mobility among researchers in Higher Education Institutions (HEI's) and Science, Engineering, and Technology Institutions (SETIs) as well as technology personnel in industry.
- An increase in investment by industry and government, in research and technology development; and
- Technology transfer and product or process improvement or development, through research

collaboration between enterprises (large and small), HEI's and SETIs.

Agencies of the Department of Trade & Industry

In, regulatory and financial development agencies and institutions in supporting its economic growth, employment and equity ideals, and in delivering products and services to the economic citizens of the addition to its internal capacity, the Department of Trade and Industry (the dti) relies on a group of specialised country.

Through the collective efforts of the dti group, the Department seeks to achieve the following objectives:

- Increase the contribution of small, medium and micro-sized enterprises (SMMEs) to the South African economy, via financial, administrative and other support;
- Ensure the implementation of Broad-Based Black Economic Empowerment (B-BBEE) across all sectors of the economy;
- Increase the levels of foreign direct investment into the country;
- Expand market access opportunities for the exportation of South African goods and services; and
- Contribute towards building skills, technology and infrastructure platforms in the economy, from which enterprises can benefit.

Companies and Intellectual Property Commission (CIPC)

www.cipc.co.za

IP Creation	Funding	Policy	Support
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CIPC was established by the Companies Act, 2008 (Act No. 71 of 2008) as a juristic person to function as an organ of state within the public administration, but as an institution outside the public service.

Main functions of the Commission:

- Registration of Companies, Co-operatives and Intellectual Property Rights (trade marks, patents, designs and copyright) and maintenance thereof;
- Disclosure of Information on its business registers;
- Promotion of education and awareness of Company and Intellectual Property Law;
- Promotion of compliance with relevant legislation;
- Efficient and effective enforcement of relevant legislation;

- Monitoring compliance with and contraventions of financial reporting standards, and making recommendations thereto to Financial Reporting Standards Council (FRSC);
- Licensing of Business rescue practitioners; and
- Report, research and advise Minister on matters of national policy relating to company and intellectual property law.

South African Bureau of Standards (SABS)

www.sabs.co.za

IP Creation	Funding	Policy	Support
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The South African Bureau of Standards (SABS) was established in terms of the Standards Act, 2008 (Act No. 5 of 2008), as amended. The mandate of the SABS in terms of the Act is to be the national institution for the development, promotion and maintenance of standardisation and quality related to commodities and the rendering of related conformity assessment services.

National Metrology Institute of South Africa (NMISA)

<http://www.nmisa.org>

IP Creation	Funding	Policy	Support
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NMISA is responsible for connecting the national measurement system to the international measurement system. The institute also provides reference analysis in the case of measurement disputes and maintains and develops primary methods for chemical analysis to produce and certify reference materials for South Africa, SADC and Africa (AFRIMETS).

South African National Accreditation System (SANAS)

www.sanas.co.za

IP Creation	Funding	Policy	Support
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SANAS is established in terms of Section 3(1) of the Accreditation for Conformity Assessment Calibration and Good Laboratory Practice Act, 2006 (Act No. 19 of 2006). SANAS has its office at the Department of Trade and Industry (the dti) Campus, Sunnyside, Pretoria, South Africa. It is directed and legally represented by a Board of Directors, whose members are appointed by the Minister of Trade and Industry.

1. The objectives of SANAS are to:
2. accredit or monitor for GLP compliance purposes, organisations falling within its scope of activity;
3. promote accreditation as a means of facilitating international trade and enhancing the Republic's economic performance and transformation;
4. promote the competence and equivalence of accredited bodies; and
5. promote the competence and equivalence of GLP compliant policies.

The Board delegates to the CEO of SANAS the responsibility of implementing the SANAS policies and objectives. Approval Committees make decisions concerning the granting and continuation of accreditation and GLP compliance.

National Empowerment Fund (NEF)

<http://www.nefcorp.co.za>

IP Creation	Funding	Policy	Support
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The National Empowerment Fund (NEF) is established by the National Empowerment Fund Act, 1998 (Act No. 105 of 1998). The NEF is a driver and thought leader in promoting and facilitating black economic participation by providing financial and non-financial support to black empowered businesses, and promoting a culture of savings and investment among black people.

The NEF provides business loans from R250 000 to R75 million across all industry sectors, for start-ups, expansion and equity acquisition purposes.

Small Enterprise Finance Agency (SEFA)

<http://www.sefa.org.za>

IP Creation	Funding	Policy	Support
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SEFA provides access to finance to Micro, Small and Medium businesses throughout South Africa by:

- Delivering wholesale and direct lending;
- Providing credit guarantees to Small, Medium and Micro businesses;
- Supporting the institutional strengthening of Financial Intermediaries so that they can be effective in assisting SMMEs;

- Creating strategic partnerships with a range of institutions for sustainable SMMEs development and support;
- Monitoring the effectiveness and impact of our financing, credit guarantee and capacity development activities;
- Developing (through partnerships) innovative finance products, tools and channels to catalyse increased market participation in the provision of affordable finance

Export Credit Insurance Corporation of South Africa SOC Ltd (ECIC)

IP Creation	Funding	Policy	Support
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The Export Credit Insurance Corporation of South Africa promotes trade with countries outside the Republic by providing for the insurance on behalf of the Government of the Republic of contracts in connection with export transactions, investments and loans or similar facilities connected with such transaction, and to provide for matters connected therewith.

The ECIC:

- Is a self-sustained state-owned national export credit agency;
- Is a registered insurer and is subject to the supervision and regulation of the Financial Services Board and other relevant legislation;
- Underwrites bank loans, supplier credits and investments outside South Africa in order to enable South African contractors to win capital goods and services contracts in other countries;
- Is subject to normal income tax at corporate rates;
- Follows normal company policies and procedures in its operations; and
- Conducts its business in a transparent manner, with its annual report made freely available to the public.

National Credit Regulator (NCR)

IP Creation	Funding	Policy	Support
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NCR promotes a fair and non-discriminatory market place for access of consumer credit provides for the general regulation of consumer credit and improved standards of consumer information, promotes black economic empowerment and ownership within the consumer credit industry, prohibits certain unfair credit and credit-marketing practices, promotes responsible credit granting and use, and for that purpose to prohibit reckless credit granting, provides for debt re-organisation in cases of over-indebtedness, regulates credit information, provides for registration of credit bureau, credit providers and debt counselling services, establishes national norms and standards relating to consumer credit, promotes a consistent enforcement framework relating to consumer credit. The National Credit Amendment Act, 2014

(Act 19 of 2014) dissolves the Board as the Accounting Authoring.

2.1.3. DEPARTMENT OF SMALL BUSINESS DEVELOPMENT

Overview

The Department's vision is to achieve radically transformed economy through the effective development and increased participation of SMMEs and cooperatives in the mainstream economy in South Africa. Its mission is to create an environment conducive to the development and growth of small businesses and cooperatives through the provision of enhanced financial and non-financial support services to:

- improve competitiveness
- increase market access
- promotion of entrepreneurship
- advancing localisation and
- leverage public and private procurement

The Department of Small Business Development (DSBD) was established as a standalone national department in accordance with the reorganization of some national departments announced by the President in May 2014. This marked a turning point in history of SMME's and Co-operatives development in South Africa, demonstrating Government's commitment to place SMME's and Co-operatives at the center of economic growth and job creation.

Key Programmes of the DSBD

- **Shared Economic Infrastructure Facility (SEIF):** The SEIF intends to leverage public sector investment that would provide necessary infrastructure by creating an enabling environment for businesses to crowd in investment, mostly in townships, rural areas and the inner city where there is clear business activity taking place. The objective of the programme is to encourage public sector partnerships for the establishment and improvement of the SEIF to support businesses with an intention to improve access, create local economic benefits and optimise the performance of businesses operating in those facilities.
- **Black Business Supplier Development Programme (BBSDP):** The Black Business Supplier Development Programme (BBSDP) is a cost-sharing grant offered to black-owned small enterprises to assist them to improve their competitiveness and sustainability to become part of the mainstream economy and create employment.
- **Co-operative Incentive Scheme:** This provides a 100% grant for registered primary co-operatives (a primary co-operative consists of five or more members). The objective of the CIS is to improve the

viability and competitiveness of co-operative enterprises by lowering their cost of doing business through an incentive that supports Broad-Based Black Economic Empowerment.

- **National Informal Business Upliftment Strategy (NIBUS)** addresses the development void at the lower base of Small, Medium and Micro Enterprise (SMME) Development. The NIBUS seeks to uplift informal businesses and render support to local chambers/business associations and Municipal Local Economic Development offices to deliver and facilitate access to upliftment programmes. The focus will mainly be on designated groups, i.e. women, youth and people with disabilities, in townships and rural areas of South Africa. The strategy specifically targets entrepreneurs in the informal economy. This sector has been identified as critical in addressing the key developmental goals of the Government, namely sustainable livelihoods (poverty), job creation (unemployment) and equality (inequality).

Small Enterprise Development Agency (SEDA)

The Small Enterprise Development Agency (SEDA) is an agency of the Department of Small Business Development. SEDA was established in December 2004, through the National Small Business Amendment Act, Act 29 of 2004 and was transferred from the Department of Trade & Industry to the DSBD. It is mandated to implement government's small business strategy; design and implement a standard and common national delivery network for small enterprise development; and integrate government-funded small enterprise support agencies across all tiers of government.

SEDA's mission is to develop, support and promote small enterprises throughout the country, ensuring their growth and sustainability in co-ordination and partnership with various role players, including global partners, who make international best practices available to local entrepreneurs.

SEDA Technology Programme (stp)

The Seda Technology Programme was created as part of government's national strategy of consolidating and rationalizing small enterprises support interventions across the different government departments and government agencies, within the overall objective of improving the delivery of small business support services to entrepreneurs and small enterprises.

STP Objectives:

- Enhance technological innovation
- Increase accessibility to, and utility of, technologies and technical support for small enterprises
- Facilitate the acquisition, development and transfer of technology to small enterprises, particularly those operating in the second economy
- Improve small enterprise performance and productivity

- Improve small enterprise profitability and growth
- Improve small enterprises competitiveness Reduce small enterprise failure rates

The National Gazelles Programme

The National Gazelles is a national SME growth accelerator funded by Seda and the Department of Small Business Development. Currently (2016) in a three-year pilot, the programme aims to identify and support SMEs with growth potential across 10 priority industry sectors aligned with the National Development Plan and Seda’s SME strategy. SMEs are identified through an annual call for applications, with selection done independently by private and public sector partners.

The programme aims to assist each business to operate as closely as possible to its maximum potential. Growth acceleration support is guided by a detailed business diagnostic and growth strategy, and includes a R1-million growth grant for equipment and capacity-building, facilitated access to finance, productivity and business advice, business skills development and more.

2.1.4. DEPARTMENT OF HIGHER EDUCATION AND TRAINING

The Council on Higher Education (CHE)

<http://www.che.ac.za/>

IP Creation	Funding	Policy	Support
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Overview

The Council on Higher Education (CHE) is an independent statutory body established in May 1998 in terms of the Higher Education Act (Act No 101 of 1997), as amended and it functions as the Quality Council for Higher Education in terms of the National Qualifications Framework Act (Act No 67 Of 2008).

The functions of the CHE include the following:

- To provide advice to the Minister of Higher Education and Training on request or on its own initiative, on all aspects of higher education policy.
- To develop and implement a system of quality assurance for higher education, including programme accreditation, institutional audits, quality promotion and capacity development, standards development and the implementation of the Higher Education Qualifications Sub-Framework (HEQSF).
- To monitor and report on the state of the higher education system, including assessing whether,

how, to what extent and with what consequences the vision, policy goals and objectives for higher education are being realised.

- To contribute to the development of higher education through intellectual engagement with key national and systemic issues, including international trends, producing publications, holding conferences and conducting research to inform and contribute to addressing the short and long-term challenges facing higher education.

The CHE has executive responsibility for quality assurance and promotion and discharges this responsibility through the establishment of a permanent committee (as required by the Higher Education Act), the Higher Education Quality Committee (HEQC).

Public Higher Education Institutions

Cape Peninsula University of Technology	University of Limpopo
Central University of Technology	University of Pretoria
Durban University of Technology	University of Kwa Zulu Natal
Mangosuthu University of Technology	University of Limpopo
Nelson Mandela Metropolitan University	University of Pretoria
North-West University	University of South Africa
Rhodes University	University of Venda
Stellenbosch University	University of Zululand
Tshwane University of Technology	University of the Free State
University of Cape Town	University of the Western Cape
University of Fort Hare	University of the Witwatersrand

University of Johannesburg

Vaal University of Technology

University of Kwa Zulu Natal

Walter Sisulu University

2.1.5. DEPARTMENT OF MINERALS AND RESOURCES

Council for Mineral Technology (Mintek)

www.mintek.co.za

IP Creation

Funding

Policy

Support

Overview

Mintek is South Africa's national mineral research organization and is one of the world's leading technology organizations specializing in mineral processing, extractive metallurgy and related areas. Mintek works closely with industry and other R&D institutions and provides service test work, process development and optimization, consulting and innovative products to clients worldwide. Mintek is a state-owned Science Council which reports to the Minister of Mineral Resources.

Its mandate is to serve the national interest through research, development and technology transfer, to promote mineral technology and to foster the establishment and expansion of industries in the field of minerals and products derived therefrom. The technical programmes at Mintek are aimed at generating high economic returns for the national and regional economies while social programmes focus on skills development and educational initiatives. An important target is the nurturing of self-sustaining local economies in areas of South Africa where smaller minerals extraction and beneficiation enterprises have the capability to generate broad-based employment and wealth.

Areas of activities

Mintek offers a complete range of process development services, from preliminary bench-scale investigations to large-scale piloting and integrated flowsheet development in support of bankable feasibility studies. Engineering design, plant construction and commissioning are carried out in conjunction with international partners. Comprehensive laboratory and piloting facilities for sample preparation, milling, flotation, physical separation, smelting, leaching, pressure leaching, and metal recovery and purification are supported by internationally accredited analytical laboratory and mineralogical services. Mintek's activities include:

- providing essential services (information, consulting and experimental);
- increasing the competitiveness of industry by developing appropriate technology to cut costs and improve recoveries;
- developing “breakthrough” process technologies and novel uses for metals and their products;
- marketing its commercial products and technologies to industry;
- establishing strategic partnerships and joint ventures;
- participating in regional development initiatives and Southern African Development Community activities and projects;
- maintaining and expanding international scientific links; and,
- developing the human resources potential of the region through educational and training activities.

Council for Geosciences (CGS)

<http://www.geoscience.org.za/>



Overview

The Council for Geoscience (CGS) is one of the National Science Councils of South Africa and is the legal successor of the Geological Survey of South Africa, which was formed in 1912 by the amalgamation of 3 former Surveys, the oldest of which - the Geological Commission of the Cape of Good Hope - was founded in 1895. The Geoscience Act, Act 100 of 1993, established the CGS in its present form. The Act was later amended in 2010 to establish the Geoscience Amendment Act (Act No. 16 of 2010).

As a scientific research council, the CGS is mandated to provide for the promotion of research and the extension of knowledge in the field of geoscience as well as the provision of specialised geoscientific services. Today, the Council is a modern institution, boasting excellent facilities and expertise, ranking among the best in Africa.

The CGS provides the following substantially different professional services:

- Geophysical Airborne and Ground Surveys,
- Geophysical data acquisition, processing and interpretation (Airborne and Ground),
- Engineering Geosciences (including Geotechnical Services),

- Mineral Resources Development including Mining and Minerals Services,
- Water Geoscience/Hydrological Services,
- Environmental Management and Rehabilitation,
- Marine Geology including Port Surveys,
- Spatial Data and GIS Services; and
- Regional Geological Surveys and Map compilations including Core Drilling Services

As the custodian of South Africa's geoscience data, the Council for Geoscience has regional aeromagnetic, radiometric and gravity coverage of the country. The Council for Geoscience is involved in collaborative research projects that form part of its annual programme.

Scientific Operations

[Engineering Geoscience & Geohazards](#)

[Environmental and Water](#)

[Minerals Development](#)

[Geoscience Mapping](#)

2.1.6. DEPARTMENT OF ENERGY

Overview

The Minister of Energy has oversight responsibilities over the following five (5) State Owned Entities (SOE) and their subsidiaries which are either classified as schedule 2 or 3 in the PFMA. The enabling legislation requires the Minister to appoint members of the boards of all state-owned entities reporting to the Minister of Energy. All board members, with the exclusion of CEOs, are non-executive. The Department is represented on all of these boards, with the exception of NERSA (the independent energy regulator). Boards are ultimately accountable and responsible for the performance of the entities. They give strategic directions to the entity in line with the mandate and this is in turn implemented by management.

1. South African Nuclear Energy Corporation (NECSA)
2. South African National Energy Development Institute (SANEDI)
3. National Nuclear Regulator (NNR)
4. National Energy Regulator (NERSA)

5. Central Energy Fund

6. Petroleum Oil and Gas Corporation of South Africa (SOC) Limited (PetroSA)

South African Nuclear Energy Corporation (NECSA)

www.necsa.co.za

IP Creation	Funding	Policy	Support
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Necsa is a state-owned company, established in terms of Section 13 of the Nuclear Energy Act, No. 46 of 1999. It is responsible for undertaking and promoting R&D in the field of nuclear energy and radiation sciences. It is also responsible for processing source material, including uranium enrichment, and co-operating with other institutions, locally and abroad, on nuclear and related matters. Apart from its main activities at Pelindaba, which include operation and utilisation of the SAFARI-1 research reactor, Necsa also manages and operates the Vaalputs National Radioactive Waste Disposal Facility in the Northern Cape on behalf of the National Radioactive Waste Disposal Institute (NRWDI).

Necsa engages in commercial business mainly through its wholly-owned commercial subsidiaries NTP Radioisotopes SOC Ltd (NTP), which is responsible for a range of radiation-based products and services for healthcare, life sciences and industry, and Pelchem SOC Ltd (Pelchem), which supplies fluorine and fluorine-based products. Both subsidiaries, together with their subsidiaries, supply local and foreign markets, earning valuable foreign exchange for South Africa. In addition to the above, the Company promotes the public understanding of nuclear science and technology and facilitates regular communication with the public and its stakeholders.

South African National Energy Development Institute (SANEDI)

<http://www.sanedi.org.za/>

IP Creation	Funding	Policy	Support
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The South African National Energy Development Institute (SANEDI) is a Schedule 3A state-owned entity that was established as a successor to the previously created South African National Energy Research Institute (SANERI) and the National Energy Efficiency Agency (NEEA). The main function of SANEDI is to direct, monitor and conduct applied energy research and development, demonstration and deployment as well to undertake specific measures to promote the uptake of Green Energy and Energy Efficiency in South Africa.

Its key focus areas include:

1. Advanced Fossil Fuels
2. Clean Energy Solutions
3. Energy Efficiency
4. Green Transport Programme
5. Smart Grids Energy Data and Knowledge Management
6. Working for Energy Programme

2.1.7. DEPARTMENT OF AGRICULTURE, FORESTRY AND FISHERIES

<http://www.daff.gov.za/>

The Department of Agriculture, Forestry and Fisheries strives towards a united and prosperous agricultural sector, with the aim of supporting sustainable agricultural development.

Agricultural Research Council (ARC)

<http://www.arc.agric.za>

IP Creation	Funding	Policy	Support
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Overview

The ARC was established by the Agricultural Research Act 86 of 1990 (as amended by Act 27 of 2001) and is the principal agricultural research institution in South Africa. It is a schedule 3A public entity in terms of the Public Finance Management Act 1 of 1999, (as amended by Act 29 of 1999).

Its core mandate as defined in the Act is to act as the principal agricultural research institution in South Africa so as to conduct research, drive research and development, drive technology development and the transfer (dissemination) of information in order to:

- Promote agriculture & industry
- Contribute to better quality of life
- Facilitate/ensure natural resource conservation
- Alleviate poverty

This function is carried out through 11 research institutes whose activities are grouped under five divisions: Field Crops (Grain and Industrial Crops), Horticulture, Animal Production and Health, Natural Resources

and Engineering as well as Technology Transfer. The ARC is also responsible for maintaining national assets and undertaking programmes or rendering services that are required from time to time by the department and other stakeholders.

Biosafety

<http://www.biosafety.org.za/>

IP Creation	Funding	Policy	Support
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The South African regulatory framework for use of genetically modified organisms includes the GMO Act, 1997 and GMO Amendment Act, 2006. This act is administered by the Directorate: Biosafety at the National Department of Agriculture and the Registrar handles all administration and permit applications.

The objectives of the GMO Act are to:

- Establish regulation to enhance the responsible development, production, use and application of GMOs in such a way that any possible harmful consequences to the environment are limited.
- Make provisions for the determination of requirements and criteria for risks analysis that will ensure that the GMOs are appropriate and do not pose a hazard to the environment, human or animal health.

In accordance with the regulations of the GMO Act, permits must be issued by the Registrar before the following activities can take place:

- Registration of facilities for GMO use
- Contained use of GMOs
- Trial releases of GMOs into the environment
- Commercial releases (commercial/ general releases)
- Commodity clearance
- Commodity imports and exports
- Imports and exports of Living Modified Organisms (LMOs) for contained use, trial release or general releases
- Use of imported GMOs as food, feed or for processing in South Africa

Onderstepoort Biological Products

<http://www.obpvaccines.co.za/about-us/history>

IP Creation	Funding	Policy	Support
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Onderstepoort Biological Products has a simple and overriding corporate mission:

- to harness science to help build a healthier and more commercially successful agricultural livestock population. Within the framework of that strategy it has two chief roles: To produce quality vaccines for the prevention and treatment of livestock diseases.
- To exploit and develop ongoing research into the production of new and advanced vaccines for the benefit of agriculture here and abroad.

2.1.8. DEPARTMENT OF ENVIRONMENTAL AFFAIRS

<https://www.environment.gov.za/>

IP Creation	Funding	Policy	Support
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Overview

The Department of Environmental Affairs is mandated to ensure the protection of the environment and conservation of natural resources, balanced with sustainable development and the equitable distribution of the benefits derived from natural resources. In its quest for better use and management of the natural environment, the Department of Environmental Affairs is guided by its constitutional mandate, as contained in section 24 of the Constitution. The Department of Environmental Affairs fulfils its mandate through formulating, coordinating and monitoring the implementation of national environmental policies, programmes and legislation.

Statutory bodies

The work of the department is also supported by the following statutory bodies:

South African Weather Service (SAWS): The South African Weather Service (SAWS) was established in accordance with the South African Weather Service Act (Act No 8 of 2001). Its mandate is gazetted in the act. In terms of its vision statement, the SAWS is striving “to be the foremost provider of relevant services in respect of weather, climate and related products, which contribute to sustainable development in South Africa and the African continent”.

South African National Parks (SANParks): South African National Parks (SANParks) was established in terms of the National Environmental Management: Protected Areas Act, 2003 (Act No 57 of 2003). In terms of this act, the primary mandate of SANParks is to oversee the conservation of South Africa’s biodiversity, landscapes and associated heritage assets through a system of national parks.

iSimangaliso Wetland Park: In December 1999 the iSimangaliso Wetland Park was inscribed as South Africa's first world heritage site as an area of exceptional and outstanding universal heritage significance. The natural values in terms of which the iSimangaliso Wetland Park was inscribed on the World Heritage List include outstanding examples of ecological processes, superlative natural phenomena and scenic beauty, and exceptional biodiversity and threatened species. The iSimangaliso Wetland Park has thus received recognition under three of four natural criteria recognised by the World Heritage Convention.

South Africa Biodiversity Institute (SANBI)

<http://www.sanbi.org/>

IP Creation	Funding	Policy	Support
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Overview

The South African National Biodiversity Institute was established on 1 September 2004 through the signing into force of the National Environmental Management: Biodiversity Act 10 of 2004.

The Act expanded the mandate of SANBI's forerunner, the National Botanical Institute to include responsibilities relating to the full diversity of South Africa's fauna and flora, and built on the internationally respected programmes in conservation, research, education and visitor services developed over the past century by the National Botanical Institute.

Botanical Gardens

The 9 national botanical gardens - Free State, Hantam, Harold Porter, Karoo Desert, Kirstenbosch, Lowveld, KwaZulu-Natal, Pretoria and Walter Sisulu - are located in 6 of South Africa's 9 provinces. Together they conserve over 7,500 ha of natural vegetation and associated biodiversity within their boundaries.

BIOPROSPECTING

IP Creation	Funding	Policy	Support
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The National Environmental Management: Biodiversity Act No. 10 of 2004 was passed in September 2004. Chapter 6 of the Act provides for bioprospecting, access and benefit sharing the establishment of a Bioprospecting Trust Fund into which all moneys arising from material transfer and benefit-sharing agreements must be paid.

What is "bioprospecting"?

Bioprospecting is defined as any research on, or development or application of indigenous biological resources for commercial or industrial exploitation and includes:

- the systematic search, collection or gathering of indigenous biological resources or making extractions from indigenous biological resources;
- the utilization of any information regarding any traditional uses of indigenous biological resources by indigenous communities; and
- research on, or the application, development or modification of such traditional uses for commercial exploitation.

Permits

Persons wishing to engage in bioprospecting or export indigenous biological resources for the purpose of bioprospecting are required to obtain a permit in terms of Chapter 7 of the Biodiversity Act. The applicant must:

- disclose all information relating to the proposed bioprospecting to the Department of Environmental Affairs and Tourism; and
- enter into certain agreements and arrangements with “stakeholders” that have an interest in the project. A “stakeholder” may be a person, including an organ of state or a community that provides access to biological resources, or whose traditional uses or knowledge of indigenous biological resources contribute to or form part of a bioprospecting project. The applicant must have:
 - disclosed all material information relating to the bioprospecting to the stakeholder and obtained prior consent from the stakeholder to use information derived from them;
 - entered into a benefit-sharing agreement which provides for sharing by the stakeholder in any future benefits that may be derived from the bioprospecting and where necessary a material transfer agreement with the stakeholder that regulates the access to the biological resources.

The Act distinguishes between procedures to obtain indigenous biological resources; and those to obtain traditional knowledge about the indigenous biological resources.

For indigenous biological resources, a material transfer agreement and benefit sharing agreement are required between the applicant and a person, or organ of state or community providing access prior to permit issuance.

For traditional uses/ knowledge, a benefit-sharing agreement is required between the applicant and the indigenous community which is the holder of the traditional knowledge prior to permit issuance.

Bioprospecting is divided into two phases:

- The Discovery Phase: early stage research involving biodiversity

A Bioprospecting Discovery Phase Notification Form needs to be submitted to the Department of Environmental Affairs.

- The Commercialisation Phase: which includes filing of IP rights, clinical trials, market research, etc.

A Bioprospecting Permit Application needs to be submitted to the Department of Environmental Affairs, identifying all stakeholders involved in giving access to the Indigenous Biodiversity, as well as any Traditional Knowledge holders.

2.1.9. DEPARTMENT OF HEALTH

The vision of the Department is to have all South Africans have a long and healthy life. Their mission is to improve health status through the prevention of illnesses and the promotion of healthy lifestyles and to consistently improve the healthcare delivery system by focusing on access, equity, efficiency, quality and sustainability.

Medical Research Council (MRC)

<http://www.mrc.ac.za/>



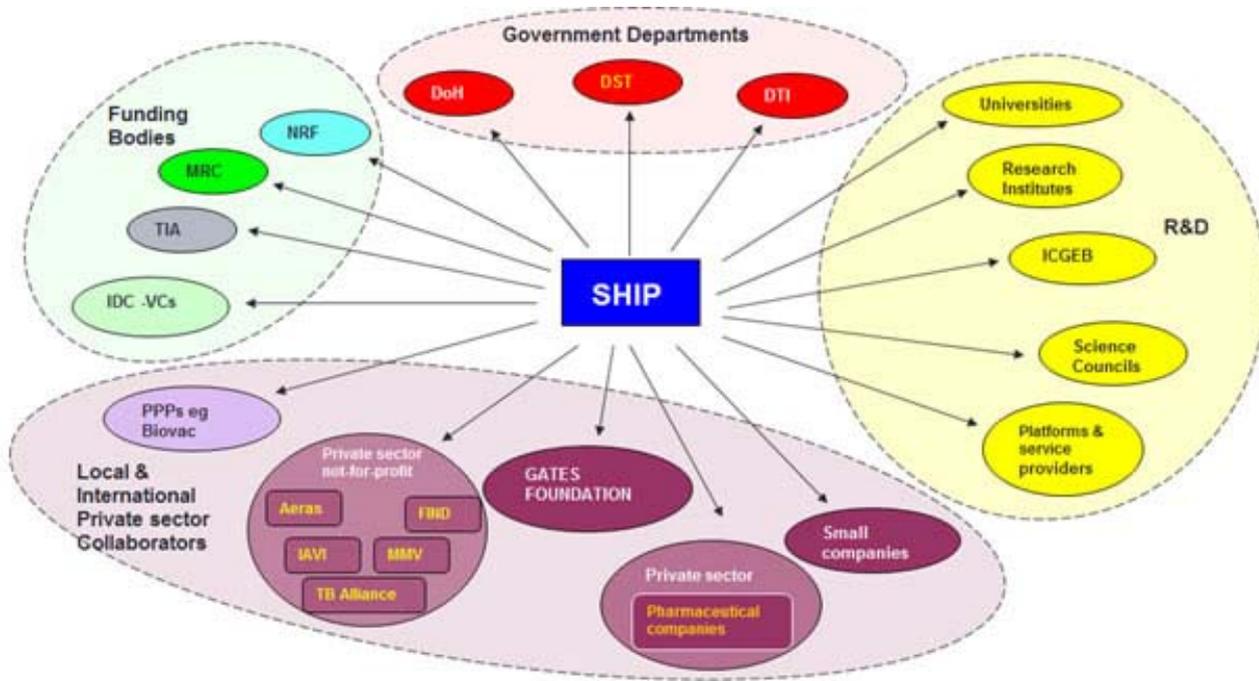
Overview

The mandate of the Medical Research Council (MRC) is to promote the improvement of health and the quality of life of the South African population through research, development and technology transfer. This is achieved through the different intramural and extramural research units, research centres, and the fairly new Strategic Health Innovation Partnerships (SHIP) programme. Intramural research activities are carried out by scientists at the MRC campuses; whereas extramural activities are carried out by scientists based at tertiary institutions, and they conduct research on behalf of the MRC. The council has research centres for cancer, malaria and HIV/ TB that are headed by field experts and they are set-up at tertiary institutions. The SHIP programme is new and seeks to address the need for new or improved drugs, diagnostics, vaccines, devices, prevention strategies and treatments to address major priority health problems in South Africa. The programme aims to achieve this by funding multi-disciplinary, multi-institutional product research, development and innovation projects from discovery in the laboratory to maturing products to the marketplace. They aim to achieve this by funding projects through different stages from discovery to proof of concept, with the ultimate goal of transferring research outputs to improved health outcomes and/ or social benefit.

SHIP wants to leverage local and international funding by acting as a central conduit for foreign institutions

seeking to partner with South African research agencies as illustrated in the figure below.

How Ship fits into The Innovation Landscape⁴⁹



Drug Discovery Value Chain in South Africa

National Health Laboratory Services (NHLS)

www.nhls.ac.za

49 Source: MRC 2017, <http://innovation.mrc.ac.za/innovation.htm>

IP Creation	Funding	Policy	Support
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The National Health Laboratory Service (NHLS) is the largest diagnostic pathology service in South Africa with the responsibility of supporting the national and provincial health departments in the delivery of healthcare. They have over 300 laboratories situated in provincial and district hospitals in large metropolitan centres and remote rural areas as well as in the teaching hospitals of university medical schools. The NHLS provides laboratory and related public health services to over 80% of the South African population through a national network of the laboratories.

In addition, the NHLS plays a major role in epidemiology, surveillance, treatment monitoring and outbreak response activities through the National Institute for Communicable Diseases (NICD), National Institute for Occupational Health (NIOH), National Cancer Registry (NCR) and South African Vaccine Producers (SAVP).

National Institute for Communicable Diseases (NICD)

<http://www.nicd.ac.za>

IP Creation	Funding	Policy	Support
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The NICD gathers intelligence on communicable diseases and provides expertise to southern African regions regarding outbreak and communicable disease burdens, such as respiratory, diarrhoeal diseases, meningitis, HIV/AIDS, tuberculosis and malaria. The NICD undertakes research focused on questions related to communicable diseases in southern Africa and aims to build more capacity in this field

National Institute for Occupational Health (NIOH)

www.nioh.ac.za

The NIOH provides services which include giving advice on establishing occupational health services at provincial, district and enterprise levels; surveillance of occupational diseases and indicators of occupational health practice; serving on technical committees, and consultations with individuals and enterprises on hazard control and monitoring of workers. The NIOH provides cost effective occupational health services to national and provincial government departments as well as support for occupational health and safety inside the NHLS. This support work has included advice to regulatory authorities, employers, unions and individual employees.

National Cancer Registry

The NCR is a surveillance unit whose major function is to collate and analyse newly diagnosed cancer cases and report annual cancer incidence rates. The unit plays a vital role in maintaining and developing national and international awareness of the enormous and growing problem of cancer in the South African

population.

South African Vaccine Producers

www.savp.co.za

South African Vaccine Producers is a subsidiary of the NHLS, and a producer of equine antivenoms for the treatment of bites from 11 of the most medically important snakes prevalent in southern and other parts of Africa, as well as for spider bites and scorpion stings.

2.1.10. DEPARTMENT OF WATER AND SANITATION

<http://www.dws.gov.za/>

The Department of Water and Sanitation is the custodian of South Africa's water resources. It is primarily responsible for the formulation and implementation of policy governing this sector. While striving to ensure that all South Africans gain access to clean water and dignified sanitation, the department also promotes effective and efficient water resources management to ensure sustainable economic and social development.

Water Research Commission (WRC)

www.wrc.org.za



Overview

The WRC was established in terms of the Water Research Act (Act No 34 of 1971), following a period of serious water shortage. It was deemed to be of national importance to generate new knowledge and to promote the country's water research purposefully, owing to the view held that water would be one of South Africa's most limiting factors in the 21st century. In 1971 when the WRC was founded, water research and development (R&D) in South Africa was limited to a few institutions and the funding level inadequate. There was no research co-ordination and an apparent neglect of some key research fields. In addition, there was little strategic direction or leadership that would provide for the identification of priority areas or appropriate technology transfer. It was to address these issues, that the WRC was established.

Currently, South Africa is still under threat of a lack of sufficient water, while water quality and availability issues are becoming more acute. However, the country is much better prepared to deal with this problem owing to the WRC's meaningful contribution to the development of the capacity of the water sector, the

broadening of the country's water-centred R&D base, and the WRC's continued commitment to direct and fund research on critical issues.

In the future (short- to long-term), it is envisaged that South Africa's water problems may intensify. Issues such as water for all, quality of life, and a sustainable environment are an essential part of the country's national priorities and require considerable attention. In addition, implementation of the National Water Act of 1998 and the related national water strategy places considerable demand on water management and calls for research support. The role of South Africa in SADC and NEPAD (New Partnership for Africa's Development), especially with regard to water resource and water supply and sanitation issues, poses new challenges and requires new initiatives which are within the mandate of the WRC.

The mandate of WRC includes:

- Promoting co-ordination, co-operation and communication in the area of water research and development
- Establishing water research needs and priorities
- Stimulating and funding water research according to priority
- Promoting effective transfer of information and technology
- Enhancing knowledge and capacity-building within the water sector.
- The strategic direction of the WRC is focused on:
 - An integrated approach to meeting South Africa's societal and water-sector R&D needs
 - Provision of integrated solutions to invariably complex, inter-disciplinary problems
 - Ongoing strategic identification of needs (short, medium and long-term needs, both explicit and implicit)
 - Investment in knowledge creation, transfer and dissemination in a set of 5 Key Strategic Areas (KSAs).

Key Strategic Areas (KSA's)

The WRC has five key strategic areas (KSAs) which relate to water-centred knowledge, each providing an integrating framework for investment in addressing a portfolio of key water-related needs. These KSAs allow for multidisciplinary studies and are focused on solving problems related to national needs and supporting society and the water sector. While each of the KSAs is unique and mutually exclusive (minimal overlaps), they collectively attempt to cover the complete spectrum of water-related topics of strategic importance.

A crucial characteristic of a KSA is its modus operandi. In order to function effectively, each of the KSAs

is aligned with the WRC’s mission and vision and has a clear business plan. Each forms an impact area in which outputs and impacts of research are also assessed.

Each KSA addresses a distinct research portfolio. This consists of a portfolio of key thrusts with each thrust containing a portfolio of programmes. Programmes are either built around a portfolio of existing projects or may be designed in advance as an investment unit. Each of the KSAs provides for pilot or seed investigations, R&D projects/programmes and capacity-building initiatives. The KSAs also aim to support technology transfer, commercialisation and pilot implementation projects as well as other knowledge dissemination drives. Of the five key KSAs, four are water-centred and address investment focused mainly on knowledge creation, while the 5th addresses mainly knowledge dissemination and information management.

Funding

The Water Research Act makes provision for a Water Research Fund, which derives its income mainly from levies on water made available for various uses. Diversification of income sources is gaining momentum, with the main other source being income derived from research fund management on behalf of specific sponsors and donors.

The WRC’s investment in research and development (R&D) is mainly through research projects and programmes in the solicited and non-solicited categories. Research proposals are invited on an annual basis in these two categories only, in accordance with the WRC’s annual funding cycle.

2.1.11. TREASURY

SEC. 11D - Tax Incentive Scheme for R&D Conducted by Firms

<http://www.dst.gov.za/index.php/services/the-rad-tax-incentives-programme>

IP Creation	Funding	Policy	Support
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Overview

The Research and Development Tax Incentives Programme encourages private sector investment in research and development activities. Therefore, the R&D Tax Incentives are an indirect approach to increasing national R&D expenditure and complement government’s expenditure on R&D activities.

Process for claiming R&D Incentives

To claim the R&D Tax Incentive, the taxpayer is required to complete and submit two forms, one to the DST

and the other to South African Revenue Service (SARS):

1. Complete and submit the R&D Tax Incentives Form to the DST.
2. Complete the relevant entries in the Income Tax Return Forms as prescribed by SARS. This is submitted during the normal income tax return process.

The R&D tax incentive is administered by DST, in conjunction with SARS and the National Treasury, as follows:

- DST is responsible for promoting the R&D Tax Incentives programme and provides general advice to both government and private companies on strategic and operational issues of the programme. It is required to assess and validate the claims against scientific and technological R&D and advise SARS on the eligibility of activities included in the claim. In this regard DST may visit taxpayers to assess the validity of their claims.
- DST also has a responsibility to report annually to Parliament regarding the performance and impact of the R&D tax incentive programme.
- SARS is the government agency that administers the Income Tax Act. SARS administers the R&D Tax Incentives through the taxation system. Taxpayers claiming the R&D Tax Incentives do so by completing the relevant entries on their income tax return.
- A further responsibility on the functioning of the R&D Tax Incentives involves the National Treasury, with respect to the tax policy.
- There are strict confidentiality requirements applicable to handling all matters in connection with information provided by taxpayers for purposes of R&D Tax Incentives. All officials involved in the administration of the programme are required to take an oath of secrecy.

2.1.12. DEPARTMENT OF ECONOMIC DEVELOPMENT

Overview

The Minister of Economic Development is responsible for coordinating the development of the country's New Growth Path and overseeing the work of key state entities engaged in economic development.

Soon after the ministry was set up, work was done to bring the new department into being. The Economic Development Department (EDD) is a new department formed after the 2009 elections. It was set up to strengthen government capacity to implement the electoral mandate in particular in relation to the transformation of the economy. The transformation of the economy requires a pro-employment growth path that addresses the structural constraints to absorbing large numbers of people into the economy and the creation of decent work.

The following entities report to the Department:

- The Industrial Development Corporation (IDC) is a self-financing, state-owned national development finance institution that provides financing to entrepreneurs and businesses engaged in competitive industries.
- The Competition Commission is a statutory body constituted in terms of the Competition Act, No 89 of 1998 by the Government of South Africa empowered to investigate, control and evaluate restrictive business practices, abuse of dominant positions and mergers in order to achieve equity and efficiency in the South African economy.
- The Competition Tribunal has jurisdiction throughout South Africa and adjudicates competition matters in accordance with the Competition Act (Act 89 of 1998). While the Commission is the investigation and enforcement agency, the Tribunal is the adjudicative body, very much like a court.
- Small Enterprise Finance Agency (SOF) Ltd commonly known as Sefa was established on 1st April 2012 as a result of the merger of South African Micro Apex Fund, Khula Enterprise Finance Ltd and the small business activities of IDC. The mandate of Sefa is to foster the establishment, survival and growth of SMMEs and contribute towards poverty alleviation and job creation. Sefa has a regional footprint of 9 offices around the country.
- The International Trade Administration Commission (ITAC), of South Africa, was established through an Act of Parliament in June 2003. The aim of ITAC, as stated in the International Trade Administration Act 71 of 2002, is to foster economic growth and development in order to raise incomes and promote investment and employment in South Africa and within the Common Customs Union Area by establishing an efficient and effective system for the administration of international trade.

National Youth Development Agency (NYDA)

<http://www.nyda.gov.za>

IP Creation	Funding	Policy	Support
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Overview

The NYDA is a South African-based agency, established primarily to tackle challenges that the nation's youth are faced with. The NYDA was established by the NYDA Act, 2008 (Act 54 of 2008). The existence of the NYDA should be viewed within the broad context of South Africa's development dynamics. Similar to many developing countries, South Africa has a large population of youth, between the ages 14 - 35, representing 41,2% of the total population. Given the youthful nature of the South African Population, much of the socio-economic challenges faced by the nation, i.e. poverty, inequality, joblessness and poor health are borne by the youth.

The gravity of challenges South Africa faces require multipronged efforts, which simultaneously promote

the development of sustainable livelihoods, reduce poverty and inequality, and prioritise the development of policies which create an enabling environment for youth development. The NYDA plays a leading role in ensuring that all major stakeholders, i.e. Government, the private sector and civil society, prioritise youth development and contribute towards identifying and implementing lasting solutions that address youth development challenges.

Furthermore, the NYDA designs and implements programmes aimed at improving the lives of the youth and the opportunities available to them.

At an individual level (microlevel), the NYDA provides direct services to youth in the form of information, career guidance services, mentorship, skills development and training, entrepreneurial development and support, loan funding, health awareness programmes and involvement in sport.

At a community level (mesolevel), the NYDA encourages young people to be catalysts for change in their communities through involvement in community development activities, social cohesion activities, NYS programmes and dialogue.

At a provincial and national level (macrolevel), the NYDA facilitates the participation of youth in the development of key policy inputs into shaping the socio-economic landscape of South Africa, by means of its policy development, partnerships and research programmes.

2.2. NON-GOVERNMENT ORGANISATIONS (NGO'S)

Universities South Africa

IP Creation	Funding	Policy	Support
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Universities South Africa, formerly known as Higher Education South Africa (HESA), is a membership organisation representing South Africa's universities. It was launched in 2015 in order to reposition the organisation as a representative body of South Africa's public universities. It aims to promote a more inclusive, responsive and equitable national system of higher education.

Committee of Heads of Organisations of Research and Technology (COHORT)

IP Creation	Funding	Policy	Support
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The COHORT comprises a number of science councils and statutory bodies responsible for research, development and innovation and serves as a forum to discuss issues of research that informs policy development in the country, initiating and developing innovations, and technologies aimed at improving the standard of living for South Africans.

The Southern African Research and Innovation Management Association (SARIMA)

www.sarima.co.za

IP Creation	Funding	Policy	Support
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Overview

- Professional development and capacity building of those involved in managing research and/or innovation.
- Promotion of best practice in the management, administration and support of research and innovation to create value for education, public benefit and economic development.
- Creation of awareness in academic and public forums of the value of a stronger research and innovation system and the contribution it can make to economic and social development.
- Advocacy of appropriate national and institutional policy in support of research and innovation and participation in the development and testing of policy.
- Taking the lead in research and innovation management improvement within Southern Africa, incorporating guidelines for the various components of the research and innovation cycle.
- Advancement of science, technology and innovation, including addressing the asymmetries in access to, and diffusion of, knowledge between, North and, South'.

SARIMA operates at an institutional, national and international level, as well as across the research and innovation value chain, from research management to intellectual property management and the commercialization of research output. SARIMA interacts, liaises and forms strategic alliances and partnerships with other organizations as required.

South African Technology Network (SATN)

IP Creation	Funding	Policy	Support
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The South African Technology Network is a coalition between five of the South African Universities of Technology also known as SATN, the network was founded in 2005 and was established with the main goal of providing for a network to ensure the continuation of the process of cooperation, collaboration, support and joint activities such as joint curriculum development, applied research, quality assurance, cooperative education etc. within the Universities of Technology (UoTs) in the Republic of South Africa

National Science And Technology Forum (NSTF)

IP Creation	Funding	Policy	Support
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Overview

The NSTF is a broadly representative umbrella stakeholder body for organisations with an interest in science, engineering and technology (SET) and innovation. The NSTF is the largest, most long-standing and most representative stakeholder body of its kind. It represents more than 100 organisations, councils and institutions nationally and spans both the private and public sectors. The NSTF consists of a formidable gathering of expertise and experience. Individual representatives of member organisations include:

- Researchers and scientists (in various disciplines)
- Engineers (in all branches of engineering)
- Entrepreneurs and business people
- Technologists and technicians
- Administrators
- Academics and educators

NSTF activities include:

Discussion Forums raise awareness and engage with issues of public SET and innovation-related policies. Approximately four gatherings are held per year and are attended by 20–70 participants each.

The Newsletter focuses on SET and innovation-related public policies, events and other news in South Africa, in addition to news specific to NSTF. Information is taken from a wide variety of sources to give readers a monthly overview of the landscape. A monthly policy brief is included, where a public policy document is summarised and commented on. The newsletter provides more than more than 400 relevant website links over the course of the year. These links are also posted on the NSTF News section of the website, which is updated with news approximately twice weekly. The NSTF Newsletter is sent on average to approximately 7 500 individuals. Overall, almost 175 000 hits were made on the three different NSTF websites, attributable mainly to traffic generated by the e-News.

The NSTF Annual Awards honour our main sponsor of several years, the Awards are now known as the NSTF-South32 Awards. Organising the Awards includes all the arrangements, publicity and fundraising, as well as the adjudication process and associated youth outreach projects. Currently 14–15 awards are made annually. The NSTF Awards honour and celebrate a variety of outstanding contributions to SET and innovation.

Youth outreach

The Share 'n Dare Programme creates more than 20 platforms in seven provinces reaching over 3 500 individuals per year for the Award winners to address youth and the public. This occurs at high schools, science centres and universities, as well as through community or national radio stations and public talks at science cafes.

The Brilliants Programme recognises, inspires and assists 18 top physical science and maths matriculants per year who are in their first year at university. Some of these first-year students are awarded bursaries or helped to access bursaries. The initiative has been running since 2003.

Bursary information: The bursary section of the NSTF website keeps learners and students updated with available science and engineering-related bursaries, including career information. In addition, youth and professionals are profiled online as role models.

Southern African Innovation Network (SAINe)

www.saine.co.za

IP Creation	Funding	Policy	Support
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Overview

The South African Innovation Network (SAINe) is a non-profit network providing a neutral platform for activating the multi-helix principle in Southern Africa where government, academia, industry and society come together and collaborate to find new solutions, innovate and generate value. SAINe works to enhance and promote the innovation climate in South Africa. The main aim of the activities associated with the South African Innovation Network is to remedy the current lack of reliable data on innovation related topics as well as contribute to information on progress made in South Africa on innovation. It will also serve as a national resource, providing information on upcoming and ongoing innovation activities as well as assisting with local and international benchmarking.

South African Nanotechnology Initiative (SANi)

http://www.sani.org.za/about_us.php

IP Creation	Funding	Policy	Support
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Overview

South African Nanotechnology Initiative (SANi) is organised network of academics, researchers and engineers from universities, the private sector and research councils with the common goal of involving South Africa in the emerging field of Nanotechnology and Nanoscience. A number of universities, science councils and industrial companies have been active in nanotechnology for some time. Focus areas have typically been membranes, synthesis of nanoparticles for medicine, solar cells and cosmetics, catalysts and surface hardening.

At some universities, there are already strong links to industrial companies. With a recent call for expressions of interest by the European Commission, these parties have gathered to form the South African Nanotechnology initiative (SANi).

Institutions involved in the above activities:

- Universities: Wits, UWC, UCT, Unizulu, UNIN, Potch, UN, TWR, RAU, SUN, Uniqwa
- Research organizations: CSIR, Mintek, NECSA, iThemba, Water Research Commission
- Private sector: SASOL, ESKOM, DENEL, De Beers, Anglo Gold, Harmony Gold Mine, Goldfields, Prime Products Manufacturing, Plascon, Dulux and SAPI.

SANi objectives:

To establish critical mass in nanotechnology R&D in South Africa for the benefit of all its citizens and hopes to achieve the following outcomes:

- Increased Industry involvement and identified opportunities;
- Improved industry – R&D organisation - university links;
- Larger local and international networks;
- Increased R&D spending in nanotechnology; and
- Projects that generate benefits for South Africa.

SCIENCE PARKS

THE INNOVATION HUB

<http://www.theinnovationhub.com>

IP Creation	Funding	Policy	Support
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Overview

The Innovation Hub Open Innovation Solution Exchange is a pilot project of The Innovation Hub Management Company (TIHMC) a subsidiary company of the Gauteng Growth and Development Agency (GGDA), who reports to the Gauteng Department of Economic Development (GDED). The Solution Exchange is a web-based platform that will connect innovators, inventors and solution providers with solution seekers in government and the private sector, whilst ensuring the protection of intellectual property on both sides. The platform builds on the expertise and experience of a proven Open Innovation mediation model to deliver value to innovators and customers.

The Innovation Hub Open Innovation Solution Exchange seeks to position The Innovation Hub and Gauteng City Region as an innovation thought leader within the global knowledge economy and provide a tangible expression to The Innovation Hub's vision:

2.3. Private Sector

Industry Associations

The organizations listed in this section are membership driven bodies that offer expertise and in some cases advice, training and support in selected fields. Through membership of such professional bodies, innovators can usually acquire knowledge of the latest developments in the relevant subject areas.

South African Institute of Intellectual Property Law (SAIIPL)

<http://www.saiipl.org.za/>

IP Creation	Funding	Policy	Support
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Overview

The South African Institute of Intellectual Property Law was established in 1952 and represents some 164 patent attorneys, patent agents and trade mark practitioners in South Africa who specialise in the field of Intellectual Property Law.

Intellectual Property Law embraces the law relating to patents, trade marks, registered designs, copyright and unlawful competition (passing-off of trade secrets). It also includes litigation, licensing and franchising

The members of the SAIPL represent the majority of national and international businesses who have built their businesses on brands, innovation and technology, and who protect their interests through South Africa's intellectual property laws. Members of the SAIPL also represent the interests of their individual firms and clients at a number of local and international organisations such as the World Intellectual Property Organization (WIPO), etc.

Licensing Executives Society International (LESI)

<http://www.lesi.org/index>

IP Creation	Funding	Policy	Support
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Overview

The Licensing Executives Society International (LESI) is the foremost organization in the field of technology licensing. The LESI is unique among all professional associations in that it does not focus solely on the legal aspects of intellectual property, but rather on providing worldwide training and educational programmes directed towards powering the intellectual capital engine of the global knowledge economy.

The aims of LESI are:

- To encourage high professional standards among individuals engaged in the transfer and licensing of technology.
- To assist the members in improving their skills and techniques in licensing through self education; attending educational activities; and through their exchange of information, both personally and by way of publications.
- To inform the public, the business community and governmental and international bodies about the economic significance of technology licensing and the importance of high standards required in the field.
- To make available to its members the latest, most accurate information on the subject of technology licensing.

The South African Society (LES SA) is one of many national and regional societies which make up the international association or family of LES Societies constituting LESI. The individual societies are associations of members having common interest in transferring technology in the broadest sense of the term. These, like the South African Society, are thus composed of persons who are in business; managers; scientists; engineers; academics; government officials and lawyers, in particular, intellectual property lawyers and patent attorneys and agents. LES SA creates opportunities for exchanging information and debating intellectual property related matters, and conducts regular courses in intellectual property management and licensing at introductory and advanced level.

South African Venture Capital Association (SAVCA)

www.savca.co.za

IP Creation	Funding	Policy	Support
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Overview

The main objectives of the Association are to:

- Promote the venture capital and private equity profession in Southern Africa
- Represent the profession at the national and international level
- Develop and stimulate professional and transactional venture capital and private equity investments throughout Southern Africa
- Stimulate the expansion of venture capital and private equity throughout Southern Africa
- Collect information from markets and from members
- Circulate information to members and the outside world
- Stimulate and maintain contacts within the membership
- Contribute to the management development of investors and investees
- Provide the relevant authorities with proposals for improvement in the corporate, fiscal and legal environment for venture capital and private equity in Southern Africa
- Maintain ethical and professional standards
- SAVCA intends playing a meaningful role in the Venture Capital and Private Equity Industry by:
 - Promoting self-regulation
 - Lobbying on behalf of industry
 - Disseminating information and publicity
 - Arranging training for the staff of its members
 - Researching the industry in South Africa

Sponsored Research Grants

The private organizations listed in this section provide funding to research institutes, universities and in some cases companies for early stage exploratory research, with some organizations considering product or process development as well.

Citrus Research International (CRI)

<http://www.citrusres.com/>

IP Creation	Funding	Policy	Support
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Overview

Citrus Research International and partners in the CRI Group, all use funds from the Citrus Growers Association levy to conduct research for the citrus industry in southern Africa. CRI (Pty) Ltd has the vision to maximise the long-term global competitiveness of the Southern African citrus growers through the development, support, co-ordination and provision of Research and Technical services by combining strengths of all CRI Group partners.

FRUITGRO

http://www.dfptresearch.co.za/about_us/our_purpose

IP Creation	Funding	Policy	Support
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Overview

Fruitgro direct and guide research to address short and long-term needs of the industry by means of:

Institute effective and efficient management systems.

- Access and develop new funding sources.
- Facilitate the development of people to create the required capacity to meet the needs of the industry now and in the future. Institute an effective system of transferring information and results of research back to the growers and other funders of research.
- Transform current process from a research push to an industry pull / lead process.
- Research to underpin the industry's move from production led to market led.
- Transform current process from a project based to a programme based approach.
- Increase flexibility and integration across institutes nationally and internationally.
- Stimulate innovation / creativity.
- Facilitate and activate actions to speed up the transfer of technology to new entrants and activate processes to transform the profile of researchers and technical participants in the industry.

MAIZE TRUST

<http://www.maizetrust.co.za/>

IP Creation	Funding	Policy	Support
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Overview

The primary aim of the Maize Trust is the promotion of the South African maize industry by facilitating the continuous improvement thereof, thus ensuring that it is internationally competitive and the regional leader.

The Trust exercises its mandate principally by providing financial support for organisations conducting research focused on maize production and marketing. The Maize Trust objectives further include the acquisition, assimilation and dissemination of market information for the local maize industry, and the facilitation of market access for South African maize. This includes support for training, technical assistance and the creation of marketing infrastructure.

Protein Research Foundation (PRF)

<http://www.proteinresearch.net/>

IP Creation	Funding	Policy	Support
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Overview

The Protein Research Foundation's (PRF) main objectives are to replace imported protein for animal use with locally produced protein, but also to promote better utilisation of protein. These objectives are promoted through funding research and technology transfers.

Research is funded in terms of appropriate related crops, oil seeds, fish meal and other protein sources, as well as, the application and utilisation thereof by the most important fish, animal and poultry species that are specific to the South African market.

The PRF strives to make a significant contribution to the promotion of local production of protein on a competitive basis, in order to satisfy the growing need for protein for animal production purposes and the optimal utilization thereof, thereby leading to an increase in the standard of living of all people in South Africa. The PRF contributes to the realization of its vision of the provision and utilization of protein by means of the pro-active stimulation and funding of applicable purposeful research in order to fulfill the increasing protein needs for animal nutrition in the country.

South African Sugarcane Research Institute (SASRI)

<http://www.sasa.org.za/sasri.aspx>

IP Creation	Funding	Policy	Support
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Overview

The South African Sugarcane Research Institute (SASRI) is a world renowned agricultural research institute at the forefront of a thriving sugar industry. Research at SASRI is clustered within four multidisciplinary programmes, namely Variety Improvement, Crop Protection, Crop Performance & Management Systems Design & Optimisation. An Extension Service provides the essential link between researchers and sugarcane farmers. SASRI also offers a range of services including fertiliser advice, disease diagnoses and education courses.

Sugar Milling Research Institute (SMRI)

www.smri.org

IP Creation	Funding	Policy	Support
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Overview

The Sugar Milling Research Institute (SMRI) is the central scientific organization involved in research work and technical services for the Southern African sugar manufacturing/milling industries. It was founded in 1949 and is located on the Howard College Campus of the University of KwaZulu-Natal, South Africa.

All raw sugar factories in South Africa are full members, and in addition the SMRI provides technical services and training to mills in 7 SADC countries. The SMRI is committed to providing International leadership in sugar cane science research Innovative, cost-effective solutions to cane and sugar processing and refining problems.

Winetech

<http://www.winetech.co.za/index.php>

IP Creation	Funding	Policy	Support
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Overview

The Wine Industry Network for Expertise and Technology (Winetech) coordinates research, training and technology transfer in the wine industry. It encourages the production of quality wines and other grape-

based products through the application of environmentally friendly and best technologies. It supports training and education at all levels, including the development of resource poor and new entry producers.

The mission of Winetech is to provide the South African Wine Industry with a sustainable basis of forefront technology and human resources in order to strengthen both local and international competitiveness and profitability.

DST Sector Innovation Fund (SIF)

In July 2013, the Department of Science and Technology (DST) created the Sector-Specific Innovation Fund (SIF) as part of its Industry Innovation Partnership initiative under the government's Economic Competitive Support Package. Sector Innovation Fund is a DST intervention to enhance economic competitiveness of participating sectors to encourages private sector to co-invest with government in RDI activities that address competitiveness and sustainability of participating sectors. It is managed by Industry associations or bodies, formal entities that represents the interest of its members. In the model, the industry identifies challenges & determines own RDI agenda

9 SIFs established by end 2014/15 are the following:

Industry Association	Initiative/Programme
South African Minerals to Metals Research Institute	Mineral Processing
Citrus Research International	Research for Citrus Export
Marine Finfish Farmers' Association of South Africa	South African Marine Aquaculture Research Centre
Paper Manufacturing Association of South Africa	Paper Manufacturing
Forestry South Africa	Future Plantation Forests for the South African Bio economy
Sugar Milling Research Institute	Sugarcane Bio-refinery Research Programme
Fresh Produce Exporters' Forum	Post-Harvest Innovation Programme
Marine Industry Association of South Africa	Marine Manufacturing innovation
Wine Industry Network of Expertise and Technology	Wine Industry Innovation