Vision reaches beyond the thing that is, into the conception of what it can be. Imagination gives you the picture; vision gives you the impulse to make the picture your own.” – Robert Collier.

Vision 2015:
world-class research
a transformed society
a sustainable environment
This coloured scanning electron micrograph of the inner surface of the iris offers a whole new look at the human eye. The mauve part is the iris that controls the size of the pupil.

The National Research Foundation (NRF) has a vision – Vision 2015 – that pursues world-class research, a transformed society and a sustainable environment.

Ours is a vision that encourages outstanding minds to breach the boundaries of intellectual endeavour and seek solutions beyond the obvious.

Ours is a vision with a mission: To contribute to the knowledge economy in South Africa to attain at least 1% of global R&D output by 2015.
**Who is the NRF?**

The National Research Foundation is the intermediary agency between the policies and strategies of government and those institutions that perform research. Unlike other Science Councils whose role is research performance, the NRF primarily fulfils an agency role, with a smaller portion of its activity allocated to research performance through the National Research Facilities.

**What do we do?**

The NRF has three main functions:
- to support research and innovation, through its agency, Research and Innovation Support and Advancement (RISA); and
- to encourage an interest in science and technology through its business unit, the South African Agency for Science and Technology Advancement (SAASTA); and
- to facilitate high-end research through its National Research Facilities.

**Why do we do it?**

One of the NRF’s key objectives is to ensure appropriately qualified people and high-level infrastructure to produce the knowledge that makes South Africa a global competitor.

**How do we do it?**

Funding from the NRF is largely directed towards academic research, developing high-level human resources, and supporting the nation’s National Research Facilities. Funding opportunities cover the full spectrum of beneficiaries: from students and researchers through to Higher Education Institutions (HEIs) and staff at HEIs, and from scientists involved in bilateral and multilateral joint research projects to private individuals or companies and Science Councils.
Through **RISA**, the NRF:
- invests in knowledge, people and infrastructure;
- develops the workforce, particularly black men and women, to help all researchers unlock their full creative potential;
- facilitates partnerships and knowledge networks; and
- supports and provides science and technology information to guide and steer strategic decisions.

**Through SAASTA, the NRF:**
- steers young minds towards careers in science, technology and innovation;
- interacts with the public on issues of science, engineering and technology; and
- communicates the advances of science and technology to the public.

**Through the National Research Facilities, the NRF:**
- provides access to unique technologies, research methods and information;
- provides state-of-the-art research platforms; and
- offers access to networking opportunities and international collaboration.

The NRF receives its mandate from the National Research Foundation Act, Act No. 23 of 1998. According to Section 3 of the Act, the object of the NRF is to:
- **promote and support research** through
- **funding, human resource development and the provision of the necessary 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.

**Response to our mandate**

In 2008, the NRF Board approved the NRF Strategic Plan, *NRF Vision 2015*, which has the following broad objectives:
- Promoting internationally competitive research as basis for a knowledge economy;
- Growing a representative science and technology workforce in South Africa;
- Providing cutting-edge research, technology and innovation platforms;
- Operating world-class evaluation and grant-making systems; and
- Contributing to a vibrant national innovation system.
The NRF performs a dual function in the National System of Innovation (NSI): as an agency that steers the system according to strategic policies, and as a research performer. These are some of the areas it is involved in:

- The NRF supports the Department of Science and Technology’s (DST) Youth into Science Strategy. This strategy promotes science and technology literacy among the public in general, and the youth in particular. Through SAASTA the NRF supports competitions, camps and olympiads, all of which aim to identify those who have talent and potential from an early age, and which support the country’s youth to participate in science.

- The South African Nanotechnology Strategy aims to increase the number of nanotechnology characterisation centres in South Africa. The Nanotechnology Equipment Programme that resides in the NRF provides the infrastructure that forms the foundation of nanotechnology flagship research projects.

- The Department of Labour (DoL), together with the Department of Education (DoE) and the DST, is responsible for ensuring that training in scarce skills takes place, especially in the fields of science and technology. To deliver on this objective, the DoL makes available funds for bursaries and scholarships from the National Skills Fund and the NRF manages the funds allocated for this purpose.

The NRF contributes to the DST 10-year Innovation Plan through:

- Developing knowledge capital;
- Developing human capital; and
- Developing knowledge infrastructure.
Research and Innovation Support and Advancement (RISA)
RISA is the intermediary between government strategies and research institutions and researchers. Its key objectives are to ensure appropriately qualified people and high-level infrastructure to produce the knowledge that makes South Africa a global competitor.

It disburses funding from various sources, including:
- Funds allocated to the NRF via the Parliamentary core grant; and
- Funds received from various government departments, for example:
  - Department of Science and Technology (DST);
  - Department of Labour (DoL);
  - Department of Trade and Industry (the dti); and
  - Department of Environmental Affairs and Tourism (DEAT).

These ring-fenced and contract funds are disbursed according to strict criteria laid down by the respective sponsors.

RISA’s investment in knowledge, people and infrastructure focuses on seven areas:
- Established researchers;
- Human capital development and unrated researchers;
- Strategic knowledge fields;
- Strategic platforms (including research at the National Research Facilities);
- International initiatives;
- Applied and industrial research and innovation; and
- Research on community engagement in science, engineering and technology.
South African Agency for Science and Technology Advancement (SAASTA)

SAASTA supports all science advancement interventions across the NRF in three ways:
- Education-related programmes (preparing tomorrow’s scientists and innovators);
- SET awareness platform (engaging the public with the phenomena of science, engineering and technology);
- Science communication (communicating the advances of science and technology to the public).

SAASTA is integrally involved in promoting science at school level and creating public awareness and these efforts are designed to translate into a broader base from which tertiary level institutions can draw human resources. As such, it helps to grow the size and enhance the quality of the feeder system that can benefit from NRF support at postgraduate level.

National Research Facilities

The seven National Research Facilities managed by the NRF are clustered on the basis of their areas of specialisation into three broad categories aligned to the science missions of the National Research and Development Strategy.

Astro/Space/Geosciences

- South African Astronomical Observatory: SAAO performs fundamental research in astronomy and astrophysics at a national and international level. It is the national facility for optical and infrared astronomy in South Africa and is also responsible for managing the operations of the Southern African Large Telescope (SALT).

- Hartebeesthoek Radio Astronomy Observatory: HartRAO was established as the national facility for radio astronomy research in South Africa. Today its primary function is to support research and training in radio astronomy and space geodesy.

- Hermanus Magnetic Observatory: The HMO is part of a worldwide network of magnetic observatories that monitor and model variations of the Earth’s magnetic field. It also performs fundamental and applied space physics research, and provides geomagnetic field-related services on a commercial basis.
South African Institute for Aquatic Biodiversity: SAIAB serves as a research hub for aquatic biodiversity in southern Africa by housing and developing the National Fish Collection and associated resource collections as research tools and sources of aquatic biodiversity data. It also generates knowledge on aquatic biodiversity through interactive and collaborative scientific research, and disseminates scientific knowledge at all levels.

National Zoological Gardens of South Africa: The NZG is the national facility for research in terrestrial biodiversity and an active participant in terrestrial biodiversity research. It houses one of the largest animal collections in the world, operates three breeding centres and has almost 8 000 hectares available at different locations for its respective activities.

Nuclear Sciences

iThemba Laboratory for Accelerator Based Sciences: iThemba LABS provides advanced, viable, multidisciplinary facilities for training, research and services in the fields of sub-atomic nuclear science and applied radiation medicine.
The South African PhD Project
The SA PhD Project is focused on attracting new doctoral candidates and providing them and current doctoral students with information and peer and mentor support mechanisms. The NRF has embarked on this exciting and ambitious initiative in partnership with the DST with the vision of increasing the number of doctoral graduates tenfold by 2025.

International science initiatives
It is the NRF’s task to build the capacity of South African researchers so that they may become leaders in the international research context. To achieve this, the NRF creates opportunities for constructive international collaboration with other researchers so that knowledge can be generated, transferred and exchanged. Some of the initiatives that fulfill this goal are:

- Providing administrative support to the International Council for Science;
- Participating in special research projects as part of International Polar Year;
- Leading programmes in the Africa region for the International Year of Astronomy 2009;
- Negotiating inter-agency agreements with Science Councils in India, the USA, the Czech Republic and the UK, among others;
- Establishing binational S&T agreements with a variety of regions and countries, including Algeria, China, France, Hungary, Kenya, Japan, Mocambique, Namibia, Nigeria, Norway, Poland, the Republic of Korea, Spain, Sweden, Switzerland, and The Flanders.

The NRF has relaunched the South African Education Programme (SAEP) as SAEP Reloaded to support the SA PhD Project.
The NRF rating system

Since research excellence is the cornerstone of the NRF, evaluation features prominently across all its programmes and capacity-building initiatives. This positions the organisation as the guardian of a rating system that accurately and fairly defines world-class researchers, whatever their field.

The system initially provided for A, B and C categories but those have been expanded to include categories for young researchers, those with demonstrated potential as well as late entrants into the research system.

To qualify for an “A” rating, researchers must be “unequivocally recognised by their peers as leading international scholars in their field”, while a P-rating is assigned to younger researchers who, “on the basis of exceptional potential demonstrated in their published doctoral work and/or their research outputs are considered likely to become future leaders in their field”.

In 2008 alone, 15 new A-rated scientists were honoured and six P-rated young scientists were recognised.

The DST’s 10-year Innovation Plan, titled Innovation Towards a Knowledge-based Economy, is based on the notion that economic growth is driven by innovation. To address the social and economic challenges it faces, South Africa needs to advance its economy from being resource-based to being knowledge-based.

The NRF supports the DST 10-year Innovation Plan by investing in one of the pillars of a knowledge economy, namely innovation. According to the DST plan, key enablers of innovation are:

- Knowledge (knowledge generation, accumulation and exploitation), and
- Highly-skilled people (PhDs) to drive the economy from technology dependency to innovation.