

NRF Act, Number 23 of 1998


and thereby to
 contribute to the improvement of the quality of life of all
 the people of the Republic

in order to
 facilitate the creation of knowledge, innovation and
 development in all fields of science and technology,
 including indigenous knowledge

through
 funding, human resource development and the provision
 of the necessary research facilities

Promote and support research

Mandate of the NRF



National Research Foundation



National Research Foundation

NATIONAL RESEARCH FOUNDATION

Pretoria, South Africa



Biodiversity is life



2010 International Year of Biodiversity

Dr Albert van Jaarsveld

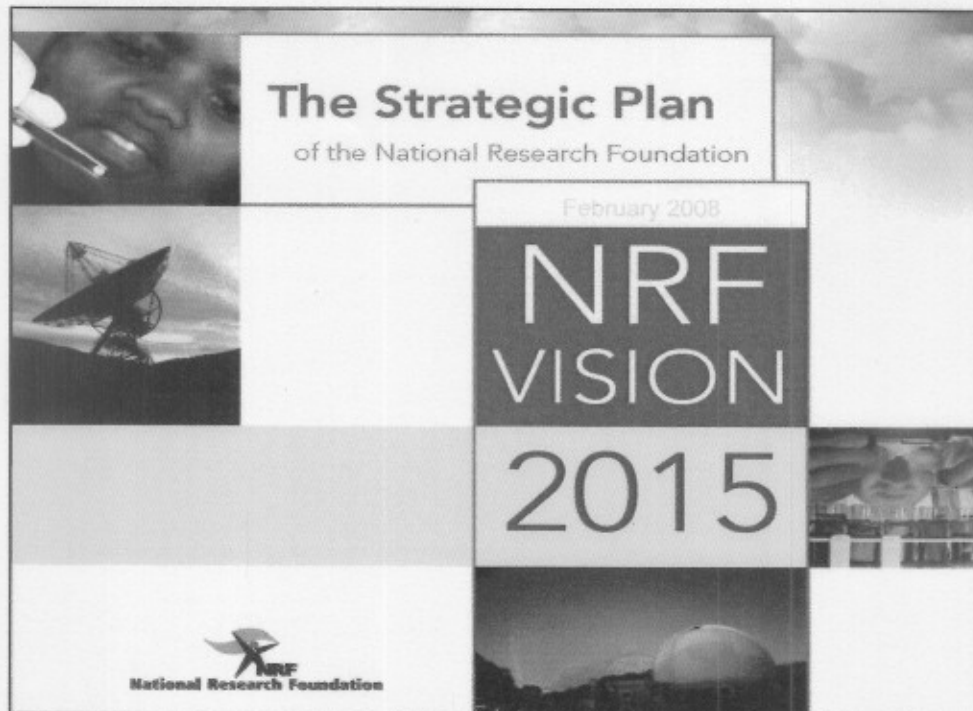
Executive Director

2009-2011

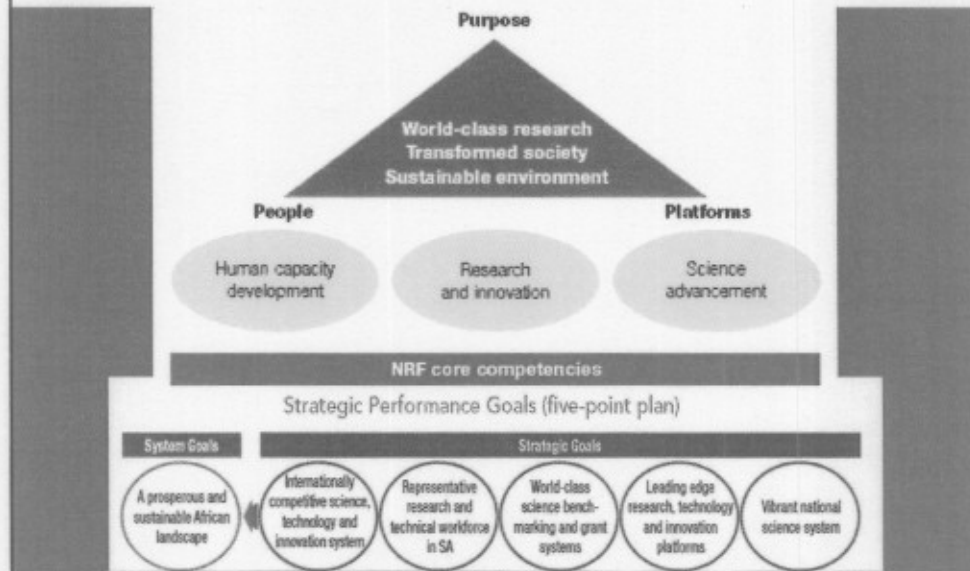
Guiding Strategies



- National R&D strategy (2002)
- DST: 10 Year Innovation Plan
- Draft RSA Human Capital Development Strategy
- Sector specific treaties (CBD, Antarctic Treaty, Millennium Development objectives, etc.)



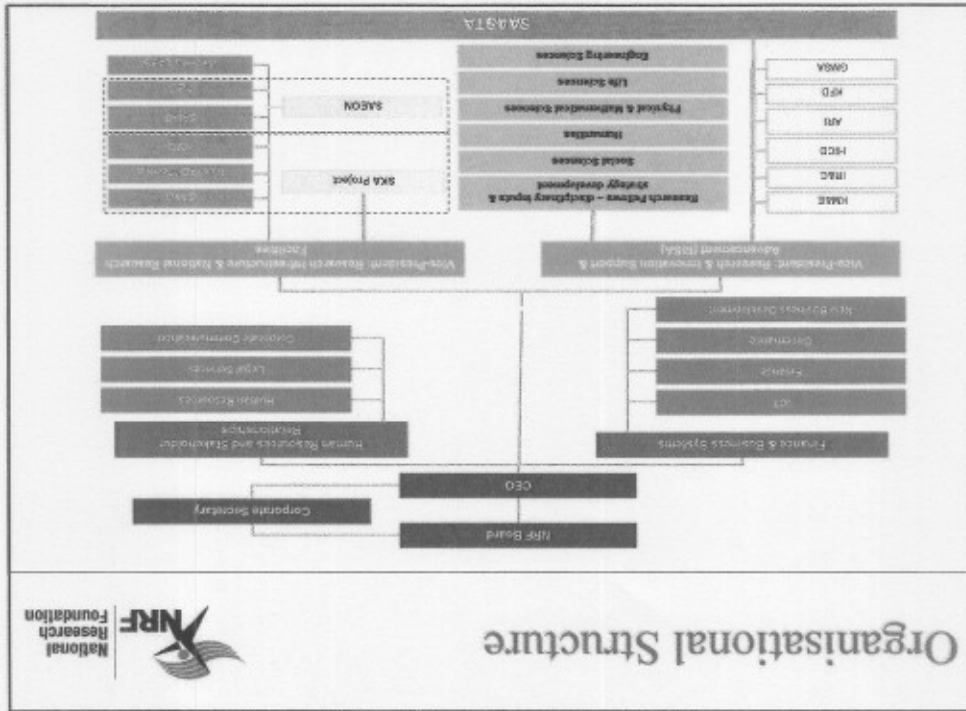
Relationship between Vision, Mission and Strategic Imperatives



NRF Values



- Passion for excellence
- World-class service
- Integrity
- Respect
- People-centred
- Accountability



Organisational Structure

- Leading-edge grant making and management systems
- World class research benchmarking
- State-of-the-art research platforms
- Strategic science information
- Facilitation of international science co-operation, networks and partnerships
- Science advancement through community engagement
- Catalyst for system-wide research collaboration, and
- Science and technology management



NRF Core Competencies

Agency Function: RISA Research and Innovation Support and Advancement




Highlights




- Research Chairs: Private public partnerships enhance mathematics teaching
- Competitive infrastructure: Purchase of a High Resolution Transmission Electron Microscope (HRTEM) that enables the observation of the atom
- Exceptionally novel: Blue Skies research – received 400 applications
- Indigenous Knowledge: – renewed R10 million sponsorship
- Multidisciplinarity: Akili Complexity and integration initiative to develop applied research
- Mobility: 42 bi-lateral agreements for funding research across national boundaries

Challenges

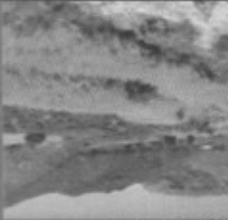



- Stabilised core funding
- Increasing directed funding
- Low bursary values (R 52.7m received to increase bursary values)
- Support only 5% of all registered postgraduate students – system influence
- Strengthen the Thuthuka programme (transformation objective) to its full potential

Science Highlights



- Research Chair – Femtosecond laser
 - 0.000 000 000 001 of a second
 - Observe fast chemical reactions
- CoE for Invasion Biology
 - To provide the scientific understanding to reduce the rate and impacts of biological invasions for the benefit of all South Africans
 - Arid areas are shaped by the spread of invasive alien plant species

National Research Facilities
Astro/Space/Geosciences



SOUTH AFRICAN
ASTRONOMICAL OBSERVATORY



National Research Facilities
Biodiversity / Conservation /
Environment



SAIAB



National Research Facilities Nuclear Sciences



Highlights



- High-end skills: Facilities used by 446 postgraduate students
- Science outputs: Collaborative ventures resulted in 181 ISI publications
- Infrastructure: Completion of KAT-7 (HartRAO; SALT optics)
- Innovation: Manufacture of radio active isotopes
- Science platforms: Remotely operated underwater vehicle and inshore marine research vessel
- Financial management: Turn around
 - iThemba LABS = R25 million
 - NZG = R5 million
 - SAAO = R3.5 million
 - HartRAO = R3.5 million

Science Highlights



- Space Weather Centre
 - INTERMAGNET = world wide network of magnetic observatories
 - Forecast warnings of disturbances to the solar terrestrial environment
 - Sun spot activity, impact on radio and microwave communication

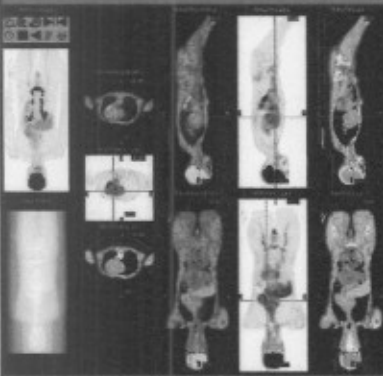


<http://weather.hmc.ac.za/>

Science Highlights



- Study of sub-atomic particles is not only interesting to physicists:
 - Neutron radiation penetrates further into body and therefore better to treat cancers that impact the core of the body
 - This radiation comes from the accelerator beam
 - Radioisotopes are produced when a target chemical is bombarded with a beam of sub-atomic particles
 - Radioisotopes are used to image the extent of a disease-process, rather than relying on physical changes in the tissue anatomy

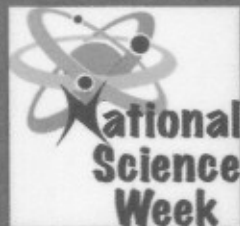


Challenges



- Required high level of competitive skills, loss of which is a major risk
- Infrastructure is ageing and needs to be recapitalized – retain competitive research platforms
- Growth of core budget overtaken by inflation

South African Agency for Science and Technology Advancement



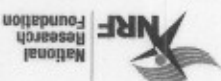
Science Highlights



- The Reunert Telescope (23 cm)
 - Moved to Jhb Observatory
 - Built in 1907, moved to UNISA in 1972
 - Used by Robert Innes to observe the closest star to our sun (Proxima Centauri) for the first time
- SA Association of S&T Educators – 800 educators met in Rustenburg (NW) and Welkom (FS) to discuss better ways of inspiring young people to foster a love for science



Highlights




- Media and awareness: monitoring and analysis
- Advancement:
 - National Science Olympiad Commemoration
 - Young Science Communicator's Competition
 - SA Science Lens Competition
- Education:
 - SA Association of Science Educators
 - Educators forum
 - Public viewing (Jhb Observatory)

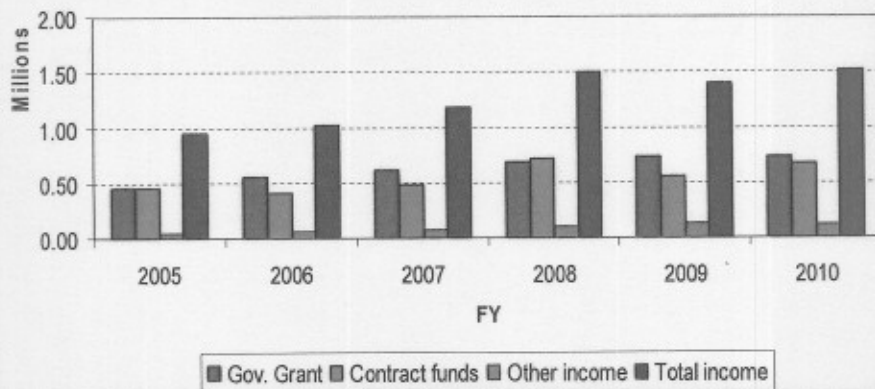
Financial Performance



Ratios	RISA	SAASTA	NFS
Grants & bursaries to total income	81%	25%	3%
Remuneration to income	10%	21%	44%
Running to income	7%	56%	39%
Grants and bursaries awarded per person employed	3 426 735	303 395	13 914

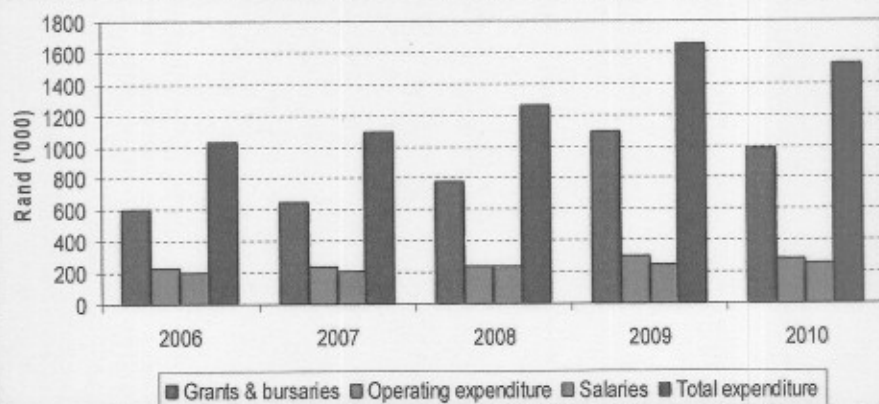
- ### Challenges
- 
- How to reach 47 million people on a budget of R19 million? Can there ever be enough?
 - Johannesburg Observatory is under utilized due to need for capital investment
 - Limited pool of expertise needed for science centre training

Total Income



Income has reached a plateau

Total Expenditure



Expenditure on grants has also reached a plateau

Finance and Governance Highlights



- Unqualified audit report
- Effective system of internal control
- Compliance with PFMA
- Expenditure rate is at 97%

- Continually improving audit profiles across business units

- Corporate structure fully implemented
- Established internal governance unit
- Positive mid-term Board evaluation concluded

Outputs and Outcomes - KPI Analysis



- Number of KPIs
 - Total = 152
 - Corporate = 41 (27%)
 - RISA + SAASTA = 59 (39%)
 - NFs = 52 (34%)

Goal 1: Promoting Internationally Competitive Research as a Basis for the Knowledge Economy



- 100 times more sensitive
- € 1.5 billion investment
- Decision due in 2012

Actual Performance



Indicator	Target	Actual
RISA grant & bursary expenditure as a % of planned R4 billion income	16%	23%
Total value of grants spent by grantees	R800 000 000	R821 926 000
Number of peer reviewed journal articles by grantees	No benchmark data yet	2 753
Number of peer reviewed journal articles by NRF researchers	No benchmark data yet	181

Goal 2: Growing a Representative Science and Technology Workforce



Human Capacity Development Highlights



- Free-standing and Grantholder linked bursaries
- CoEs – train students
- SARCHI – train students
- PhD project – one-stop student facility
- SKA project – specialised student support
- NASSP and Multiwave – student focused
- International “sandwich programs”

NRF supports 1 265 PhD students

- 52% are Black
- 51% are women

NRF supports 2 203 Masters students

- 53% are Black
- 52% are women

Actual Performance



Indicator		Target	Actual
Ratio of rated researchers from designated groups	Black	17%	17%
	Women	25%	27%
Percentage grant-holders from designated groups	Black	26%	26%
	Women	37%	35%
Ration of NRF staff from designated groups	Black	70%	71%
	Women	38%	40%

Actual Performance



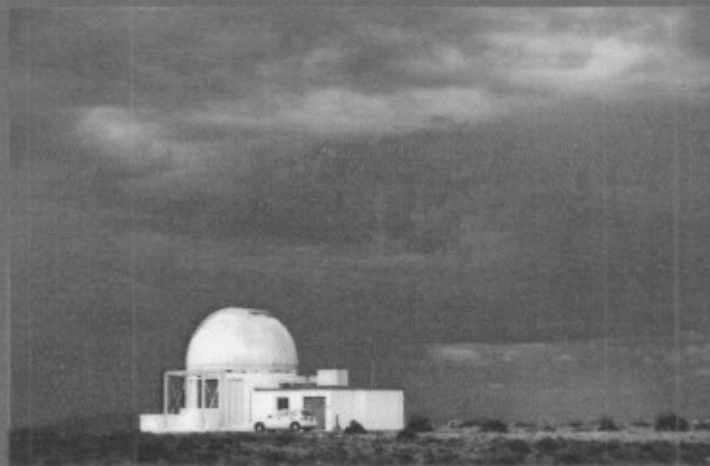
Indicator	Target	Actual
Visitors to science awareness centres	4 400	11 070
Number of learners reached via NFs	45 900	241 823
Number of educators reached via NFs	3 100	6 564

Actual Performance



Indicator		Target	Actual
Honours students supported by NRF	Black	80%	73%
	Women	59%	59%
Masters students supported by NRF	Black	49%	53%
	Women	53%	52%
Doctoral students supported by the NRF	Black	53%	52%
	Women	49%	52%

Goal 3: Providing Cutting-edge Research Technology and Innovation Platforms



Actual Performance



Indicator	Target	Actual
Proportion of NF investment in providing the platform	32%	43%
Proportion of RISA grants invested in research equipment	4%	12%
Proportion of investment in Capex	4%	8%

Goal 4: Operating World-class Evaluation and Grant-making Systems

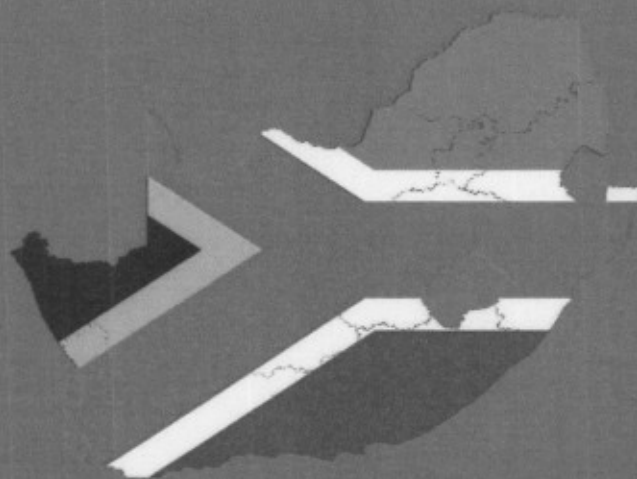


Actual Performance



Indicator	Target	Actual
Turn around time for rating assessments / months	8	8.2
Completion rate of applications for rating	95%	99%
Proportion of available grants disbursed	65%	84%

Goal 5: Contributing towards a Vibrant National Innovation System



Actual Performance



Indicator	Target	Actual
Proportion of RISA investment in international initiatives	8%	9%
Ratio of operating expenditure to total expenditure - RISA	7%	8%
Ratio of operating expenditure to total expenditure - NFs	39%	41%
Ratio of contract income to total income - RISA	55%	54%
Ratio of contract income to total income - NFs	18%	16%

NRF Funding in Grand Challenge Areas



Grand Challenge	2008/09	2009/10
Farmer to Pharma	3%	1%
Space S&T	11%	1%
Energy Security	11%	4%
S&T and global change	3%	8%
Human & social dynamics	4%	2%
Human capital development	22%	21%
Institutional environments for knowledge production	46%	52%

Science Highlights Related to the Grand Challenges



- Energy security: SANHARP (SA Nuclear Human Asset Research Program) – Expanded away from PBMR to include renewables
- Farm to Pharma: Use of indigenous knowledge to focus natural product chemistry searches & Proton therapy
- Space S&T: Space weather centre
- Global change: The wildlife biological resource centre (wBRC)
- Human & social dynamics: Akili Complexity and Integration Initiative

NRF Investment Broad Investment Areas



Investment Area	2008/09	2009/10
Established researchers	30%	19%
HCD & unrated researchers	15%	18%
Strategic knowledge fields	19%	24%
Strategic platforms (incl. research at Facilities)	10%	17%
International initiatives	11%	12%
Applied & industrial research and innovation	13%	10%
Research on community SET engagement	0.1%	0.1%

Social Responsibility
Sutherland and Carnarvon Schools



Enkosi, Thank you, Re a leboga, Siyabonga,
Dankie



**National
Research
Foundation**



SAASTA
South African Agency for Science
and Technology Advancement



HartRAO
Hartbeespoort Radio
Astronomy Observatory



NZG
National Zoological Gardens
of South Africa



SAEON
South African Environmental
Observation Network



HMO
Hermannus Meyer
Observatory



iThemba LABS
Laboratory for Accelerator
Based Sciences



SAIAB
South African Institute for
Aquatic Biodiversity



SAAO
South African
Astronomical Observatory



RISA
Research and Innovation
Support and Advancement



**National
Research
Facilities**
Research Infrastructure and
National Research Facilities