National Research Foundati

Busines Plan

2007/08-2009/1

Presentation to
Minister Mosibudi Mangena

26 February 2007

Mandate of the NRF : NRF Act

Promote and support research

through

funding, human resource development and the provision of core national 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

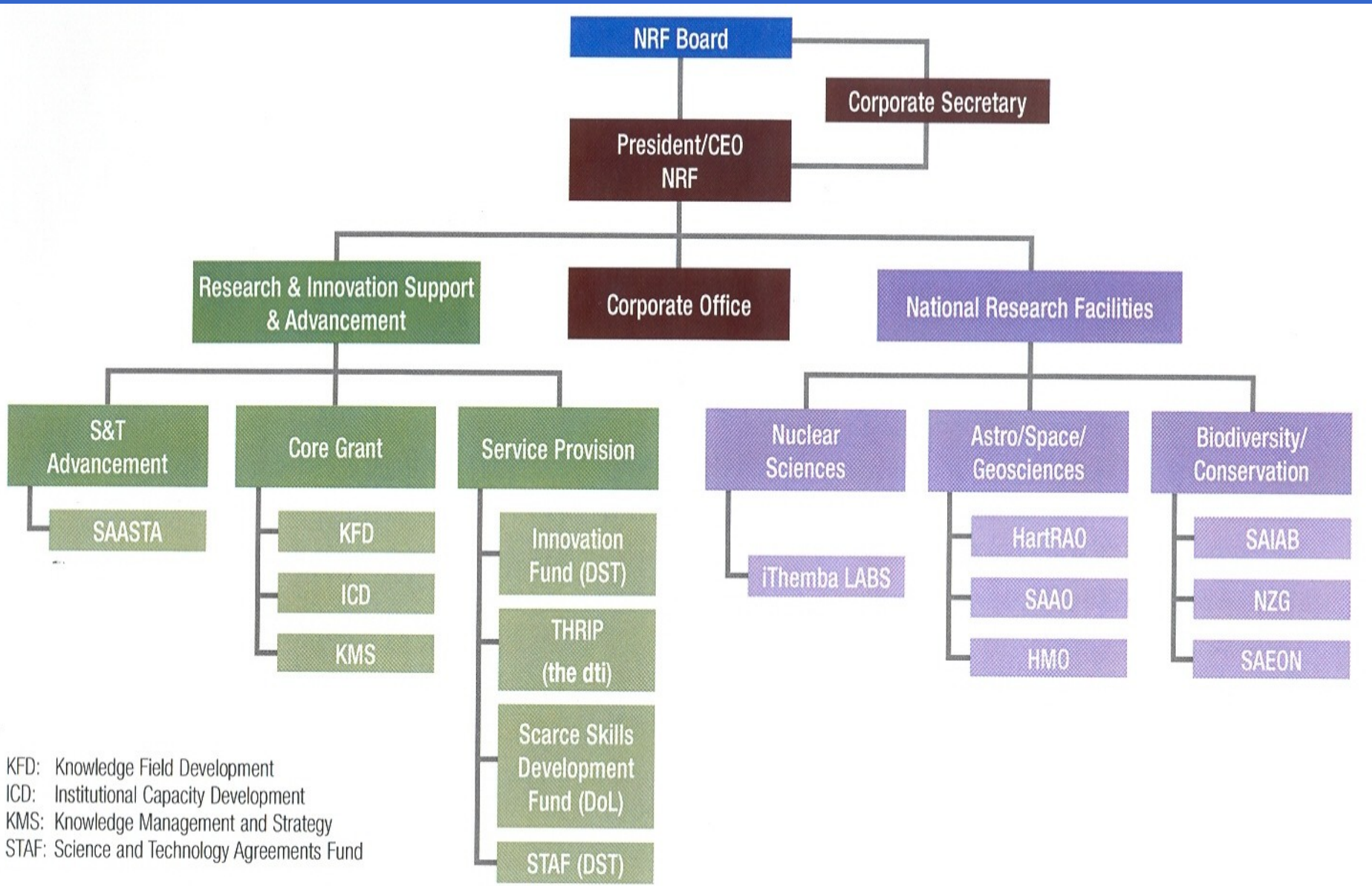
Core Missions

- High quality **human resources** in substantially increased numbers
- High quality **knowledge** in prioritised areas that address national & continental development needs/ priorities
- Utilisation of knowledge, technology transfer and **innovation** to ensure tangible benefits to society from the knowledge created
- State-of-the-art **infrastructure** that is essential to facilitate the development of high quality human resources and a knowledge economy

Cross-cutting Strategic Priorities

- **Equity and equality**
- **Adherence to quality**
- **Internationalisation of research**
- **Focus on Africa**
- **Positioning the NRF within the NSI**
- **Organisational transformation:**
  - **Business processes and procedures**
  - **Human resources and transformation**
  - **Financial**

Structure of the NRF



KFD: Knowledge Field Development
ICD: Institutional Capacity Development
KMS: Knowledge Management and Strategy
STAF: Science and Technology Agreements Fund

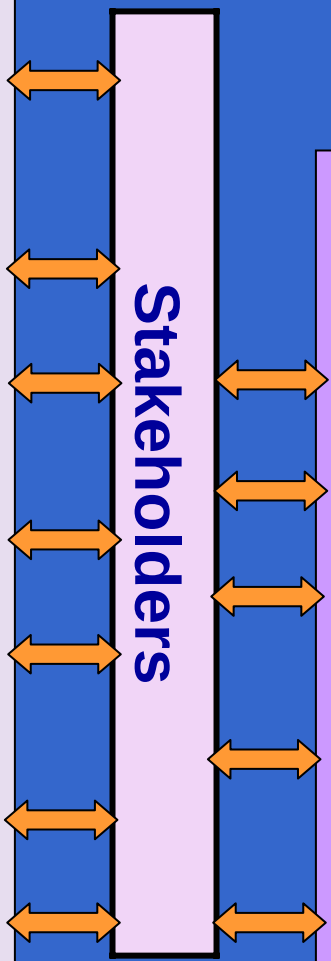
Key Driver of change – Focus 1: Human Resource Development

PhD driver

The production of large numbers of high quality PhDs required as the bedrock for an innovative and entrepreneurial knowledge society

Enablers

- Policy/strategic planning
- (Secondary school pass rates)
- Science Education, communication and awareness
- Institutional capacity (HEIs)
- Staff/supervisory capacity @ HEIs
- National Research Facilities, research infrastructure, equipment
- Partnerships: government, industry, HEIs
- Agreements facilitating research collaboration
- Funding processes
- Value-adding funding interventions
- Support for entrepreneurship, IPR, commercialisation

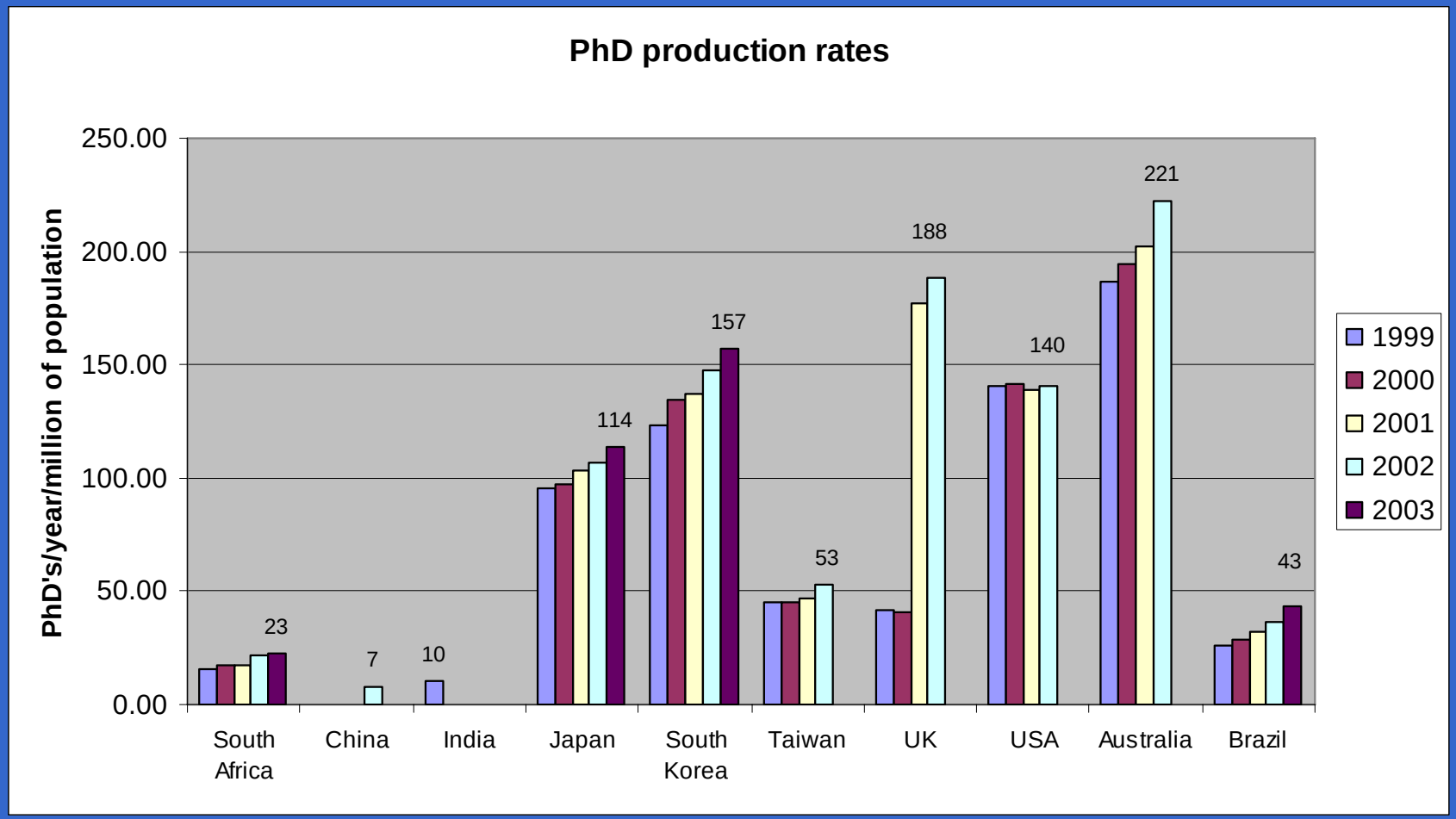


Results

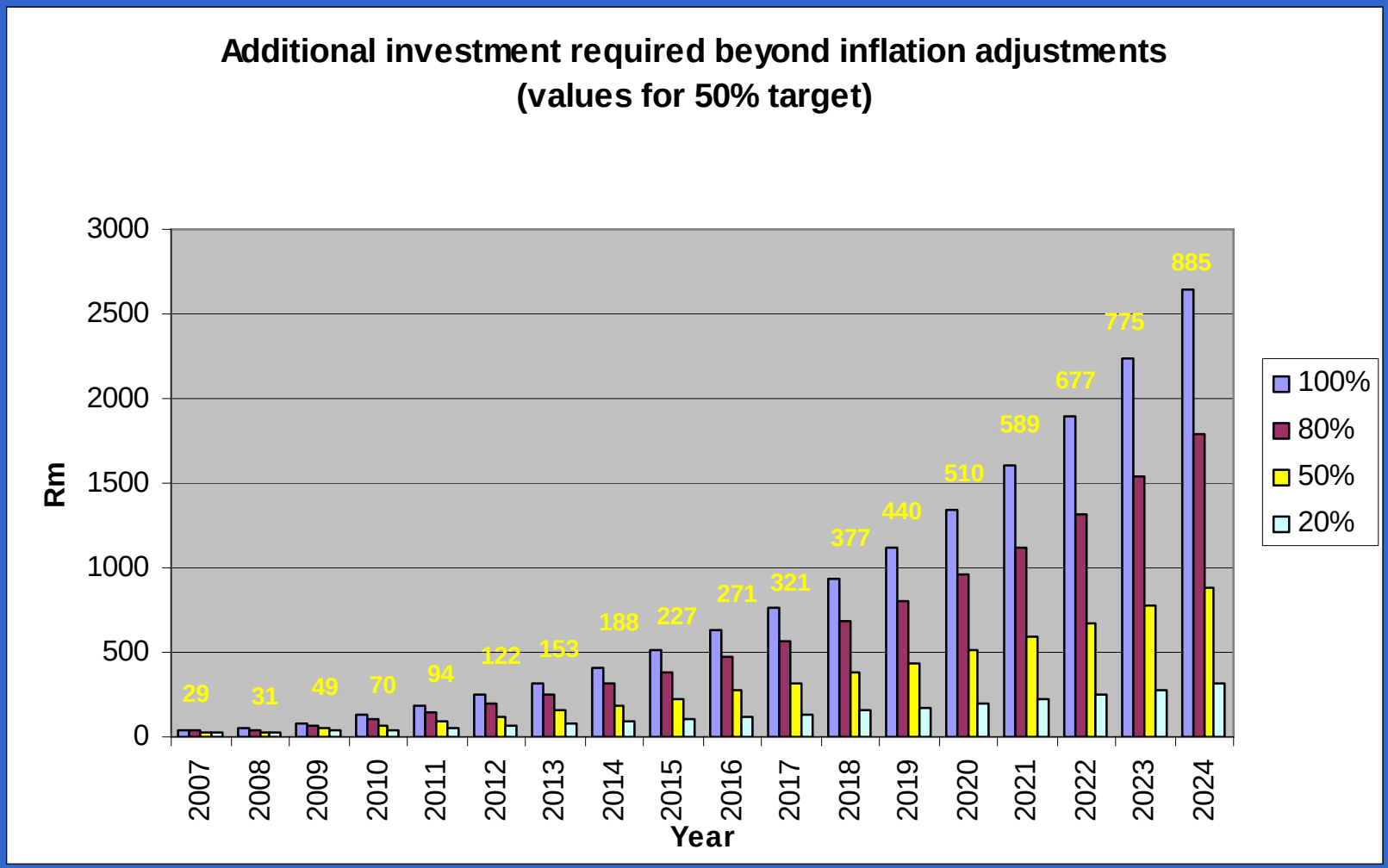
- Human resources
- Knowledge creation
- Knowledge utilisation, diffusion
- Technology development
- Innovation

Quality of life

PhD production profiles



Long-term investment implications

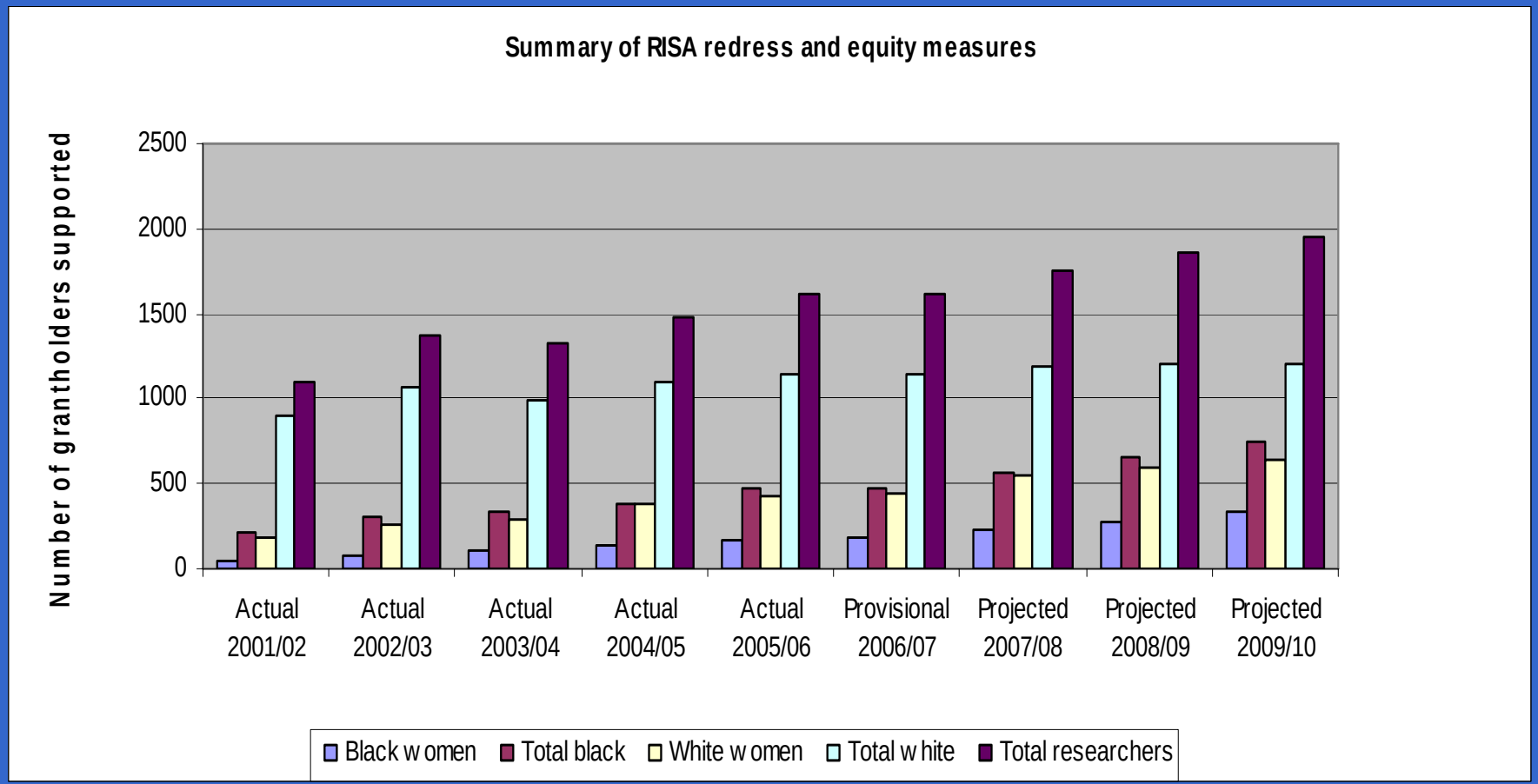


Student enrollment vs NRF support 2005/06

	Honours	Masters	Doctoral
HEI enrollments	61 622	44 533	9 434
RISA core grant supported students	661	1 845	927
***RISA supported**	1 642	3 062	2 570
RISA supported students as % of HEI enrollments	**3%**	**7%**	**27%**

*Included in RISA students are DoL & THRIP supported students

Equity and redress measures



Focus 2: Research quality development – RISA grant making

- Provides funding to both rated and unrated researchers
- Based on international best practices (peer review procedures)
  - output/productivity reviews (rating)
  - proposal reviews
  - panel reviews
- Core grant funds - significantly oversubscribed
- Approx. 50% of received research proposals can presently be funded
- Worthy proposals remain unfunded

RISA challenges 2007/08
Maximising the resource base

Fundraising efforts for new developments and initiatives (NBD)

For baseline activities:

- **Continually review alignment with DST/national priorities**
- **Prioritisation of current activities that have to be sustained e.g.:**
  - **Special institutional development programmes, Thuthuka**
  - **Balance between no. of grants and grant value**
  - **Improve on internal efficiencies in grant making and management**
  - **Reduced calls in some areas where funds are limited and/or committed**

RISA challenges for 2007/08 (cont)

- South African Research Chairs Initiative (SARCHI)
- Centres of Excellence – roll-out
- THRIP developing SMME framework
- Rating system review (HESA)
- Equipment programme
- Streamlined and integrated grant application system (GMSA)
- Revisit funding focus areas
- Nanotechnology Initiative

South African Agency for Science and Technology Advancement (SAASTA)

PMG note: graphics not included, please email info@pmg.org.za

SAASTA challenges

- **Launch first phase of JO site**
- **Develop implementation plans for Phase 2 and 3 of JO**
- **Planning, design and resourcing of Life Sciences Centre at NZG based on feasibility study**
- **Expand national programmes for communicating research and technology advances to public audiences.**
- **Communication and outreach partnerships with researchers in Higher Education Institutions**
- **Marketing campaign for education programmes; Science Olympiad & SET Careers Programme**

Focus 3: National Science Infrastructure - National Facilities

- **Unique position** in SA knowledge production
- Technology, methods, data pools / collections of **international standard**
- Goals and knowledge diffusion **aligned** to objectives of NSI
- **Critical mass** of equipment, skills & users
- Ability to attract **international collaborators**
- Provide opportunities of **research capacity development** to disadvantaged
- Platform for **science advancement, education & outreach**

South African Astronomical Observatory

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SALT: largest telescope in southern hemisphere (operated by SAAO)

National Research Facilities: SAAO challenges

- **Transforming SAAO to operate SALT**
- **Upgrade Sutherland infrastructure**
- **Develop future SA user community in astrophysics and space science through:**
  - **NASSP: National Astrophysics & Space Science Programme**
  - **AGAP: Astronomy Geographical Advantage Programme**
- **Develop IT infrastructure & exploit Astrophysical Virtual Observatory**
- **Contribute to SALT instrumentation development**
- **Use astronomy to enhance science education**

Hartebeesthoek Radio Astronomy Observatory

26m diameter radio telescope used as single instrument or in global networks of telescopes for very high resolution measurements

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National Research Facilities: HartRAO

Major challenge: Availability of senior scientists and engineers, to continue with current projects and to train students

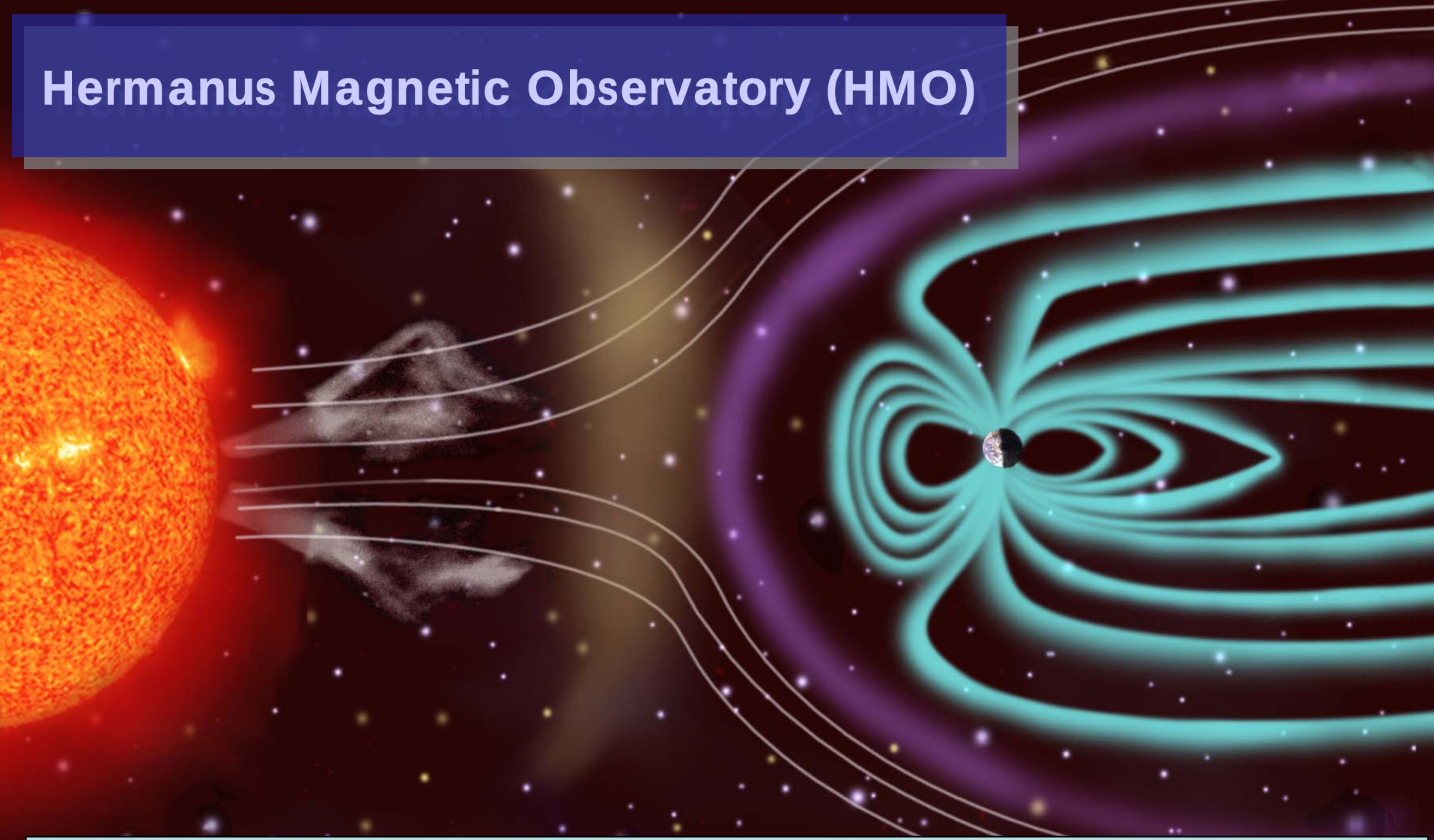
Radio Astronomy

- 26m antenna upgrade for 22 GHz (1.3 cm wavelength) operation.
- Construction and testing of KAT prototype antenna (XDM), the technology demonstrator for SKA.
- Cosmic foreground experiment planned for Karoo as international collaboration

Space Geodesy

- Planning of new International Institute for Space Geodesy and Earth Observation (IISGEO), possibly in Matjiesfontein
- Positioning Space Geodesy in updated international network with an emphasis on African crustal dynamics.

Hermanus Magnetic Observatory (HMO)



The near-Earth space environment, which serves as the laboratory to:

- **Do space physics research**
- **Train post-graduate students in space physics**
- **Understand and forecast space weather.**

National Research Facilities: HMO

- Provide geomagnetic field, ionospheric and space environment data and provide magnetic field related services
- Launch flagship research programme: Ihlabathi: Core to Space
- Participation in International Polar Year: Antarctica
- Register HMO as Regional Space Weather Warning Centre for Africa
- 75- year anniversary celebrations

South African Institute for Aquatic Biodiversity (SAIAB)

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National Research Facilities: SAIAB

- **Transfer National Fish Collection to New Collection Centre**
- **Initiate physical infrastructure project**
- **Long-term viability of systematic research: develop skills & human resource capacity**
- **Create sustained funding platform for ACEP**
- **Knowledge management system for SAIAB, ACEP and SAEON Elwandle (coastal and inshore) node**

South African Environmental Observation Network (SAEON)

- Observations of environmental change over time and space.
- Information management for science, management and policy development.
- Education Outreach

Emerging National Research Facility: SAEON

- Grow SAEON *Ndlovu* (savanna) and *Elwandle* (coastal) Nodes
- Implement nodes for fynbos, marine-offshore, arid lands and forests/grasslands/wetlands (advanced stages of negotiation)
- Implement information management system using open source computational technology; host geo-spatial portal
- Expand formal partner base
- Develop core science plan and products

National Zoological Gardens of South Africa

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Our Vision: The conservation of Africa's terrestrial biodiversity for sustainable development

National Research Facilities: NZG

- **Implement new strategic plan**
- **Develop research, veterinary and conservation departments and infrastructure according to new mission**
- **Develop research programmes based on *ex situ* collections for *in situ* conservation of African biodiversity**
- **Complete capital projects and start Phase 2 of establishment of Life Sciences Centre**
- **Align human resources with NRF policy and new mandate**

iThemba Laboratory for Accelerator Based Sciences (iThemba LABS)

Sub-atomic nuclear science & applied radiation medicine

- **Radioisotope & radionuclide production**
- **Radiopharmaceuticals**
- **Radiotherapy**
- **Radiation biology**

National Research Facility: iThemba LABS

- **Realise the Medical Radiation Medical Centre (MRMC) for radiation therapy (in process)**
- **New equipment acquired last year has been commissioned (CT Scanner and Flat Panel detector)**
- **Proactively manage impact of ageing Cyclotron equipment**
- **Complete integration of iThemba LABS Gauteng**
- **Expand IT & electronics capacity**
- **Acquire capacity to serve university groups that wish to use international facilities like CERN, ILL, CEBAF etc**
- **Seek new markets and develop new products**

National Research Facilities: Challenges 2007/08

- **Sustainability of long-term strategic choices: funding for infrastructure and priorities e.g. SALT, HartRAO, etc.**
- **Consultation on SASA operations and implications**
- **Appropriate SKA management model**
- **5-year research plans: knowledge generation & technology development (publication rate and patents)**
- **Human resource development (PhDs) to optimise use of facilities and infrastructure**
- **Use of facilities for science outreach and education**

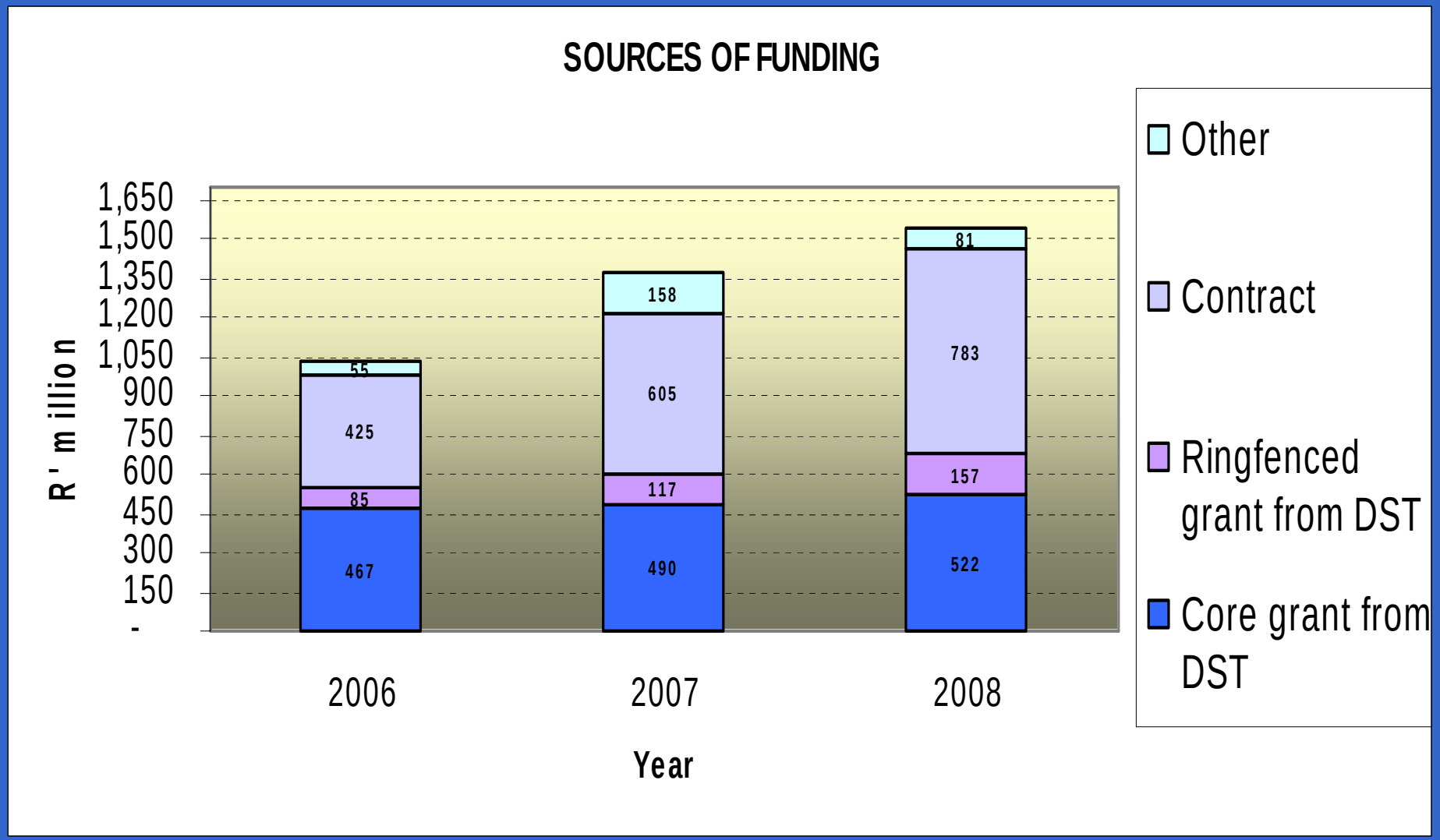
Focus 4: Corporate and strategic issues

- Human resources / transformation
- Finances
- Governance
- Business strategy and risk management

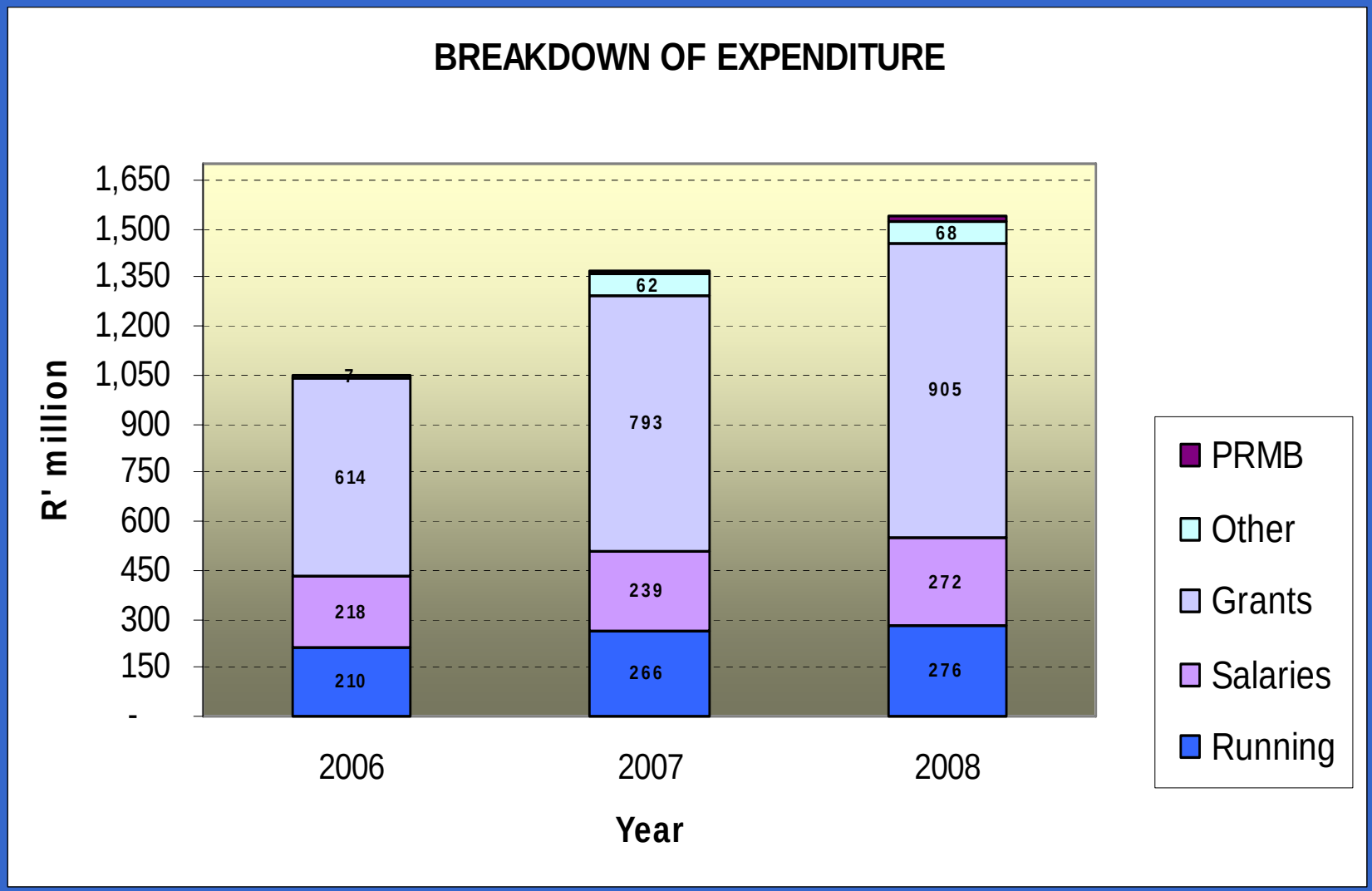
Internal Human Resource and transformation challenges

- **Staff retention and succession planning vs salaries to total expenditure**
- **Appropriate levels of staff qualifications and skills to achieve goals e.g. proportion researchers to total staff**
- **Organisation development through culture change and transformation, equity and equality**

Finances: Sources of Funding



Finances: Breakdown of Expenditure



Financial challenges

- Marginal increase on core budget - larger increase in ring-fenced budget (creeping overhead implications)
- PRMB liability unfunded portion of R60m will remain (reduced from R 85)
- NZG funding shortfall arising from deficit on transfer amounting to R8m
- SALT levy shortfall R4,5m vs R3m received
- No/limited room for infrastructure development in facilities
- IKS shortfall 2008/2009 – R 457 000

Governance challenges

- **Amendment of NRF Act (pending)**
- **Governance arrangements?**
  - **Innovation Fund : : Foundation for Technological Innovation (FTI)**
  - **SASA discussions**

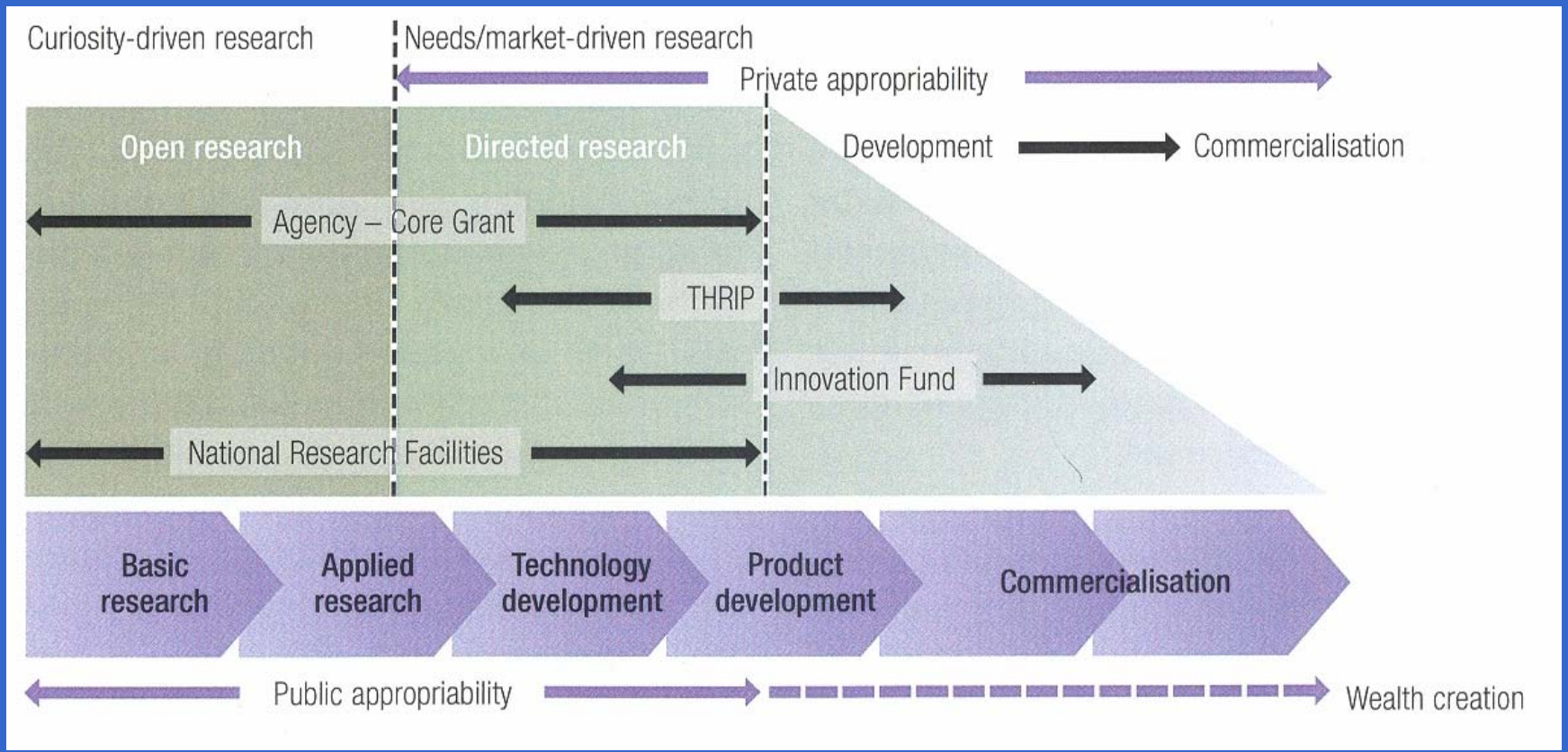
Governance (continued)

- Role clarification: DST e.g.
  - IKS unit: policy, support interventions, database developmen
  - Innovation Fund governance
  - Funding for research equipment & R&D infrastructure
  - Memorandum of Understanding
  - Ring-fencing and contract funding
- DST to initiate discussions with DoE regarding integration of research priorities and subsidy mechanisms: integrated planning of research and research funding required

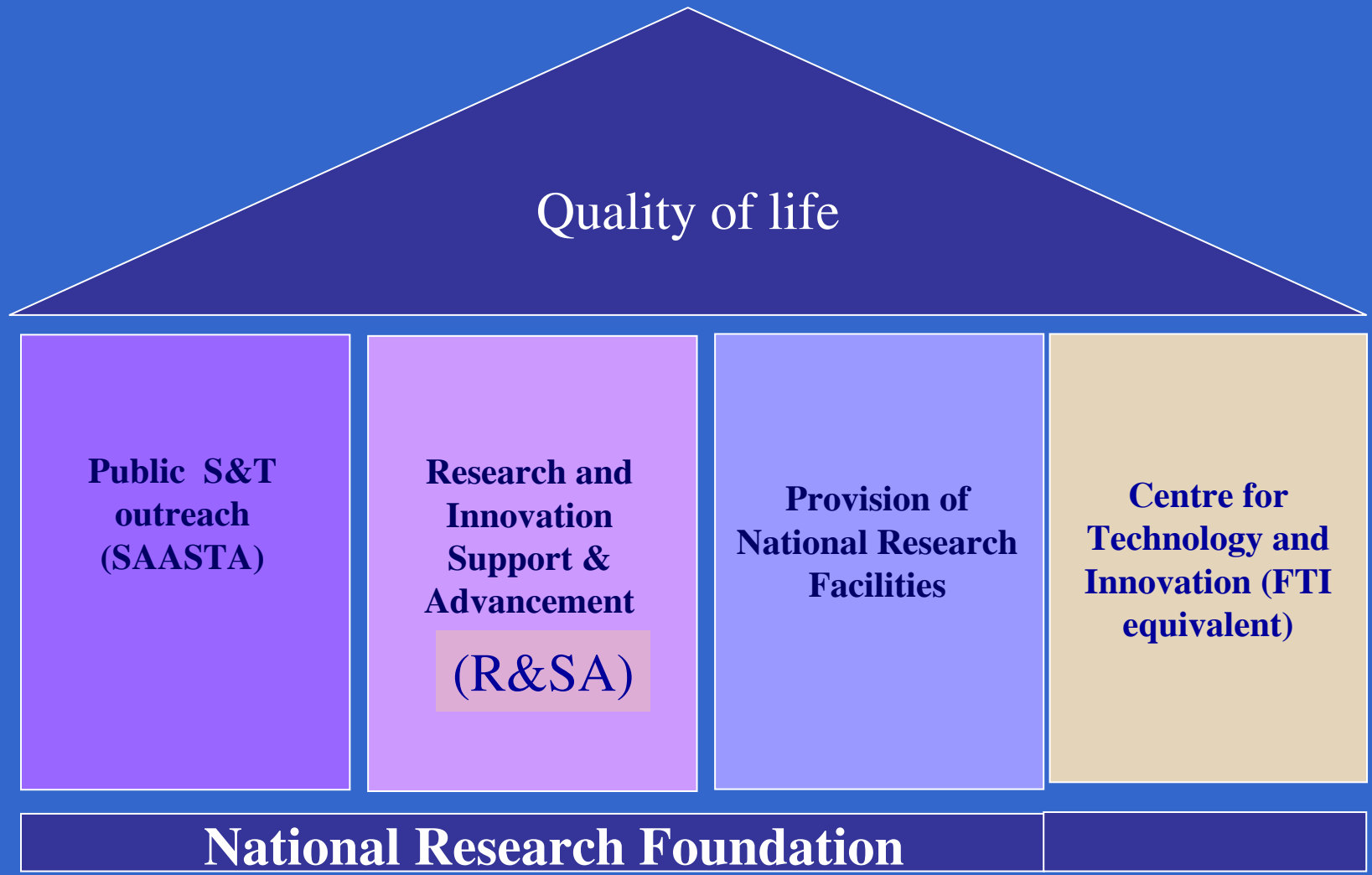
Governance (continued)

- **Self-assessment and external evaluation of NRF Board performance**
- **Envisaged corporate strategic planning process – DST plans**

Strategic issues:
Innovation system value chain



Strategic issues (cont)
Structural consequences



Strategic issues (cont)
Business strategy and risk management

- **NRF in a changing science landscape (risk/opportunity)**
- **Alignment with DST priorities**
  - **Unfolding Human Capital Development strategy**
  - **Research Equipment programme**
  - **SARCHI and CoE aligned with thematic priorities (ICT, Energy, Nanotechnology, Invasion biology, TB etc).**
  - **Innovation fund**
  - **Geographical advantage (SKA, SALT, Biodiversity, Paleo-biogeography, Southern oceans, Ihlabati etc.)**
- **New Business exploration – ongoing**
- **Ongoing strategic planning**
- **NRF as agency of choice in the NSI**

Thank you

RISA