











Presentation to the
Parliamentary Portfolio Committee
on Science & Technology
By
Dr Albert van Jaarsveld
30 July 2014

NRF Mandate - NRF Act



Promote and support 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

NRF Strategic Environment



- National Research and Development Strategy 2002
- 10-Year Innovation Plan 2012
- DHET funding framework transformational goals
 - Equitable student access; quality of teaching and research; student progression rates; equity in allocation of government funds; efficiency & effectiveness of use of funds
- The 12 outcomes of government
- The National Development Plan 2030



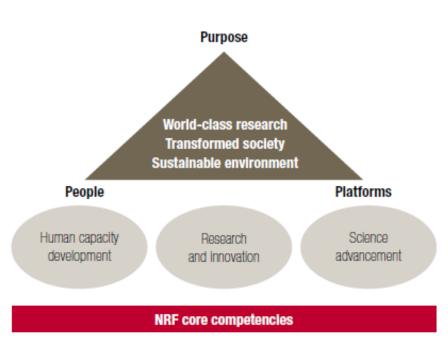
Strategic Plan

of the National Research Foundation



February 2008





NRF VISION

2015

System Goals

A prosperous and sustainable African landscape

Internationally competitive science, technology and innovation system

Representative research and technical workforce in SA World-class science benchmarking and grant systems

Strategic Goals

Leading edge research, technology and innovation platforms

Vibrant national science system

4

NRF Core Competencies



- Grant management systems
- Peer evaluation processes and systems
- Strategic and research information management & dissemination systems
- Providing research platforms
- Science and technology management expertise
- Specialised research capacity
- Catalyst for local & international research collaboration
- Science Engagement expertise and platforms

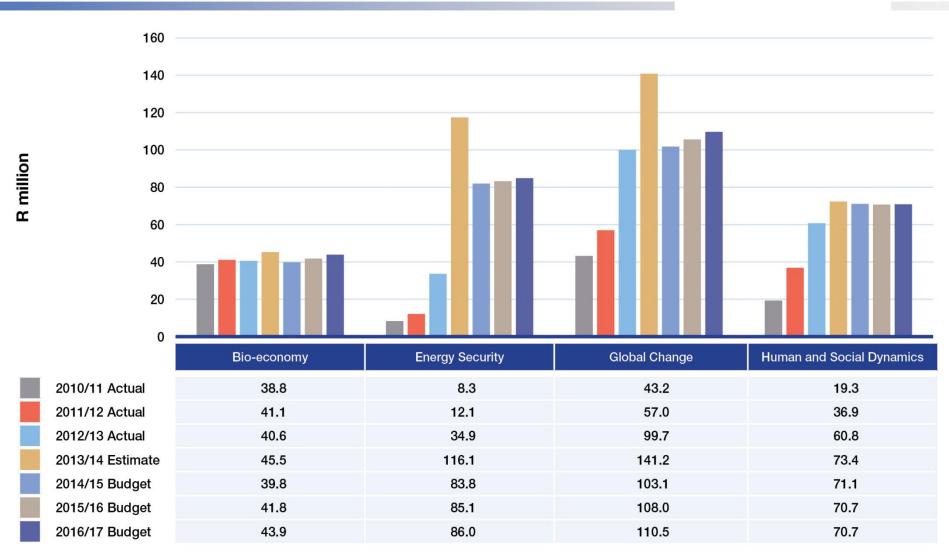
Performance against NRF Vision 2015



Indicator description		Actual 2008/9	Actual 2009/10	Actual 2010/11	Actual 2011/12	Actual 2012/13	Actual 2013/14	Target 2014/15	Vision 2015
Promoting internationally competitive research									
Proportion of Global R&D outputs		0.48%	0.47%	0.52%	0.57%	0.62%	0.61%	0.60%	1%
Number of NRF rated researchers		1 914	2 142	2 285	2 471	2 638	2 959	2 876	2 500
Growing a representative science and techno	logy work	force in So	uth Africa						
	Black	16%	17%	19%	20%	22%	23%	21%	25%
Proportion of NRF rated researchers from	Black		367	433	506	569	668	604	
designated groups to total rated researchers	Momon	26%	27%	28%	29%	30%	30%	30%	35%
	Women		578	634	717	780	889	863	
Operating world-class evaluation and grant-i	naking sys	stems							
Completion rate of applications for NRF rating pe	r annum	95%	99%	99.8%	100%	99.8%	99.8%	95%	95%
Proportion of available grant funding expensed		64%	84%	81%	77%	84%	78%	90%	100%
Providing cutting-edge research, technology	and innova	ation platfo	rms						
Peer-reviewed journal articles (ISI and others) authored or co-authored by National Research Facility researchers		180		220	233	271	305	250	250
Contributing to a vibrant national innovation system									
Doctoral students supported		1 370	1 384	1 937	1 979	2 031	2 265	2 665	2 000
PhD's per million of the population		26.0	27.9	28.4	31.2	35.9	Available end of 2014	32.5	35.0

NRF Investments: DST 10 year Innovation Plan (Grand Challenges)





NRF Investments:

NRDS (Knowledge and Areas of Geographic

23.7

Advantage)

2016/17 Budget

R million





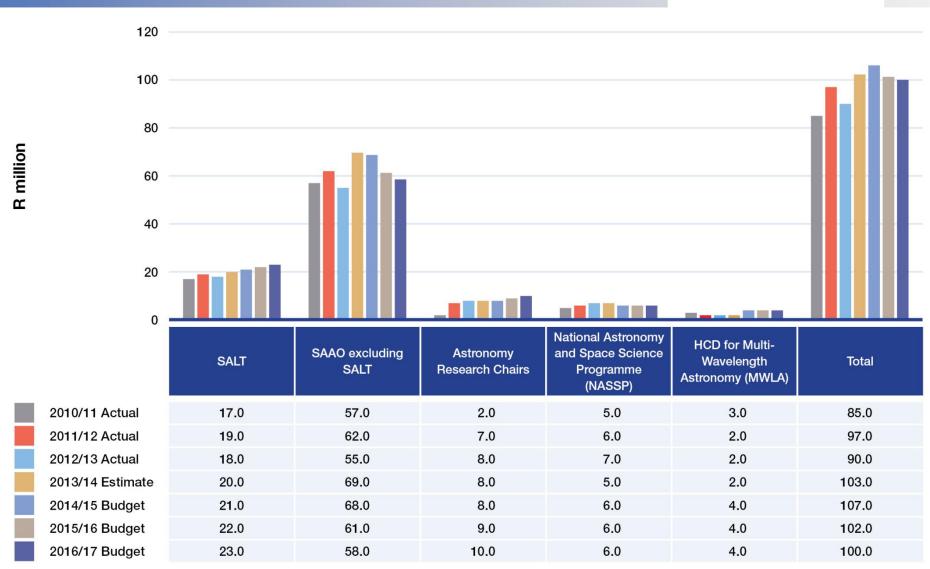
16.0

15.3

86.7

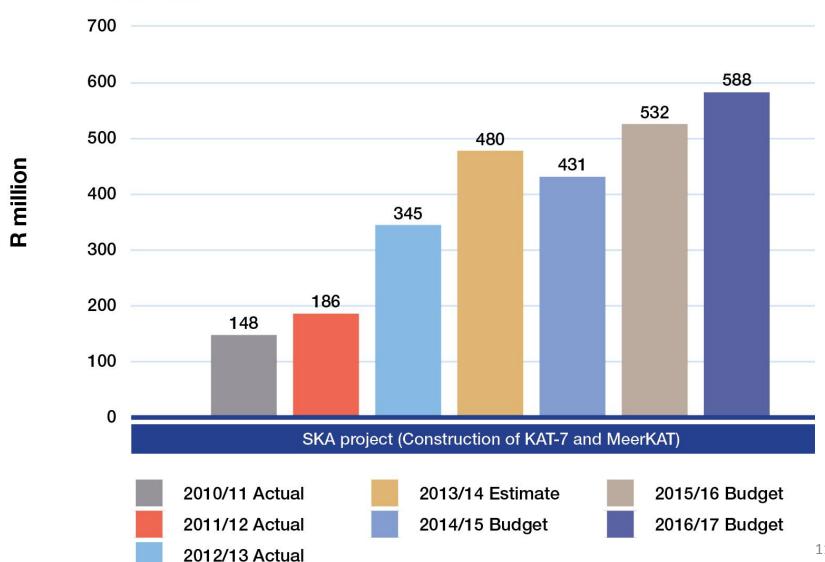
NRF Investments: NRDS (Knowledge and Areas of Geographic Advantage)





NRF Investments: NRDS (Knowledge and Areas of Geographic Advantage)

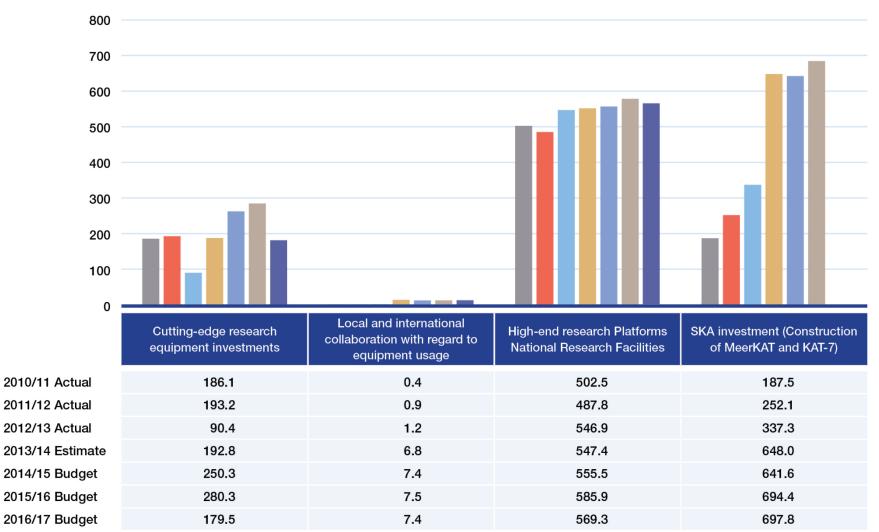




Investment in Equipment and Infrastructure

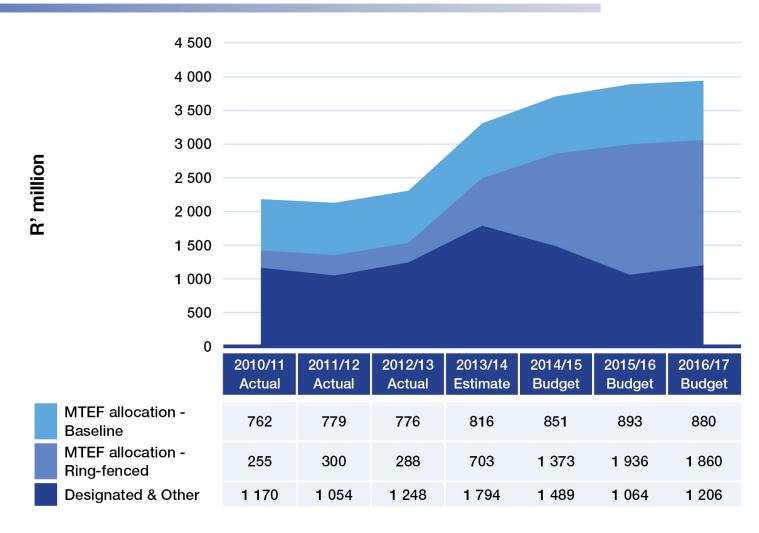






NRF Sources of Income 2014/15 to 2016/17





The NRF Programmes



PROGRAMME 1

CORPORATE

PROGRAMME 2

SCIENCE ENGAGEMENT

PROGRAMME 3

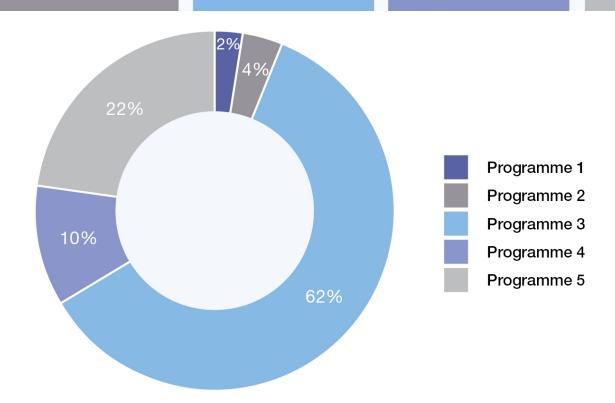
RESEARCH AND INNOVATION SUPPORT AND ADVANCEMENT (RISA)

PROGRAMME 4

NATIONAL RESEARCH FACILITIES – NUCLEAR, BIODIVERSITY, ENVIRONMENTAL & CONSERVATION SCIENCES

PROGRAMME 5

NATIONAL RESEARCH FACILITIES – ASTRO GEOSCIENCES



NRF Savings, Efficiencies & Continuous Improvement

The recent cost containment instructions from National Treasury are being implemented and policies are being updated.

- Leverage economies of scale by negotiating rates with suppliers
- Video conferencing to reduce travel costs and improve connectivity
- Implementation of the staff plan is in progress
- 5-year review recommendations have been implemented
- Student tracking system is being implemented
- RISA Renewal is on track with pilot studies in progress
- National Facilities' sustainability plans, e.g. NZG, SAIAB, SAAO, SAEON



NRF Programme 1: Corporate



OBJECTIVES

				BUDGET (R million)					
2014/15 OBJECTIVES		DESCRIPTION		2014/15	2015/16	2016/17			
1.	Provide and maintain effective, efficient and transparent systems of administration	The programme will: Provide an enabling system of administration for the NRF to ensure that appropriate and relevant policies, procedures and systems exist to enable delivery of the organisational mandate.			102				
2.	Ensure compliance with applicable laws, standards, codes of best practice and non-binding rules	The system of legislation, regulatory frameworks and guidelines that make up the compliance environment must be clearly mapped and incorporated into the standard business processes to ensure transparency, accountability and compliance.	96	100		86			
3.	Cost effective administration	Optimised business processes to ensure efficient and optimal use of resources, thereby keeping overheads as low as possible.							
4.	Corporate Relations	 Building the NRF brand Positioning the NRF nationally and internationally Building stakeholder partnerships 							
		Total	96	100	102	86			

NRF Programme 1: Corporate



KEY PERFORMANCE INDICATORS

			Actual	Estimated	Target		
KEY PERFORMANCE INDICATOR			2012/13	2013/14	2014/15	2015/16	2016/17
1.	Unqualified external audit report with no significant issues	Yes	Yes	Yes	Yes	Yes	Yes
		No	res				res
2.	Proportion of South Africans from designated groups in	Black	60%	60%	60%	61%	61%
	senior management, management and senior supervisory and technical/ professional skill levels	Women	41%	43%	44%	45%	45%
3.	3. Customer/reputation surveys			Not measured	65%	70%	75%
4.	Total NRF overheads: calculated as a percentage of total expenditure		8.7%	<10%	<10%	<10%	<10%
5.	Corporate overheads: calculated as a percentage of total expenditure		1.5%	<3%	<3%	<3%	<3%

NRF Programme 1: Corporate



Over the next 3 months and an beyond:

- Finalise the conceptualisation and commence change management in preparation of the launch of the new IPMS (Performance Management) framework;
- Continued drive to adequately capacitate the Corporate office;
- Renewed focus on the management of overheads;
 - Engagement with PURCO to tap into their contracts and systems
- Bolster the business intelligence environment through the roll out of the BIS, investigation into RIMS synergies and the roll out of ERDMS



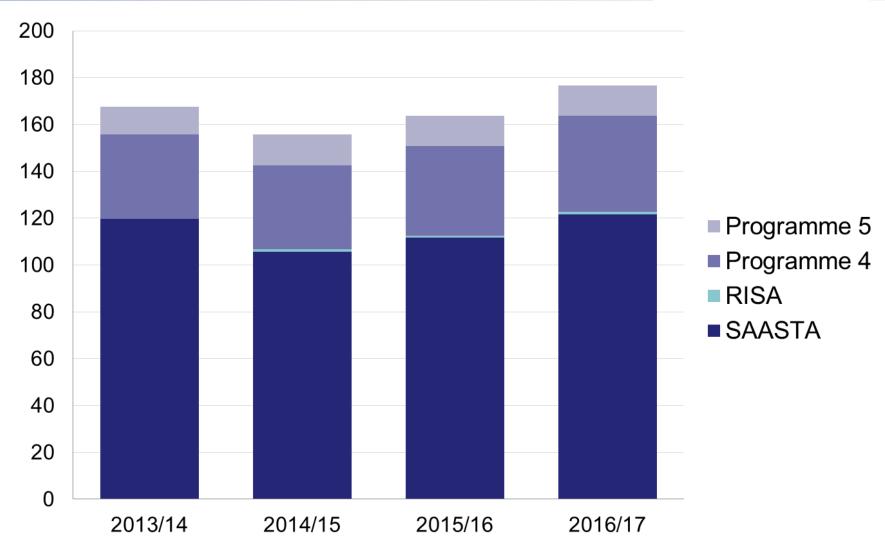
NRF Programme 2: Science Engagement



			BUDGET (R million)					
2014/15 OBJECTIVES		DESCRIPTION	2013/14	2014/15	2015/16	2016/17		
1.	Science Education	Improving learner and educator participation in SET-based programmes Increasing learner exposure to SET-based careers	54	35	39	40		
2.	Science Engagement	Stimulating the communication of SET to public audiences Provision of public access to relevant scientific and technological information	30	26	27	29		
3.	Science Communication	 Increasing the quality and quantity of science reporting with regard to print and broadcast media Developing communications media suitable for target audiences Effective profiling of NRF researchers and scientists Building capacity amongst science communication practitioners 	26	34	34	38		
4.	Human Capacity Development	The development of human capital in order to: Drive research strategy; and Meet the transformation objective of the National System of Innovation.	0.34	0.37	0.37	0.37		
5.	Internationalisation and Mobility	Facilitating national and international research partnership networks	0.27	0.24	0.27	0.27		
6.	Support	Providing world class administrative and strategic support to meet business objectives of the program	9	10	11	14		
7.	Science Engagement Programme 3	Promoting science awareness	0	1	1	1		
8.	Science Engagement Programme 4	Promoting science awareness	36	36	38	41		
9.	Science Engagement Programme 5	Promoting science awareness	12	13	13	13		
		TOTAL	168	156	164	177		

Science Engagement Funding





NRF Programme 2: Science Engagement



Over the next 3 months and beyond:

- Focus on the RISA Integration
- NRF Stakeholder surveys
- Mzansi for Science Campaign [production phase]
- Science in Society Lecture Series with DST/NRF CoEs
- 50th Anniversary of the National Science Olympiad and special book launch – 10 July 2014
- National Science Week rollout: 4-9 August 2014 and launch –
 02 August 2014
- Science Engagement Framework implementation plans

Science Engagement: SAASTA and Corporate 2014/15



- Consolidation and preparation for the implementation phase of an approved science engagement strategy;
- Roll out of the Accreditation of Science Centers across the national network;
- Improved science engagement coordination across NRF RISA science engagement implementation;
- Celebration of the 50th year of the National Science Olympiad;
- Hosting of the 3rd African Science Communication Conference; and
- Ongoing efforts for revitalisation of the Johannesburg Observatory complex.

Science Engagement: National Research Facilities 2014/15



The National Research Facilities will continue to invest in Science Engagement activities through:

- Targeted workshops and activities for learners such as, the Summer School for Grade 11 learners (iThemba LABS),
 Science competitions and Science camps;
- Annual undergraduate conferences where students using the national facility platforms have an opportunity to present their research;
- Workshops, winter schools and science activities for learners in the Northern Cape (hosted by the SAAO and SKA SA); and
- The development of a public lecture series (iThemba LABS).



NRF Programme 3: RISA



OBJECTIVES

			BUDGET (R million)					
2014/15 OBJECTIVES		DESCRIPTION	2013/14	2014/15	2015/16	2016/17		
1.	Human Capacity Development	 The development of human capital in order to: Drive research strategy; and Meet the transformation objective of the National System of Innovation 	1 222	1 261	1 491	1 588		
2.	Research Infrastructure	Providing cutting edge research platforms and technology	229	278	308	208		
3.	Knowledge Generation	The NRF supports knowledge generation through: The creation of capacity; Investment in new fields of knowledge; and Investment in advancing existing fields of knowledge.	688	796	778	934		
4.	Internationalisation and Mobility	Facilitating national and international research partnership networks	177	141	147	164		
5.	Support and Administration	Providing world-class grant administration, evaluation and evaluation and rating systems to support the business objectives of the programme	73	54	59	43		
		TOTAL	2 389	2 530	2 784	2 937		

NRF Programme 3: RISA

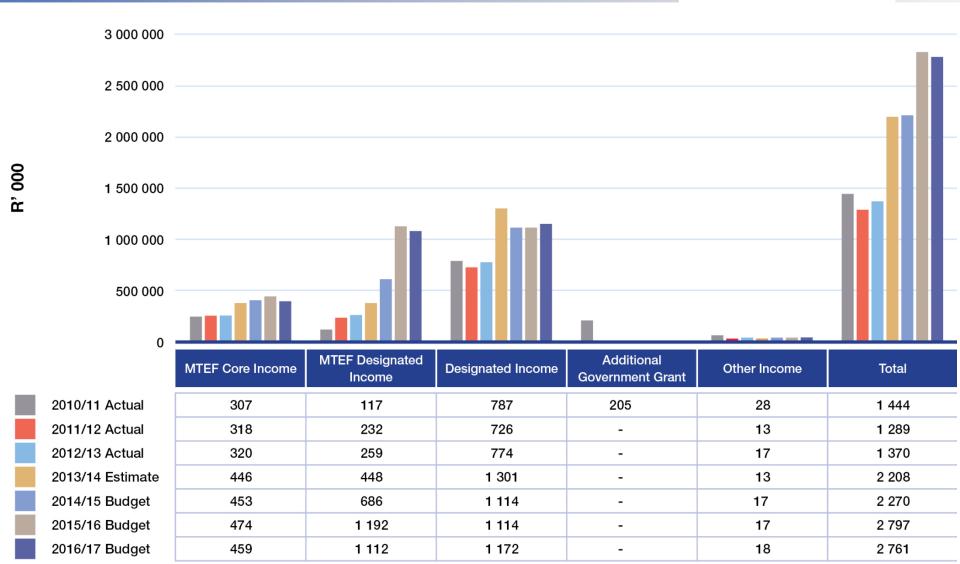


KEY PERFORMANCE INDICATORS

			Actual	Estimated	Target			
KEY PERFORMANCE INDICATOR					2013/14	2014/15	2015/16	2016/17
1.	Number of ISI publications published by NRF-funded res	searchers		5 188	5 500	5 700	6 000	6 200
2.	Available grant funding awarded			84%	90%	90%	90%	90%
3.	3. Number and proportion of NRF-funded researchers from designated groups to total number of NRF-funded researchers *	Black	%	26%	31%	34%	37%	40%
		DIACK	no.	790	1 185	1300	1450	1650
		Maman	%	34%	41%	44%	47%	50%
		Women	no.	1 044	1 567	1700	1850	2075
4.	Number and proportion of postgraduate students from	Dlook	%	63%	62%	65%	68%	71%
	designated groups to total NRF-funded postgraduate students *	Black	no.	5 541	6 914	7 400	7 850	8 150
	otagonio	\\/ \	%	52%	51%	53%	54%	55%
		Woman	no.	4 557	5 722	6 100	6 250	6 350
5.	Total infrastructure investment (Rand)			91 516	19 225	257 672	287 758	187 074
6. Rating applications reviewed			786	790	800	815	830	
7.	7. Number of grant applications processed through NRF Online			5 634	6 176	7 846	8 663	8 663
8.	Number of postgraduate students from designated	Black		3 397	4 200	4 600	4 700	4 800
	groups to total NRF-funded postgraduate students	Woman		2 031	2 645	2 665	2 680	2 800

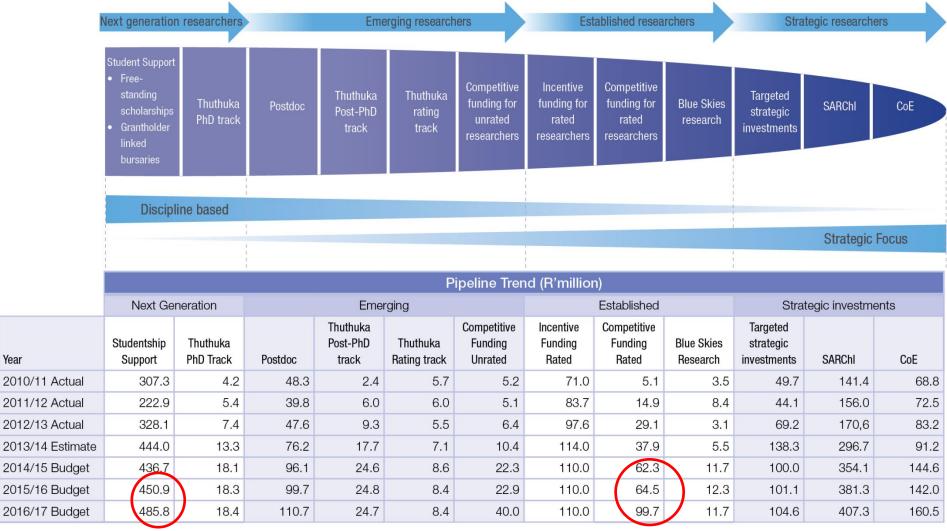
RISA Funding Summary





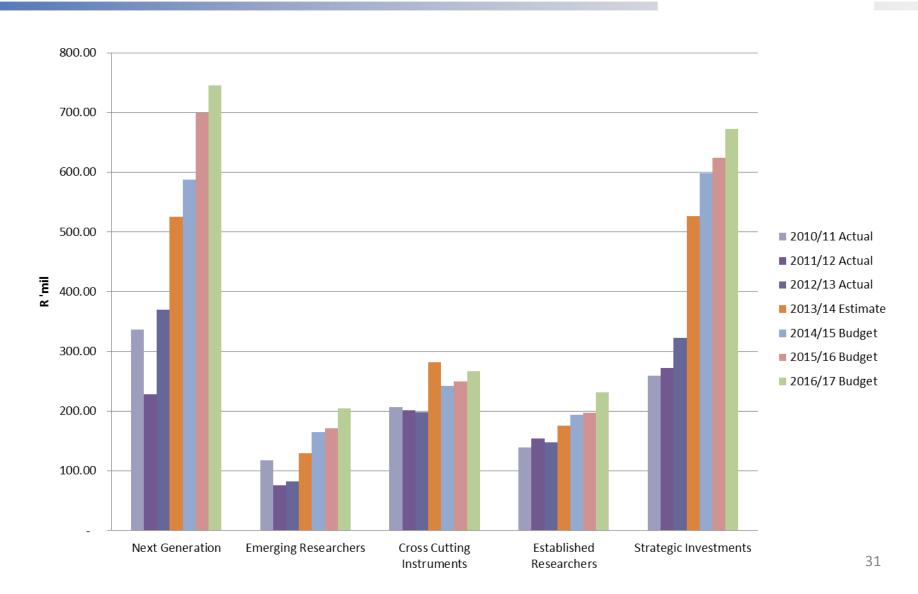
Human Capacity Development Excellence Pipeline





Human Capacity Development Excellence Pipeline - Investment





Next Generation Researchers

333.6

307.0

315.7

325.1

350

2013/14 Estimate 2014/15 Budget

2015/16 Budget

2016/17 Budget



13.3

18.1

18.3

18.4

300 250 R million 200 150 100 50 0 Free-standing Grantholder-linked Other development Increase bursary Thuthuka PhD track scholarships bursaries grants numbers and values 2010/11 Actual 198.1 109.2 25.5 4.2 93.0 2011/12 Actual 102.4 5.4 27.5 243.6 84.4 35.0 2012/13 Actual 7.4

68.3

132.6

132.0

135.5

110.4

129.7

135.2

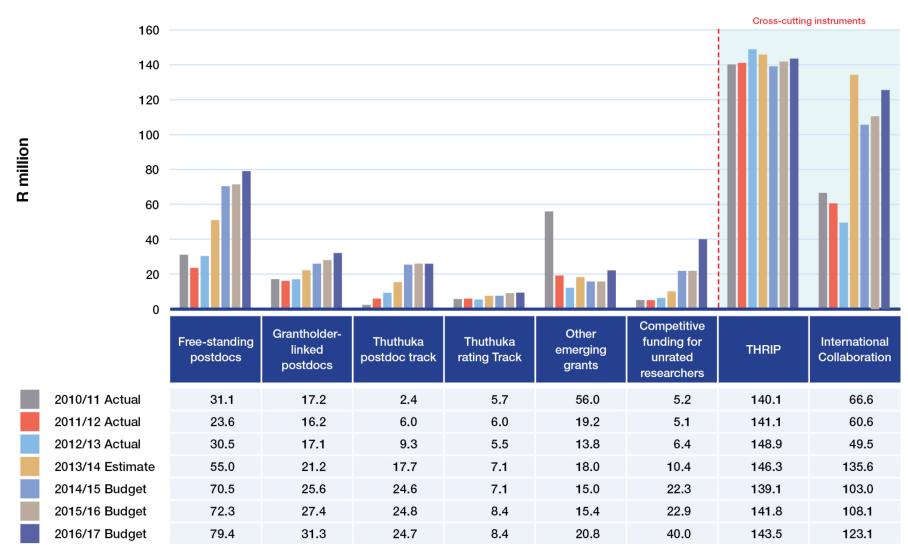
160.7

97.9

106.2

Emerging Researchers and Cross Cutting Investments

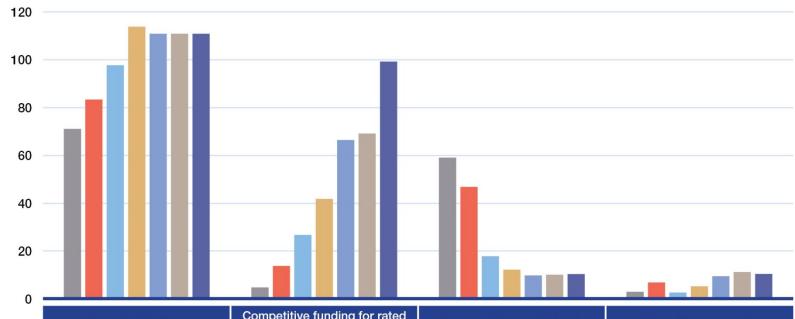




Established Researchers



R million

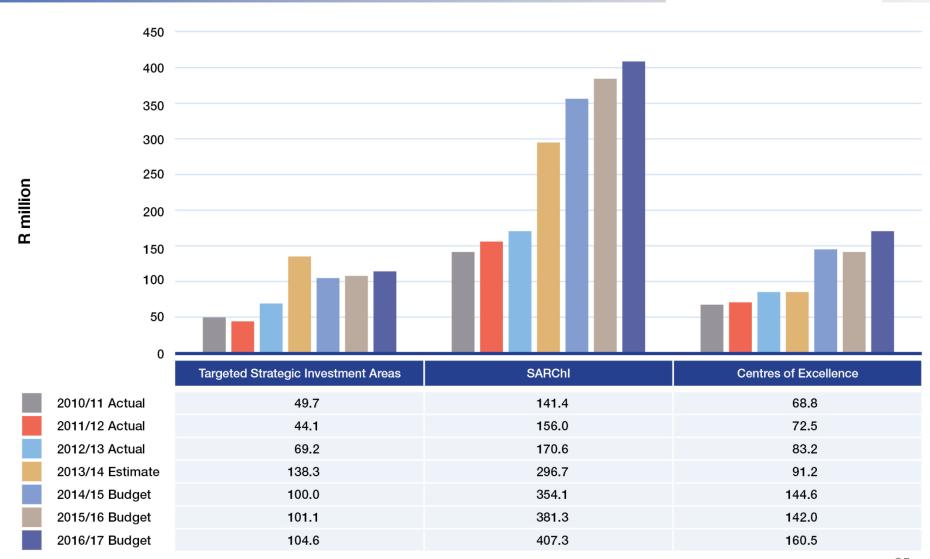


2010/11 Actual
2011/12 Actual
2012/13 Actual
2013/14 Estimate
2014/15 Budget
2015/16 Budget
2016/17 Budget

Incentive funding	Competitive funding for rated Researchers	Focused Research Grants	Blue skies research
71.0	5.1	59.4	3.5
83.7	14.9	47.1	8.4
97.6	29.1	17.9	3.1
114.0	37.9	18.6	5.5
110.0	62.3	9.8	11.7
110.0	64.5	10.0	12.3
110.0	99.7	10.3	11.7

Strategic Investments





Transforming the Research Environment



South African Research Chairs Programme

	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Number of operating Research Chairs	34	69	69	77	74	90
Female	40 (36%)	150 (45%)	202 (47%)	222 (43%)	256 (49%)	223 (49%)
Male	68 (62%)	183 (55%)	230 (53%)	299 (57%)	266 (51%)	236 (51%)
Not specified	2 (2%)	X <u>=</u>	82	(±)	=	-
	201	147	154	172		
Black	52 (47%)	192 (58%)	231 (53%)	295 (57%)	299 (57%)	265 (58%)
White	55 (50%)	140 (42%)	197 (46%)	223 (43%)	220 (42%)	194 (42%)
Not specified	3 (3%)	1 (0%)	4 (1%)	3 (1%)	3 (1%)	0
Total	110 (100%)	333 (100%)	432 (100%)	521 (100%)	522 (100%)	459 (100%)

Centres of Excellence

CoE Outputs	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Postgraduate students supported	395	401	418	476	492	652
Female students	170	192	199	239	257	284
Black students	211	206	229	243	240	341

NRF Programme 3: RISA



Over the next 3 months and beyond:

- There is a need to continue feeding the entire research ecosystem on a balanced basis through the investment in next generation, emerging researchers, established researchers;
- Special emphasis on excellence and needs-based bursary allocations with the continued student support adhering to Ministerial Guidelines (targets for African students, foreign students and students with disabilities);
- Continued focus on roll out of the new Centres of Excellence (CoEs);
- Continued prioritisation of SARChI. The Communities of Practice (CoPs)
 Research Chairs were established with the first chair dealing with "Poverty and inequality" which has a direct link to the National Planning Commission;
- Launch the new Research Career Advancement Fellowships (RCAF) for emerging researchers.



NRF Programme 4: Nuclear, Biodiversity, Environmental and Conservation Sciences



OBJECTIVES

			BUDG		(R million)	
201	4/15 OBJECTIVES	DESCRIPTION	2013/14	2014/15	2015/16	2016/17
1.	Human capacity development	Development of human capital in order to: Drive the research strategy; and Meet the transformation objective of the NSI.	6	5	5	5
2.	Research infrastructure	Providing cutting-edge research platforms and technology	135	128	154	134
3.	Knowledge generation	Support for knowledge generation through: Investment in new fields of knowledge; andInvestment to advance existing fields of knowledge.	116	118	119	123
4.	Internationalisation and mobility	Facilitating national and international research partnership networks.	14	11	11	0.43
5.	Retail opportunities	Retail operations within the facility (kiosks,etc)	10	12	12	13
6.	Support and administration	Providing efficient operational, management and business system support.	126	130	136	144
		Total	407	404	437	419

NRF Programme 4: National Research Facilities



KEY PERFORMANCE INDICATORS

				Estimated	Target		
KE	Y PERFORMANCE INDICATOR	2012/13	2013/14	2014/15	2015/16	2016/17	
1.	Number of ISI publications emanating from the facilities		157	160	170	180	190
2.	Platform provisioning (R'000)	New infra-structure (CAPEX) and Repairs	39,221	63,569	44,266	75,673	55,231
		Number of platform users	957	1,041	1,060	1,112	1,164
3.	Number of students supervised by facility staff	Total	195	201	227	237	247
		Black	56%	56%	56%	57%	57%
		Women	37%	37%	37%	38%	39%
4.	Number of students using the facilities for their degree purpose	Honours	38	39	42	45	47
		Masters	138	144	214	220	227
		Doctoral	96	102	115	121	125
5.	Proportion of South Africans from designated groups in management and senior supervisory levels	Total	289	294	299	304	310
		Black	52%	53%	54%	55%	56%
	icvoic	Women	30%	30%	31%	32%	32%
6.	Number of joint international agreements		46	51	57	60	62
7.	Targeted science engagement interactions	Number of learners	262 886	237 686	238 170	248 864	260 067
		Number of educators	5,135	4 835	7 223	8 332	9 441
		Public	568 969	553 980	562 462	576 300	585 550
						40	

NRF Programme 4: Nuclear, Biodiversity, Environmental and Conservation Sciences



INFRASTRUCTURE INVESTMENT

	2012/13			2013/14			Budget		
Expenditure Type	2013/14	Actual Expenditure	NET VAR.	Budget	Latest Projection	NET VAR.	2014/15	2015/16	2016/17
Capital	28.8	29.1	(0.2)	20.7	45.7	(24.9)	43.3	68.1	34.7
Repairs, maintenance and upgrades	19.9	10.0	9.8	12.2	17.8	(5.5)	13.3	14.4	20.4
TOTAL	48.8	39.2	9.5	32.9	63.5	(30.5)	57.0	82.5	55.2

NRF Programme 4: Nuclear, Biodiversity, Environmental and Conservation Sciences



Over the next 3 months and beyond:

- Implementation of AMS system at the 6 MV accelerator facility in Gauteng
- Replacement of:
 - 5.5 MV Van De Graaff accelerator with 3 MV Tandem accelerator
 - Finalisation of the particle therapy strategy for iThemba LABS
- Commercialisation of Radio-isotope production (iThemba/NECSA)
- Finalisation of the transfer of the NZG to SANBI
- Conversion of the animal Hospital into Centre for Wildlife Health Research
- Upgrade of the marine platform to include state of the art oceanography equipment
- Development of eco-physiology lab with Rhodes University and isotope lab in collaboration with IsoEnvironmental.



NRF Programme 5: Astro-Geosciences National Research Foundation

OBJECTIVES

			BUDGET (R million)					
2014/15 OBJECTIVES		DESCRIPTION	2013/14	2014/15	2015/16	2016/17		
1.	Human capacity development	Development of human capital in order to: Drive research strategy; and Meet the transformation objective of the NSI.	35	36	30	24		
2.	Research Infrastructure	Providing cutting-edge research platforms and technology.	475	450	302	338		
3.	Knowledge Generation	Support of knowledge generation through: The investment in new fields of knowledge; and Investment to advance existing fields of knowledge.	53	67	62	65		
4.	Internationalisation and mobility	Facilitating national and international research partnership networks.	45	265	345	291		
6.	Support and administration	Providing efficient operational, management and business system support.	109	86	113	116		
		Total	717	904	852	833		

NRF Programme 5: Astro-Geosciences National Research Foundation

KEY PERFORMANCE INDICATORS

		Actual	Estimated	Target			
KE	Y PERFORMANCE INDICATOR	2012/13	2013/14	2014/15	2015/16	2016/17	
1.	Number of ISI publications emanating from the facili	ities	110	115	125	130	140
2.	Platform provisioning (R'000)	New infrastructure (CAPEX) and repairs	224,665	457,134	432,468	293,431	316,571
3.	Number of students supervised by facility staff	Total	57	57	60	70	80
		Black	44%	44%	45%	48%	48%
		Women	19%	19%	22%	24%	26%
4.	Number of students using the facilities for their degree purpose.	Honours	38	39	45	57	57
		Masters	28	30	34	38	42
		Doctoral	20	20	22	24	26
5.	Proportion of South Africans from designated	Total	142	169	173	178	183
	groups in management and senior supervisory levels	Black	45%	45%	46%	47%	48%
		Women	22%	23%	23%	24%	25%
6.	Number of joint international agreements		25	25	25	25	25
7.	Targeted science engagement interactions	Number of learners	78 044	65 500	69 475	72 737	75 617
		Number of educators	3 496	4 950	4 899	5 20	5 351
		Public	23 645	19 200	18 805	19 732	20 681

NRF Programme 5: Research Infrastructure



INFRASTRUCTURE INVESTMENT

	2012/13			2013/14			Budget		
Expenditure Type	2013/14	Actual expenditure	NET VAR.	Budget	Latest projection	NET VAR.	2014/15	2015/16	2016/17
Capital	489.6	203.1	286.4	303.1	451.5	(148.3)	453.0	288.7	311.8
Repairs and maintenance	216.7	21.4	0.18	18.1	5.5	12.5	4.7	4.6	4.7
TOTAL	511.2	224.6	286.6	321.2	457.1	(135.8)	457.7	293.4	316.5

The investments are dominated by the SKA SA, the scheduled MeerKAT and the commencement of the infrastructure projects for SKA Phase I.

Programme 5: The Astronomy Sub Agency



Over the next 3 months and beyond:

- Catch up the backlog with MeerKAT Construction;
- Conversion of dishes for Ghana and Mozambique;
- Construction of a VLBI 2010 antenna system at HartRAO;
- Funding for a 4-m class optical telescope is being pursued;
- New 1.0-m telescope to replace the 0.5-m and 0.75-m telescopes;
- Active participation in the SA Gravity Wave Astronomy (GWA) project;





Organisational Challenges



- Programme 1
 - Constant fluxes in compliance and reporting environments in the public sector have resulted in an increased cost of doing business;
 - Expansion of the Pretoria NRF Office is necessary.
- Programme 2
 - The NRF Act does not explicitly include science advancement strengthened;
 - The budget limitation of SAASTA and for science advancement in total, limits the coverage of science communication and engagement, especially for rural and disadvantaged communities.

Organisational Challenges



- Programme 3
 - The anticipated growth in funding for Human Capital developments is welcomed;
 - We do need to ensure we maintain a balanced portfolio of investment to develop a healthy research ecosystem;
 - The future of the SANAP programme is still unresolved;
 - RIMS funding not yet out of the woods.
- Programmes 4 & 5
 - Transferring the NZG to SANBI
 - Refocussing the National Facilities on their respective science plans is a priority
 - Rolling out the first year of operations for the Astronomy sub-agency
 - Advisory Council
 - Deputy CEO

Mitigation and Opportunities



- The NSI should continue to strive for the 1.5% of GDP investment in R&D to ensure global competitiveness;
- The outsourcing of non-critical functions will be pursued (radioisotope production and radio-therapy);
- Shedding all long-term lease agreements, especially for office space;
- NZG transfer to be effected;
- "Mzanzi for Science" offers an important impact opportunity for the NSI;
- Appropriate cost containment measures to be implemented;
- New NRF Board should be in place by October 2014.

Conclusion



- The NRF is appreciative of the close collaborative relationship that is developing between the DST and the NRF;
- Incremental growth in funding is encouraging, not yet optimal
- The NRF will embark on a consultation exercise with the Higher Education sector in the run-up to the new strategic plan to replace "Vision 2015" during 2014;
- Unsustainable MTEF baseline funding (< 5%) still a concern;
- The NRF Board has requested the NRF to expand its strategic capabilities over the next few years.

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