Submission

of the NRF

to

The Fees Commission

29 July 2016

1. Mandate and Business of the NRF

The NRF is a statutory organisation whose mandate 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 conducting its business the NRF is committed to effecting transformation, with excellence, across the national system of innovation (NSI). The NRF pursues delivery on its mandate primarily through the following types of interventions:

- Provision of research funding and bursaries/scholarships through a variety of instruments. These instruments are operated from the business unit of the NRF called Research and Innovation Support and Advancement (RISA).
- Provision of research infrastructure/platforms through national research facilities managed by the NRF across the country, as well as provision of funding for unique mega-equipment located at one or more research institutions in the country. These include Higher Education Institutions.
- Science engagement activities primarily driven out of a business unit of the NRF called (SAASTA) but effected through all the operations of the NRF as well as other stakeholders and partners across the NSI.

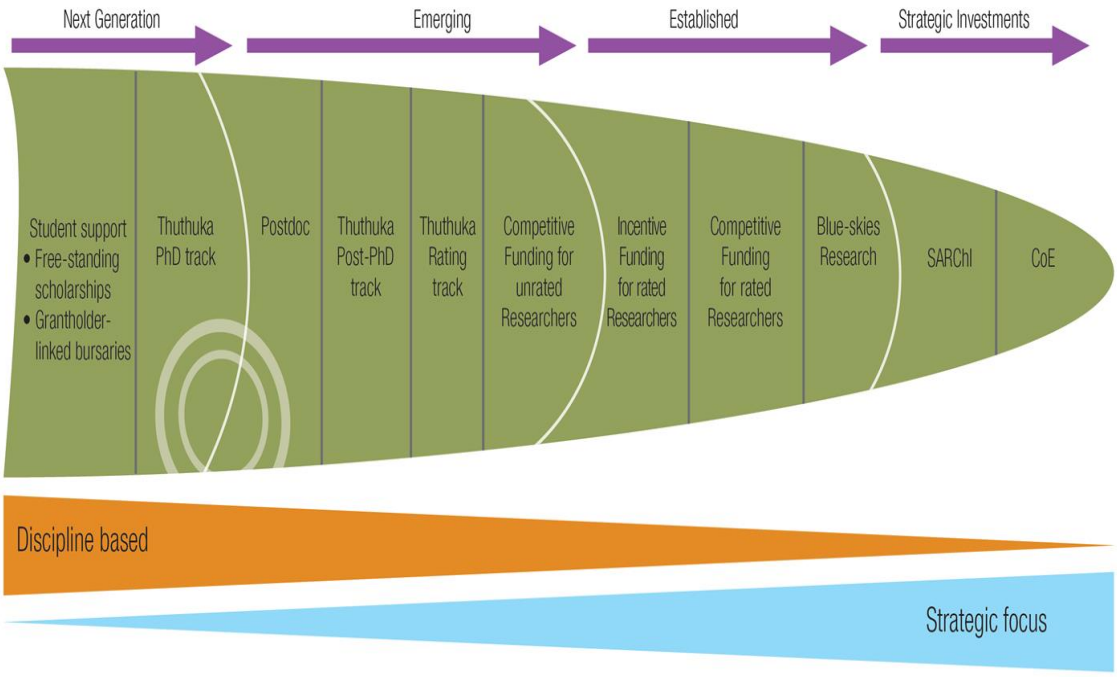
The NRF's interventions are in research and postgraduate study of which the higher education sector is the primary beneficiary. Beyond the higher education sector, other partners of the NRF and beneficiaries of its interventions include other research institutes, business, industry and international partners.

Visit the NRF website (www.nrf.ac.za) for more information on the NRF.

This submission of the NRF is a contribution to the work of the Judicial Commission of inquiry into the feasibility of free Higher education and Training. Hence, its focus is on the two business areas of the NRF, which are run through RISA, namely:

1. The provision of scholarships/bursaries, which are provided as competitive free-standing (around 75%) or grant-holder-linked (around 25%).
2. The provision of research grants, as most of these include funding for students trained within the funded research projects (the grantholder-linked bursaries).

The illustration below maps the various RISA interventions which contribute to the postgraduate human capital development.



2. Bursaries and Scholarships

Portion Funded by NRF

The NRF funds a relatively small portion of the national body of postgraduate students, with this portion increasing from Honours to PhD (< 6% of Honours/BTech; < 8% of Masters; and < 16% of PhD) (see **Figure 1** below).

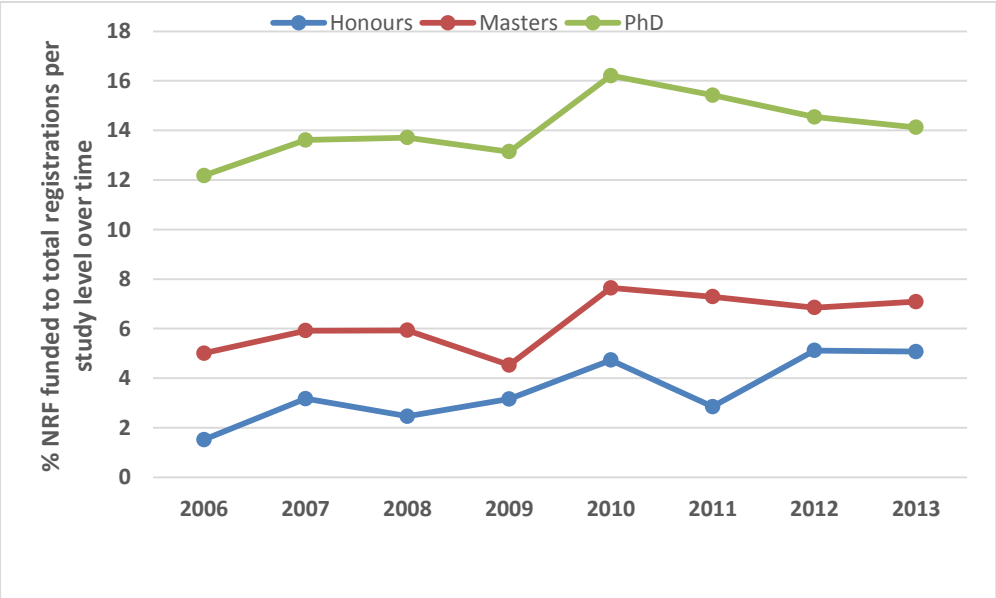


Figure 1: Portion of students funded by the NRF at Honours/BTech, Masters and PhD level, **as a fraction of national registration.**

This funded portion is based on a general success rate of 40% to 60% of the total applications received by the NRF. Scholarships are awarded, on a competitive basis, against set equity targets hence the success rate for black students are higher than that that of their white counterparts. For purposes of this subject and for simplicity, we will take 50% as the average success rate of applications for bursaries/scholarships across the NRF instruments.

Throughput Rate

The National Plan for Higher Education (2001) set target graduation rates that distinguished between contact and distance programmes and different types of qualification. The national benchmarks for graduating are 60%, 33% and 20% for Honours, Masters and PhD students respectively. As is evident from **Tables 1** to **3** below, the throughput rate for NRF-funded students is generally better than the nationally set targets, averaging at 100%, 46% and 26% for Honours, Masters and PhD degrees respectively.

Table 1: Comparison of the number of NRF-funded Honours/BTech students in any one year, with the number of NRF-funded Honours/BTech students who graduate in that same year

Year	Number of Students		Percent Graduated *vs* Funded
	Funded	Graduated	
2009	1,696	1,584	93
2010	2,718	2,212	81
2012	2,951	2,498	85
2013	3,149	2,883	92
2014	3,448	2,978	86

Table 2: Comparison of the number of NRF-funded Masters students in any one year, with the number of NRF-funded Masters students who graduate in that same year

Masters	Number of Students		Percent Graduated *vs* Funded
	Funded	Graduated	
2008	2,475	1,140	46
2009	2,718	1,143	42
2010	3,566	1,297	36
2011	3,564	1,502	42
2012	3,397	1,683	50
2013	3,703	1,806	49
2014	4,263	2,162	51

Table 3: Comparison of the number of NRF-funded Doctoral students in any one year, with the number of NRF-funded Doctoral students who graduate in that same year

Doctoral	Number of Students		Percent Graduated *vs* Funded
	Funded	Graduated	
2008	1,370	341	25
2009	1,723	409	24
2010	1,937	440	23

Doctoral	Number of Students		Percent Graduated *vs* Funded
	Funded	Graduated	
2011	1,979	509	26
2012	2,031	610	30
2013	2,265	656	29
2014	2,845	793	28

It is noteworthy that since 2008, the percentage of NRF-funded Masters and doctoral graduations has been consistently higher than that of non-NRF funded students. Furthermore, the average age of obtaining a PhD for students receiving NRF free-standing PhD funding was 31.6 years and 74% graduated before the age of 30 (An Exploratory Evaluation of The Socioeconomic Impacts of Selected NRF Funding Instruments, 2015).

Student retention in the postgraduate pipeline

The provision of postgraduate scholarships and bursaries is a key driver for addressing the "leaky pipeline" in building the human capital base and SET workforce needed for South Africa to transform into a knowledge-based economy.

A quantitative study commissioned by the NRF of a cohort of students that received NRF free-standing scholarships between 2008 and 2012 found that these scholarships allowed the postgraduate students to continue studying and to pursue studies in areas of choice (An Exploratory Evaluation of The Socioeconomic Impacts of Selected NRF Funding Instruments, 2015). The analysis is based on responses of a representative quarter of the total population of 2008-2012 free-standing scholarship holders (881 respondents). The majority of responding Master's (56%) and just under half of the Doctoral scholarship holders (46%) believe that they would have had to opt out of their studies at some stage without the NRF scholarship. Furthermore, a high proportion (60%) of these NRF funded students enrolled for a Doctoral degree immediately after obtaining a Master's degree. A large proportion of the Doctoral scholarship holders had completed or was completing a postdoctoral fellowship on their career path to becoming established researchers.

The study also confirms that students are not enrolling for a higher degree simply because limited funding is available as only a minority (6% of Master's and 3% of Doctoral student respondents) cited access to funding as the only reason for continuing their studies for a higher degree. The majority are motivated by a desire to pursue a career in academia, to engage in specific research, or to generate new knowledge.

Bursary Values

Historically bursary and scholarship values were set at a very low level and did not take into consideration the full cost of fees and living expenses. A study commissioned by the DST on the Retention, Completion and Progress Rates of South African Postgraduate Students (2015) revealed that just under 60% of postgraduate students considered terminating their studies with Masters and Doctoral students citing inadequate finances as the primary reason for considering discontinuing their studies.

Over the past decade, efforts have been directed at increasing these values from an extremely low base while simultaneously increasing the number of postgraduate bursaries awarded.

The NRF Postgraduate Bursary/Scholarship values for the 2015 academic year are shown in the table below.

	NRF Postgraduate Bursary/Scholarship values (R)	
	Free standing	**Grantholder linked**
Honours Full-time	30 000 and 50 000	20 000 to 40 000
Masters full-time	50 000 to 85 0000	40 000 to 70 000
Doctoral full-time	70 000 to 110 000	60 000 to 100 000

The following is evident or apparent with regards to the value of NRF bursaries and scholarships:

1. In the case of the Honours' bursaries, they are not sufficient to cover the cost of university fees and living expenses even at the upper end of the scale (**Annexure 1**).
2. While bursary values have generally increased over the past few years, this increase has not been consistent neither has it kept up with inflation (**Annexure 1**). In real terms, the value of NRF bursaries does not adequately support postgraduate students when compared with the full cost of fees and living expenses and the earning potential of the Honours and Masters graduates.
3. At the current values, the NRF bursaries and scholarships cover around 66% of the full cost of graduate or postgraduate studies. The students therefore have to supplement either through additional sources of income or make use of tuition waivers, which are not available across all institutions.

In the 2015/16 financial year, the NRF invested just over R715 million in bursaries for 11 061 Honours, Masters and PhD students (see **Table 5** below).

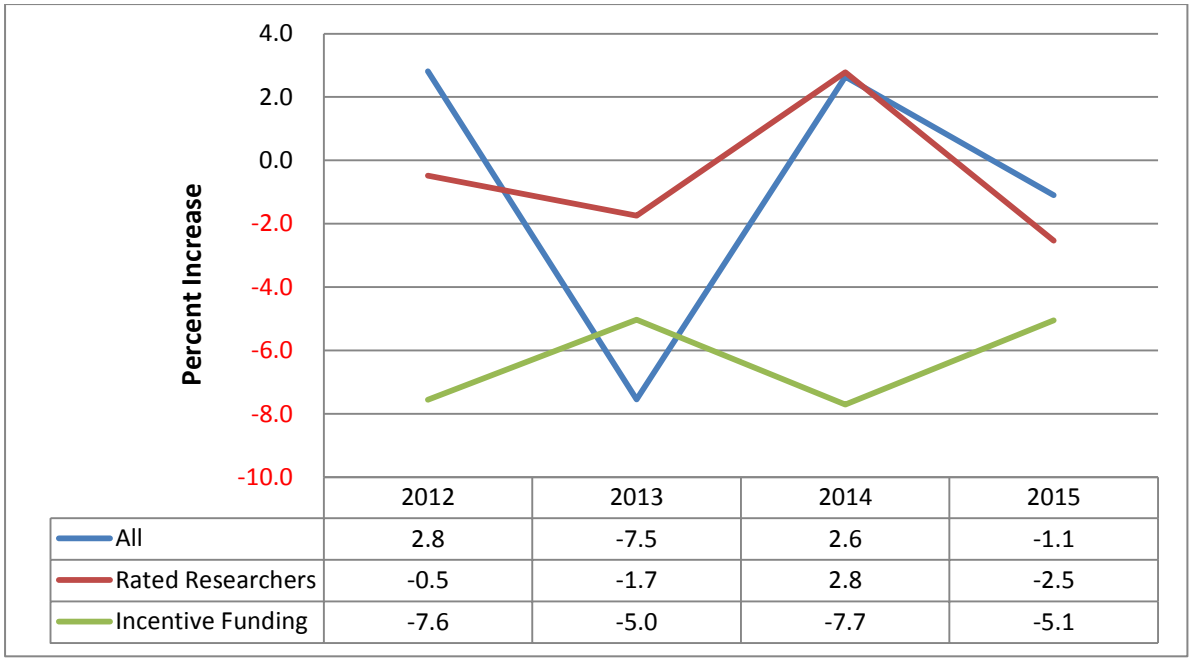
Table 5: Number of NRF-funded students in the 2015/16 financial year.

Study Level	Number of students supported	Investment per study level (R000)
Honours/BTech	4 033	192 023 924
Masters	4 657	256 690 356
PhD	2 371	266 286 274
Total	**11 061**	**715 000 554**

3. Research Grants

Shrinking Grants

Figure 2 below presents the average increase in NRF grant value (as a %), over four (4) years (2012 – 2015), for three (3) categories of grants. The increases are corrected for inflation (Consumer Price Index (CPI) was 5,71, 5,30, 5,32 and 5,23 for the four years). What is evident from this is that in real terms, researchers experienced a nett decrease in the value of grants they received from the NRF. This situation is counterproductive for building a knowledge economy that is competitive.



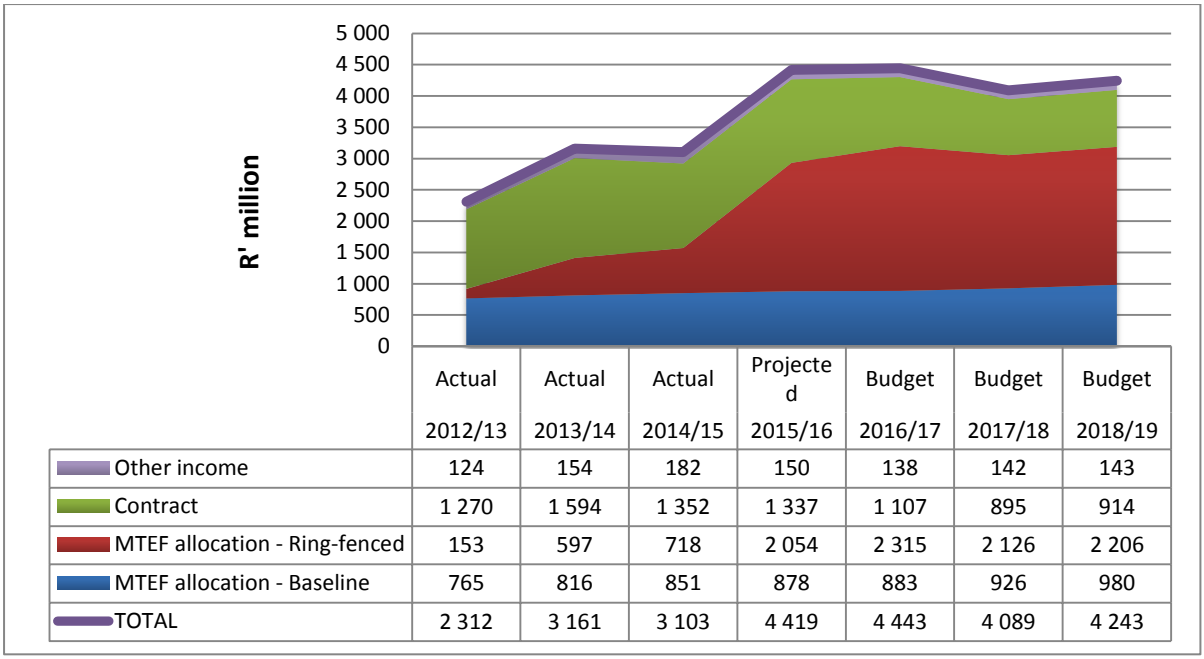
	2012	2013	2014	2015
All	2.8	-7.5	2.6	-1.1
Rated Researchers	-0.5	-1.7	2.8	-2.5
Incentive Funding	-7.6	-5.0	-7.7	-5.1

Figure 2: Rate of growth of NRF grants, corrected for CPI.

4. NRF Budget

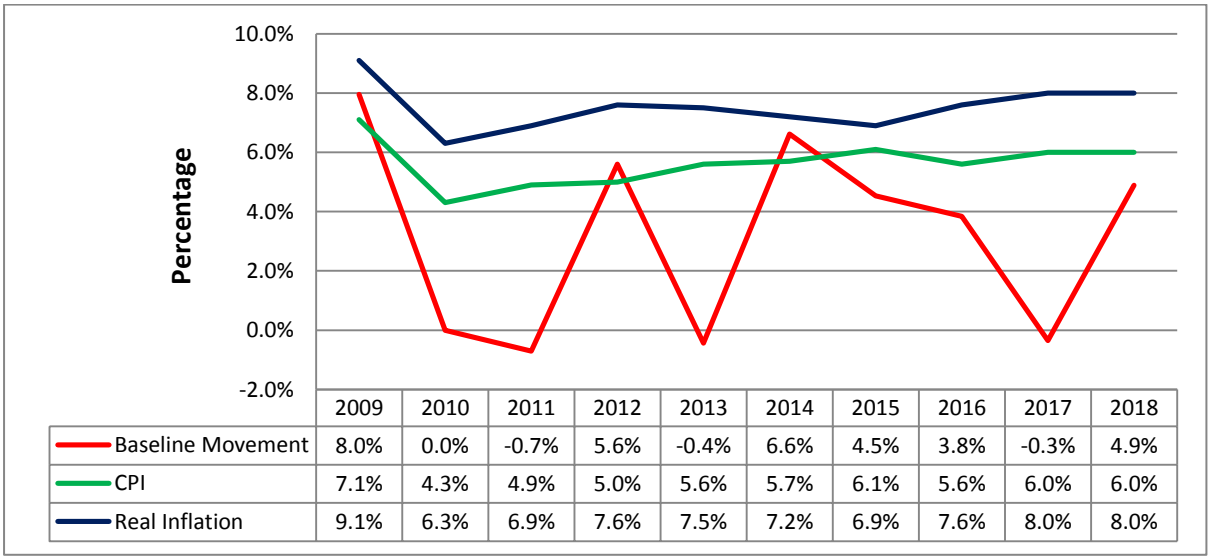
Stagnant Parliamentary Grant

The NRF's parliamentary grant has remained essentially stagnant for at least four (4) years ("MTEF Allocation – Baseline" in **Figure 3** below). **Figure 3** also shows that over this period the NRF has had to depend on contracts and ring-fenced funding, the size of which has increased over the same MTEF period. The demand for more funding for human capacity development, infrastructure and taking a lead in research excellence make this current resource allocation approach unsustainable for the NRF to respond adequately to the needs of postgraduate funding, research and development. The NRF is also not receiving sufficient funds to significantly transform (postgraduate and research excellence pipeline) the science and technology system as it is expected to. It must be noted that the Masters and Doctoral postgraduate cohort are key contributors to research outputs in South Africa as is the case globally. Taking CPI into account, the NRF has over this period experienced a nett decrease in its Parliamentary grant (**Figure 4**).



	Actual 2012/13	Actual 2013/14	Actual 2014/15	Projected 2015/16	Budget 2016/17	Budget 2017/18	Budget 2018/19
Other income	124	154	182	150	138	142	143
Contract	1 270	1 594	1 352	1 337	1 107	895	914
MTEF allocation - Ring-fenced	153	597	718	2 054	2 315	2 126	2 206
MTEF allocation - Baseline	765	816	851	878	883	926	980
TOTAL	2 312	3 161	3 103	4 419	4 443	4 089	4 243

Figure 3: Income Trends over Medium Term Expenditure Framework period.



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Baseline Movement	8.0%	0.0%	-0.7%	5.6%	-0.4%	6.6%	4.5%	3.8%	-0.3%	4.9%
CPI	7.1%	4.3%	4.9%	5.0%	5.6%	5.7%	6.1%	5.6%	6.0%	6.0%
Real Inflation	9.1%	6.3%	6.9%	7.6%	7.5%	7.2%	6.9%	7.6%	8.0%	8.0%

Figure 4: A comparison of Parliamentary allocation to inflation, by year.

5. Cost Projection

According to the Department of Higher Education and Training (DHET) approved student enrolment plans, the numbers are set to increase to an expected 183,147 postgraduate students by 2017. Thus at the number of bursaries and scholarships available across the system would need to be significantly increased in line with the growth in postgraduate student numbers. The NRF is embarking on developing a costing model taking into consideration the following:

- Economic indicators for estimating full-cost bursaries and scholarships;
- Needs-based differential bursary and scholarship values;
- Criteria for identifying financially needy students; and
- Cost modelling based on current demand and NDP projected postgraduate registrations of 25% of university enrolments by the year 2030.

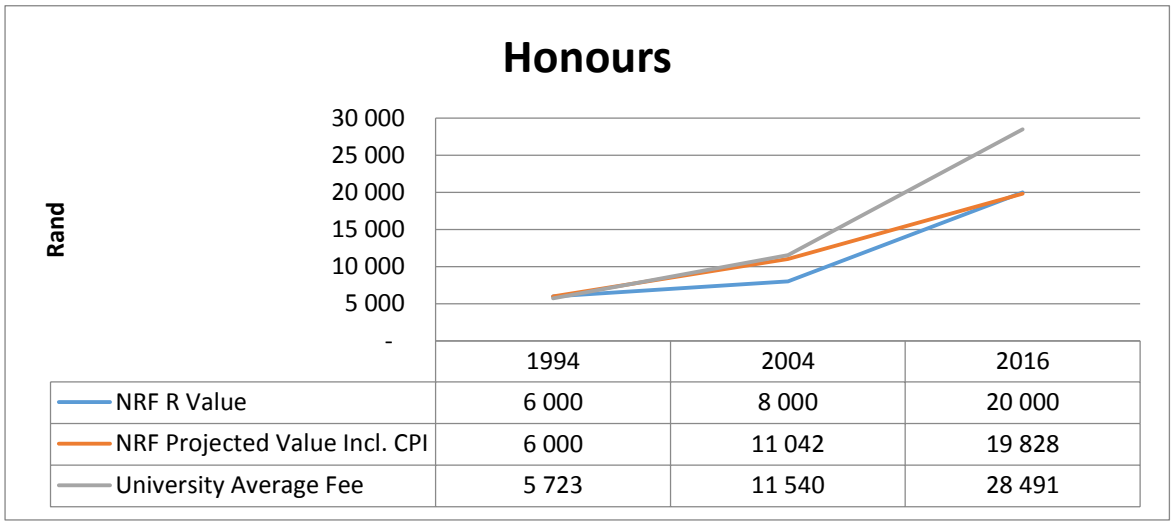
6. Feasibility of free tertiary education

The issue of feasibility of free tertiary education is really about affordability and sustainability. The NRF is cognisant of developments that are placing pressure on national resources to respond to the call for “free education” at tertiary level, and the fact that this call is one that is competing with many other demands on a fiscus which is finite. The NRF holds the view that while primary and secondary education is a constitutional right of all South Africans, free higher education is not enshrined in the same manner. The affordablility of free higher education for all admitted students is questionable under the current economic climate in South Africa.

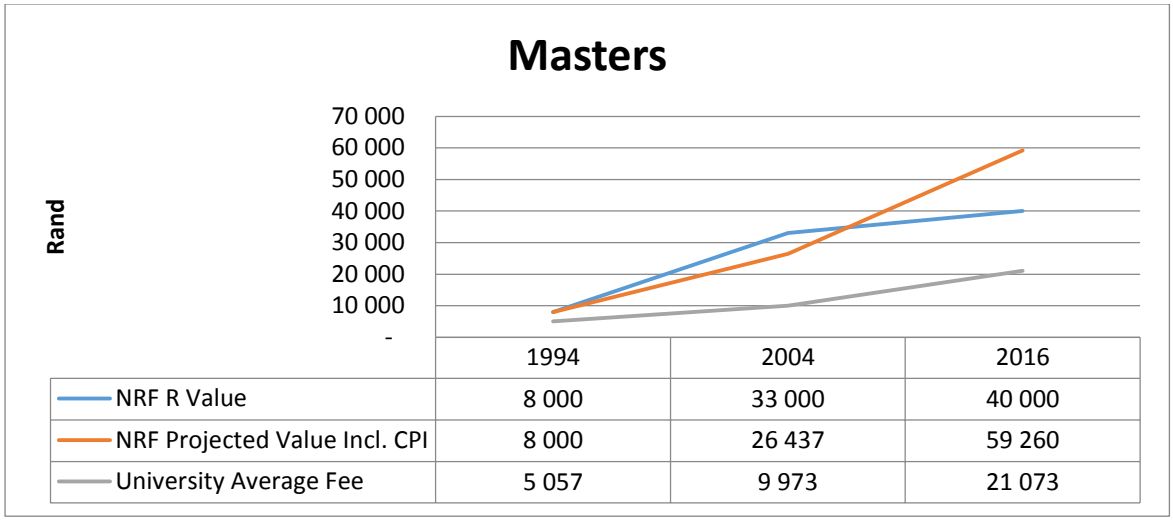
The NRF is of the view that a more affordable and sustainable solution is one that funds students on the basis of cost of study but that is selective and differentiates on the basis of the following principles and/or guidelines:

- Selectivity informed by focus/priority areas and transformation imperatives and targets.
- Differentiation which categorises students for full, partial or no funding depending on income levels and access to other funding such as bursaries.

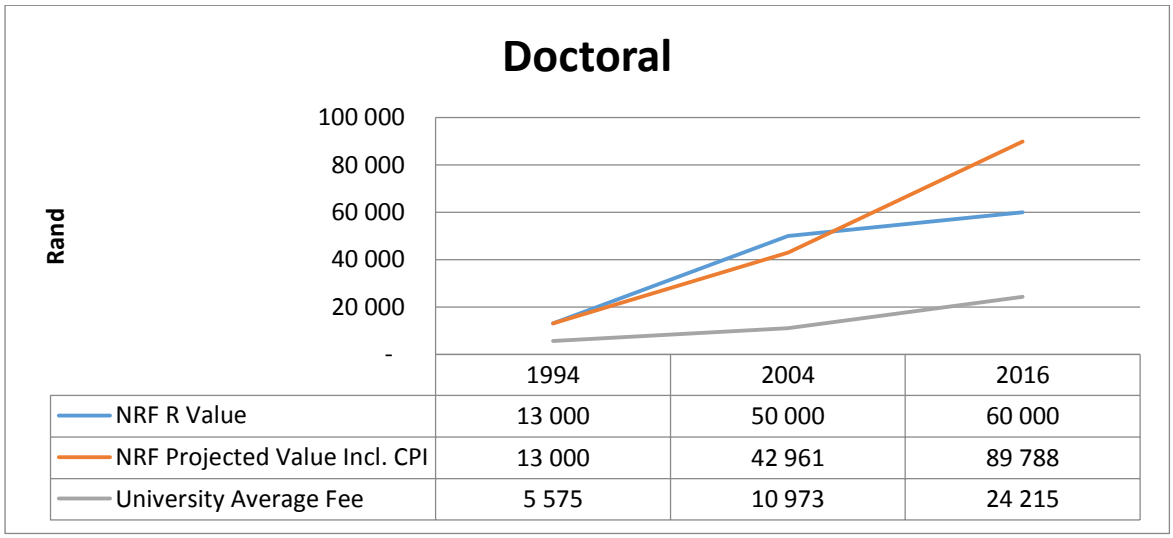
Annexure 1: NRF grantholder-linked bursary values vs inflation vs actual fees.



	1994	2004	2016
NRF R Value	6 000	8 000	20 000
NRF Projected Value Incl. CPI	6 000	11 042	19 828
University Average Fee	5 723	11 540	28 491



	1994	2004	2016
NRF R Value	8 000	33 000	40 000
NRF Projected Value Incl. CPI	8 000	26 437	59 260
University Average Fee	5 057	9 973	21 073



	1994	2004	2016
NRF R Value	13 000	50 000	60 000
NRF Projected Value Incl. CPI	13 000	42 961	89 788
University Average Fee	5 575	10 973	24 215