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Framework & Funding Guide for co-funded DST-NRF SARChI Chairs

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1. Strategic Background

1.1. Context

The *White Paper on Science and Technology* (1996) and *the National Research and Development Strategy* (2002) emphasised the need for South Africa to transform its Science, Engineering and Technology (SET) workforce. Other policy and strategies of government, including the *Human Resource Development Strategy* (2009) and the *Medium Term Strategic Framework* (2009), flagged the shortage of high-level skills as a significant constraint in the development of the economy and society. Accordingly, South Africa must produce a preponderance of highly skilled individuals; particularly in SET, to achieve the goal of "*an equitable, sustainable, and inclusive growth path that brings decent work, sustainable livelihoods, education, health, safe and secure communities, and rural development*".

In order to achieve the above-mentioned goal, the South African Research Chairs Initiative (SARChI) was established in 2006 by the Department of Science and Technology (DST). This funding instrument is managed by the National Research Foundation (NRF) through a contractual agreement with the DST. SARChI is a strategic intervention of the South African government designed to attract and retain research excellence and innovation at South African public universities. In particular, SARChI is aimed at increasing scientific research capacity through the development of human capacity and stimulating the generation of new knowledge. SARChI is also intended to support and advance transformation of South African society in terms of demographics and the knowledge economy, so that there is equitable and inclusive participation in the generation of knowledge and the generation of such knowledge translates into socio-economic benefits.

For the purpose mentioned above and to date, 216 Research Chairs under the auspices of the SARChI were awarded and are operational in various disciplines and research fields at mostly South African public universities. Thus, the SARChI has been successful in retaining leading South African researchers and attracting leading foreign researchers and expatriate researchers to South Africa. However, the SARChI has not been as successful in ensuring racial and gender equity. For instance, females compromise 38% of the Chair-holders, while Blacks, in particular Africans and Coloureds, are grossly underrepresented, collectively accounting for only 14% of all Chair-holders.

It is in this context that the NRF has to constantly explore innovative approaches to grow and strengthen the SARChI, especially in the face of budgetary constraints. Consequently, the NRF has initiated the establishment of international bilateral chairs with other African countries (e.g. Namibia), European countries (e.g. United Kingdom and Switzerland) and has also established co-funded chairs in partnership with other government departments (e.g. Department of Higher Education and Training), other Science Councils (e.g. South African Medical Research Council) as well as the private sector (e.g. First Rand Foundation, Anglo American and Nedbank). To further strengthen this quadruple helix of collaboration between (i) the South African government departments and their respective implementing agencies or science councils, (ii) universities, (iii) private sector partners, and (iv) international partners; the NRF has explored establishment of co-funded chairs with respective universities to accelerate transformation at like-minded universities and within the National System of Innovation (NSI) through the SARChI.

1.2. **Aims and Objectives of co-funded SARChI Chairs**

The core focus of co-funded Chairs is to help willing universities and other public research entities accelerate transformation and maintain research excellence consistent with requirements of the SARChI in research areas aligned to Sustainable Development Goals (SDGs) and National Priorities such as the South Africa's Medium Term Strategic Framework (MTSF) priority outcomes and the DST driven Grand Challenges (Table 1). For this reason, the main aim of co-funded SARChI Chairs is also to strengthen and improve research and innovation capacity of public universities in order to produce high quality postgraduate students and research outputs. The objectives remains as follows:

- Expand the scientific research and innovation capacity of South Africa;
- Improve South Africa's international research and innovation competitiveness, while responding to social, economic and transformation imperatives of the country;
- Attract and retain excellent researchers and scientists;
- Increase the production of Masters and Doctoral graduates; and
- Create research career pathways for young and mid-career researchers, with a strong research, innovation and human capital development output trajectory.

Table 1: International and National Priority Areas to which the Chairs must be aligned[#]

SDGs	MTSF Priority outcomes	DST's Grand Challenges
Goal 1: No Poverty		
Goal 2: Zero Hunger	Vibrant, equitable and sustainable rural communities contributing towards food security for all	Bio-economy: Agriculture
Goal 3: Good Health and Well-being	A long and healthy life for all South Africans	Bio-economy: Health Innovation
Goal 4: Quality Education	Quality basic education	
Goal 5: Gender Equality		
Goal 6: Clean Water and Sanitation		
Goal 7: Affordable and Clean Energy		Energy Security
Goal 8: Decent Work and Economic Growth	Decent employment through inclusive growth	
Goal 9: Industry, Innovation and Infrastructure	An efficient, competitive and responsive economic infrastructure network	Bio-economy: Industry and Environment
Goal 10: Reduced Inequality	A skilled and capable workforce to support an inclusive growth path	
Goal 11: Sustainable Cities and Communities	Sustainable human settlements and improved quality of household life	
Goal 12: Responsible Consumption and Production		
Goal 13: Climate Action	Protect and enhance our environmental assets and natural resources	Global Climate Change
Goal 14: Life Below Water		
Goal 15: Life on Land		
Goal 16: Peace and Justice Strong Institutions	A diverse, socially cohesive society with a common national identity	Human and Social Dynamics
Goal 17: Partnerships to achieve the Goal	Create a better South Africa and contribute to a better Africa and a better world	

[#]The Research Chair must be aligned to at least one SDG and at least one MTSF priority outcome and/or one DST's Grand Challenge listed above.

1.3.**Guiding Principles**

The following principles will inform the awarding of the co-funded Chair:

- The host institution should have secured or be willing to contribute at least 40% of funding towards the Chair for its duration, should it be awarded. This must be preceded by a signed Memorandum of Agreement (MoA) between the host institution and the NRF, clearly stating the amount that will be contributed by each party to the Chair. The minimum duration of such a contribution by each party should be 5 years.

- Application for the Chair is administered through a closed call only accessible to a South African public university/institution, which would have signed the abovementioned MoA with the NRF. Applicant university/institution may only nominate **female** and **Black** candidates, especially Africans and Coloureds. Nominated candidates must **meet the minimum requirements for a SARChI Chair** (Table 2). All applications will be subjected to the same robust peer-review and adjudication processes for the SARChI.

- The research proposal must be aligned to at least one SDG and at least one MTSF priority outcome and/or one DST's Grand Challenge (see Table 1 above).

- The applicant university/institution may nominate and submit a maximum of three (3) applications per call, who must either be from eligible females of any race or Blacks, in particular Africans and Coloureds of any gender.

- The applicant university/institution may also nominate and submit applications from eligible candidates from abroad, specifically females of any race or Africans and Black South Africans of any gender in the diaspora.

- Each application for the research Chair must be in alignment with the university's Programme and Qualification Mix (PQM) approved by the Department of Higher Education and Training;

- The Chair-holder will be expected to dedicate at least 80% of their time conducting research and in the process supervising an average of 10 Masters and Doctoral students per annum as well as mentoring Emerging Researchers

or postdoctoral fellows. Demographics of postgraduate students supervised by the Chair at all levels (i.e. Honours, Masters and Doctoral) must adhere to the Ministerial guidelines on improving equity. Thus, at least 80% of each level of students supervised by the Chair should be Black (including African, Coloured and Indian/Asian South Africans), 55% women and 4% people with disabilities. In terms of nationality, at least 87% of students across all bursaries and scholarships provided by the NRF to the Chair must be South Africans (including permanent residents), 5% should be students from Southern Africa Developmental Community (SADC), 4% should be students from the rest of Africa and 4% should be students form non-African countries.

- Research Chairs are tenable at two Tiers. Tier 1 is for Chairs who are Established Researchers and are recognised internationally as leaders in their respective fields and have received substantial international recognition for their research contributions. Tier 2 is for Chairs who are Established Researchers, with a strong research, innovation and human capital development output trajectory, and have the potential to achieve substantial international recognition for their research contributions in the next five to ten years;

- Candidates appointed without an NRF rating are encouraged and required to get rated within the first funding cycle.

- If the Chair is taken up by a candidate who is a current academic staff member, consistent with the SARChI principle of additionally, the university must immediately initiate a process to fill the vacated position with a suitably qualified candidate.

- Where such replacement candidates are not young, Black or female, the university must develop a succession plan designed to develop a range of possible candidates with competitive capacity within two cycles of a Research Chair award.

1.4. Accountability for Chairs

A Chair may be appointed by the university, at the level of a full Professor or Associate Professor benchmarked nationally. The Chair will fit into the normal management structures of the host institution. However, accountability for the Research Chair will reside with the Vice-Chancellor or Deputy Vice-Chancellor responsible for research at the South African host university.

1.5. Profile of Candidates

The NRF will require that the approved candidate for the Research Chair, for each cycle of 5 year funding, to enter into a performance agreement in the form of '*Conditions of Grant*' and will evaluate the performance of the Chair against the research plan, stated objectives and targets. Therefore, the track record of the nominated candidate is very important to the selection process and success of the Research Chair.

1.6. Criteria for the selection

The broad objectives of these Research Chairs are to accelerate transformation at interested universities/institution committed to co-fund the Chair, and to also strengthen research and innovation capacity in areas aligned to SDGs and national priorities. Following the peer-review of the full proposal and the *curriculum vitae* of the candidate, Chairs may be approved at the Tier 1 or Tier 2 level. This will be determined by the candidate's past research and innovation outputs, track record in supervising and mentoring postgraduate students and postdoctoral fellows as well as national and international recognition for their research contributions. The criteria that must be met by nominated candidates for approval at the Tier 1 or Tier 2 level are detailed in Table1. An added advantage for a candidate to be nominated/recommended at a Tier 1 level, would be that the candidate must be typically an A or B rated researcher. At the Tier 2 level an added advantage for a candidate to be nominated/recommended, is that the

candidate should not be older than 40 at the time of the application and should typically have a C or P rating.

Table 2: Criteria for SARChI Tier 1 and Tier 2 Research Chairs

Tier 1 Research Chairs	Tier 2 Research Chairs
- Should be appointable at the level of a full Professor benchmarked nationally; - Should be an outstanding and innovative researcher whose accomplishments have made a major impact in their field; - Should be recognised internationally as a leader in their field and/or have received substantial international recognition for their research contributions; - Should have a superior record in attracting and successfully supervising postgraduate students and postdoctoral fellows, taking into account the practices of the field; and - Should reside full-time in South Africa for the duration of the Research Chair award. Candidates from abroad, specifically African scholars and Black South Africans in the diaspora that are willing to spend at least 50% of their time within South Africa are eligible for consideration.	- Should be appointable at the level of an Associate Professor or full Professor benchmarked nationally; - Should be an established researcher, with a strong research, innovation and human capital development output trajectory; - Should have the potential to achieve substantial international recognition for their research contributions in the next five to ten years; - Should have demonstrated the ability to attract and successfully supervise postgraduate students and postdoctoral fellows; and - Should reside full-time in South Africa for the duration of the Research Chair award. Candidates from abroad, specifically African scholars and Black South Africans in the diaspora willing to reside full-time in South Africa for the duration of the Chair are eligible for consideration.

1.7.**Application, Review and Selection Process**

The co-funded DST-NRF SARChI Chairs will be awarded in a closed process. The application must include, (i) the motivation by the South African public university/institution to host the Research Chair (ii) the suitability of a candidate for appointment to the Chair position; (iii) a research and activity plan with concomitant budget drafted by the approved candidate. The host university/institution may nominate up to three candidates for the Chair position who must submit separate full proposals. The application(s) must be authored by the candidate(s) in consultation with the university's Deputy Vice Chancellor responsible for research.

Each application should give details on:

- The readiness and commitment of the university/institution to provide an enabling environment to ensure the success of the Research Chair:
    - Office and/or laboratory space.
    - Infrastructure (equipment, IT facilities, etc.);
    - Academic support (information, resource facilities and related research groups);
    - Management and leadership; and
    - Financial support (direct and indirect);
    - Reporting lines and location of the Research Chair within the university structure.
- Strengths, capabilities, strategic environment and competencies of the university/institution;
- The alignment of the proposed Research Chair with the scope and priority areas described in Table 1, as well as the research strategy of the university/institution;
- The potential of the proposed Research Chair to enhance the international research and/or innovation competitiveness within the discipline;
- The potential of the research to impact on the social and/or economic development of the country;

- The research focus of the Research Chair;

- A proposed plan on how the Research Chair will fulfill SARChI objectives, including the strategic considerations mentioned in the university proposal; and how it will deliver on the university research strategy; and

- Specific objectives, outputs and outcomes for the first five-year period of funding.

The nominated candidate(s)[1] must use the NRF Online Submission System (https://nrfsubmission.nrf.ac.za/**) to register and/or update her/his *curriculum vitae* and complete the application***.*

Since the Chair is awarded to the host institution, the application by the approved candidate must be supported by the Deputy Vice-Chancellor responsible for research and submitted through the electronic application process by the Designated Authority (DA) of the institution. Each university nominating a candidate for SARChI must submit the following documents through the online application:

- University Research Strategy;

- The university's Programme and Qualification Mix (PQM) approved by the Department of Higher Education and Training;

- Details of current academic and research staff of the university in the specific discipline; and

- Statistics on university research outputs and postgraduate students trained and graduated in the specific discipline over the past five years (e.g. 2013-2017).

The selection of candidates will be based on the merits of each candidate's full research proposal. This will include the strength of the candidate's profile, including her/his

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[1]   No commitment should be given to the candidate(s) by the university before the NRF has officially informed the University of the Award by means of an award letter.

qualifications and experience, publications in the discipline of the Research Chair and postgraduate student supervision track records. This will also include an assessment of the candidate's research and activity plan in respect of its ability to deliver on SARChI objectives, as well as a proposed budget (see Section 3.3. of this document for Funding Levels).

The full proposal must also give specific details on:

- Proposed teaching[2] to research time ratio;
- Research objectives for the first five year period;
- Expected knowledge[3] outputs in the first five year period;
- Expected human capital[4] outputs in the first five year period; and
- Existing and planned collaborations in the first five-year period.

2. Management of the Research Chairs

This section of the Framework and Funding Guide for Applications describes what follows after the Research Chair has been awarded to the university.

2.1. Duration of the Research Chair

Tier 1 Research Chairs will be tenable for five years, renewable for two further five-year cycles, giving a total lifespan of 15 years, subject to satisfactory performance by the Chair following each five year in-depth review. Tier 2 Research Chairs will be tenable for five years, renewable for a further five-year cycle, giving a total lifespan of 10 years, also subject to satisfactory performance by the Chair following each five year in-depth review.

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[2]   Teaching of postgraduate students only. Note: Chair-holders may not spend more than 20% of their time on undergraduate teaching and/or management responsibilities not related to activities of the Research Chair.

[3]   Peer-reviewed journal articles, peer-reviewed conference proceedings, scholarly books and book chapters, patents, invited keynote presentations, conference presentations etc.

[4]   Numbers of Masters and Doctoral graduates and completed postdoctoral fellowships.

Eligibility for renewal will be entirely performance-linked and Tier 2 Chairs may be upgraded to a Tier 1 after the first or second five-year funding period based on the recommendations of a five-year term review.

2.2. **Management of Research Chairs**

The management of SARChI grants is described below and illustrated in Figure 1. On accepting the award and signing the Conditions of Grant (CoG), the newly appointed incumbent of the Research Chair will be required to deliver on the research activity plan that formed part of the accepted full proposal. At the end of each financial year the incumbent will be required to submit to the NRF an Progress Report (PR) addressing the milestones and expected outcomes as presented in the research activity plan in the application.

During year five, of the five-year funding cycle, the Research Chair will be subjected to an in-depth evaluation undertaken by peers following the framework set out in the *SARChI Monitoring and Evaluation Framework*.
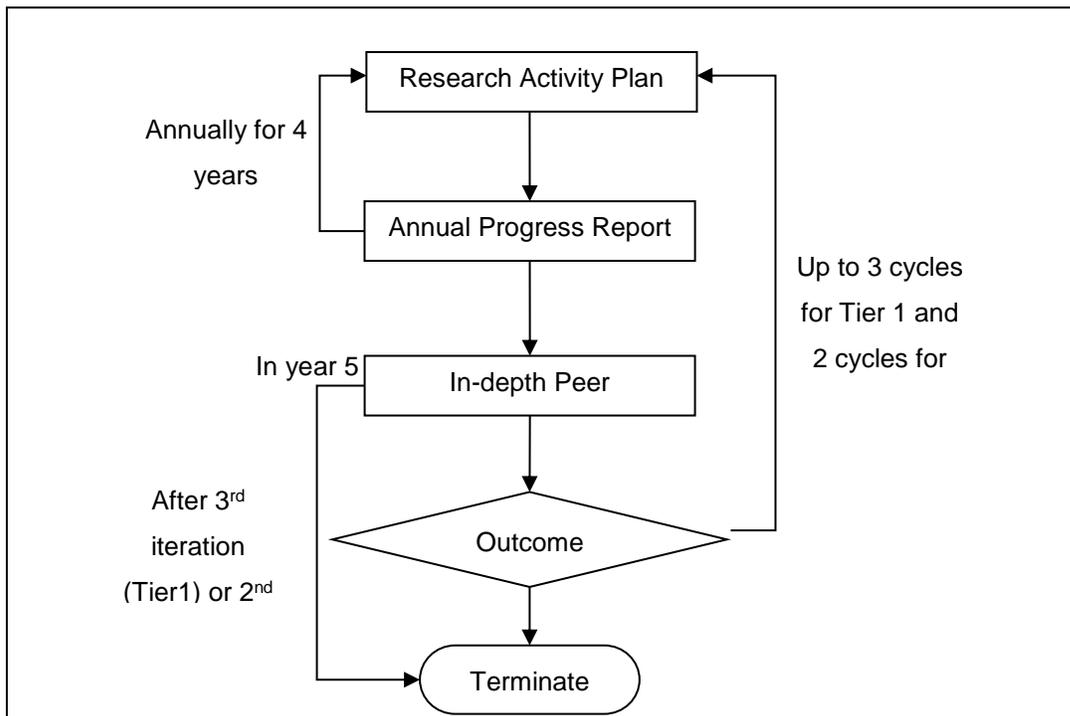
Figure 1: Management of Research Chairs over the tenure of the Research Chair

2.3. **Funding Levels**

SARChI funding instrument provides initial awards of up to R2, 680,000 for Tier 1 Chairs and R1, 680,000 per annum for Tier 2 Chairs. Each award covers salaries[5]; postdoctoral fellowships and bursaries for postgraduate students; research operating costs; research equipment & infrastructure, and overheads for the host institution. The guidelines for apportioning of the grant across these categories and the values of fellowships and scholarships are shown in Table 3.

Table 3: Guidelines for SARChI annual budget breakdown for Tier 1 and Tier 2 Research Chairs

Budget category	Sub-item	Cost per annum (ZAR)	Minimum number of people	Maximum number of people
Salaries	Chair	550 000 (Tier 2) to 700 000 (Tier 1)	1	1
	Admin support	30 000	0	1
	Research Assistants (per person)	30 000	0	3
Fellowships	Postdoctoral Fellows (per person awarded pro rata)	200 000	1	Variable
Bursaries	Doctoral (full-time)	100 000	2	Variable
	Masters (full-time)	70 000	2	Variable
	Honors (full-time)	40 000	4	4

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[5] Salaries of the incumbent and limited administrative support

Research equipment or infrastructure	Variable	≤400 000	Not applicable	Not applicable
Running	Variable	Up to 30% of total budget	Not applicable	Not applicable
University Overheads	Variable	Up to 10% of total budget	Not applicable	Not applicable

It is important to note that Table 3 provides a budget guide that states the minimum and maximum amounts per budget category and has the flexibility for the Chair to allocate the SARChI grant based on the research activity plan. The proposed budget will be approved at the commencement of each five-year funding cycle. The incumbent will be given an opportunity, at the end of each calendar year, to make budget adjustments for the subsequent year, in consultation with the Research Chairs and Centres of Excellence (RCCE) Directorate of the NRF.

Tier 1 Chairs will not be eligible for additional NRF parliamentary core grant funding, except in respect of Incentive Funding for Rated Researchers. Incumbents must apply for grants for large equipment through the NRF Infrastructure Funding Instrument.

However, Tier 2 Chairs may apply for NRF grants as outlined in the Multiple Grants Eligibility Overview (http://www.nrf.ac.za/document/multiple-grants-eligibility-overview-july-2015)

The Chairs are therefore strongly encouraged to attract additional funding for research and human capital development from other national and international funders and donors to supplement the SARChI grant.

2.4. Payment of Grants

The operational value of the grant for year 1 of 5 for the awarded Research Chair will be released to the host institution upon receipt of the signed NRF *'Conditions of Grant'* by the incumbent and paid upon the claim of expenses by the university. Student funding

will be made available to successful nominated postgraduate students and postdoctoral fellows. Grants will thereafter be disbursed to the universities on an annual basis, for the approved funding period, subject to the appointed Chair meeting the *'Conditions of Grant'* and submitting a PR*.*

2.5. **Evaluation and Impact of Research Chairs**

A baseline study of Research Chairs, their institutional and intellectual environments will be conducted with each round of new awards. These studies, together with the universities' Strategic Research Plans and the Research Chair's activity plan, will serve as the baseline to evaluate impact on the discipline and at the institutional level.

3. NRF Contact Persons

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