Funding Instrument:

South African Research Chairs Initiative (SARChI)

Domain:
Research Chairs & Centres of Excellence (RCCE)

Document:

Framework & Funding Guide for DSI/NRF-SAIMI Research Chair in Naval Architecture and Design

March 2024

Table of Contents

1. Introduction

The National Research Foundation (NRF) has entered into an agreement with the South African International Maritime Institute (SAIMI) to establish a Research Chair in Naval Architecture and Design. The purpose for establishing a Chair in this research area is to undertake research, establish a repository of source information, facilitate education and skills development, and provide advisory support to guide prioritisation of areas for development within the fields of naval architecture, marine engineering, ship building, boat building and components manufacturing in South Africa and Africa.

South Africa is favourably situated on a major maritime trade route, which requires ships to travel around the country's coasts. However, full utilisation of this advantage will require the ship repair industry to build its capabilities to add value to its services if South Africa is to compete against the existing, well-established international competition. Furthermore, there is a need to fulfil and respond to the recognised potential of the sector to contribute to export performance, economic growth and job creation, as expressed in successive Industrial Policy Action Plans (IPAPs) since 2011. There has been a number of national policies and initiatives that shows the intent to fully exploit the oceans economy. Despite the South African and African commitment to the oceans economy and promotion of African-controlled shipping, there has been constraints to the abilities of the country and continent to design and build vessels to meet their own needs, as well as to establish a presence in the global markets for ships and boats.

As part of the agreement between NRF and SAIMI, a Research Chair will be established. The NRF and SAIMI are calling for proposals from all public universities and science councils in South Africa to host the Research Chair in Naval Architecture and Design. This document provides information about the SARChI funding instrument and requirements and the specific focus areas of this Chair.

2.   Strategic background

2.1. 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), note the shortage of high-level skills as a significant constraint in the development of the economy and society. In this regard, South Africa must produce a greater number of highly skilled individuals; particularly in SET, to achieve the goal of "*an equitable, sustainable, and inclusive growth path that brings decent work and sustainable livelihoods, education, health, safe and secure communities, and rural development*".

The SARChI Funding Instrument was established in 2006 by the DSI. This Funding Instrument is managed by the NRF through a contractual agreement with DSI. It is a strategic intervention of the South African government designed to attract and retain excellence in research and innovation at South African universities, science councils and national research facilities. In particular, the instrument is aimed at increasing scientific research capacity through the development of human capacity and stimulating the generation of new knowledge. It is also intended to support the realisation of South Africa's transformation into a knowledge economy in which the generation of knowledge translates into socio-economic benefits. SARChI is designed to significantly expand the scientific research base of South Africa in a way that supports implementation of the national research and development policies. Since inception, 276 Research Chairs have been awarded in various disciplines and research fields.

2.2. Aim and Objectives of the SARChI Funding Instrument

The main aim of SARChI Chairs is to strengthen and improve research and innovation capacity of public universities in order to produce high quality postgraduate students and research outputs.

The objectives of the SARChI Funding Instrument are to:

- 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.

3. SARChI Guiding Principles

The following principles will inform the awarding of a DSI/NRF-SAIMI Research Chair:

- Application for the Research Chair is administered through an open call only accessible to a South African public university. Each university may nominate one (1) candidate for this SARChI call who must submit an application. While all demographic groups may apply, preference will be given to females and Blacks, in particular African South Africans and Coloured candidates because they are grossly underrepresented in the SARChI Funding Instrument.

- To ensure equitable distribution of Chairs, while all South African public universities are encouraged to apply, preference will also be given to historically disadvantaged universities and those universities that currently host less than 15 Chairs, provided they meet the minimum requirements for this call.

- The university 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. Applicants from abroad will only be considered for Tier 1 Research Chairs and must be willing to annually spend 50% of their time at the South African university.

- 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.

- Research Chairs are tenable at two Tiers. Tier 1 is for candidates 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 candidates who are established researchers recognised nationally, 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 Research 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.

4. Profile and Minimum requirements

The nominated candidate may be current staff members, new or potential recruits. If the Chair is taken up by a candidate who is a current research staff member, consistent with the SARChI principle of additionality, the institution must immediately initiate a process to fill the vacated position with a suitably qualified candidate. The applicant must be an established researcher that holds a doctoral degree, must have an extensive research track record and must submit a proposed research programme that is innovative, original and of high quality.

4.1. Minimum requirements of the SARChI candidate

Any candidate considering to apply must meet these minimum requirements:

a) The candidate must have a doctoral qualification in a relevant field

b) The candidate must be an Associate or Full professor [1] at the time of application

c) Persons from industry applying must be appointable as an Associate or Full professor, and the institution must commit to this appointment

d) Must be an established researcher, recognised at least nationally in their respective research field

e) Must have an extensive research profile, including peer reviewed journal articles

f) Must have an extensive student supervision record and the ability to attract, recruit and train postgraduate students in the field of study that they are applying for.

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[1] Applicants need to be at least Associate Professors at the time of application.

5. Research guide for the Chair in Naval Architecture and Design

While each candidate will be expected to propose and outline their research plan, the following should guide and inform the research scope of the Chair:

• Regulatory requirements and Technology Trends: High-level Marine Design and Engineering capabilities that are likely to be required to meet future needs for innovative solutions and upgrade packages to accommodate the demands of regulatory amendments and technology trends, such as those directed at pollution reduction, control of environmental impacts of international shipping and efficiency improvement.

• Maintaining competitiveness in pleasure and working vessel markets: Employment and exports have recently risen in the ship and boatbuilding industry in South Africa. Maintaining and improving the country's position in leisure and small-to- medium sized working vessels will require the availability of increasing knowledge and skill levels among naval architects and marine design engineers.

• Localisation. The South African Government's commitment to localisation of ship and boat building will require expansion in capabilities to design vessels and provide related engineering services. A key area role that the Research Chair holder can be expected to play is in provision of guidance on key directions for Maritime Research in support of local vessel and component development.

• African Maritime Transport. In the light of the adoption of Africa's Integrated Maritime Strategy, the establishment of an institution that is able to lead Naval Architecture and Marine Engineering research to international standards will become increasingly necessary to enable maritime industries to take root in Africa.

6. Application, Review and Selection Process

6.1. Application process

The Call for applications for the DSI/NRF-SAIMI Research Chair in Naval Architecture and Design is open to all institutions of higher education. To be considered for review, the application must include, (i) the suitability of a candidate for appointment to the Chair position; (ii) a research and activity plan with concomitant budget drafted by the applicant, (iii) a letter of endorsement from the host institution. All applications must be endorsed by the Deputy Vice Chancellor (DVC) of Research[2]. The proposal must be led by the institution with technical aspects authored by the proposed nominated candidate and approved by the institution to submit a proposal for the Chair.

The application should give details on:

I. The readiness and commitment of the institution to provide an enabling environment to ensure the success of the Research Chair;

II. Strengths, capabilities, strategic environment and competencies of the institution;

III. The alignment of the proposed Research Chair with the proposed thematic area and the strategic plan of the institution and relevant National strategies and instruments such as Operation Phakisa for the Oceans Economy, National Industrial Policy Framework and Industrial Policy Action Plans (IPAPs) and relevant masterplans;

IV. The potential of the proposed Research Chair to enhance the international research and/or innovation competitiveness within the discipline;

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[2] The online application will automatically alert the DVC of Research about applications and request an endorsement. Applicants are also encouraged to get in touch with the office of the DVC of Research prior to the application process.

V.   The potential of the research to impact on transformation, the social and/or economic development of the country;

VI.   The research focus of the Research Chair;

VII. A proposed plan on how the Research Chair will fulfil SARChI objectives, including the strategic considerations mentioned in the proposal; and how it will assist the sector in delivering on the relevant National strategies and instruments such as Operation Phakisa for the Oceans Economy, National Industrial Policy Framework and Industrial Policy Action Plans (IPAPs) and relevant masterplans; and

VIII. Specific objectives, outputs and outcomes for the five-year period.

Applicants should submit their applications on the NRF connect (https://nrfconnect.nrf.ac.za) system and all applications must be endorsed and supported by the Deputy Vice Chancellors responsible for Research and validated by the relevant Designated Authority (DA) before submitting to the NRF for review*.*

As this award of the SARChI Research Chair will be made to the institution, the application by the approved candidate has to be supported through the electronic application process. The research office of the institution must undertake to provide to the applicant during the application process. Institutions are requested to submit the following documentation to be considered as a host for the Research Chair, through the online application:

a) Institution's Strategy/Policy/Framework indicating the approach and requirements for research;

b) Programme and Qualification Mix (PQM) of the affiliated university approved by the Department of Higher Education and Training for universities where the Masters and PhD students are going to be registered;

c) Details of current academic and research staff of the institution in the specific discipline; and

d) Statistics on the institution's research outputs and postgraduate students (Masters and PhD) trained and graduated for the period from 2019 to 2023, in the specific discipline.

6.2. Review process of the DSI/NRF-SAIMI Chair in Naval Architecture and Design

Proposals submitted by candidates will be reviewed via a two-phase process, namely; postal peer-reviews by subject specific experts with relevant expertise in the respective applications' research area and panel reviews comprising of individuals from broad disciplines covering the directed and thematic areas identified for this call for SARChI applications. The review panels comprising of individuals from broad disciplines will draw on the expert reviewers' written feedback and make recommendations to the NRF and SAIMI for the approval of research programmes and plans and on the suitability of the candidate for appointment as a SARChI Chair. Such review panels will comprise of respected individuals with knowledge and insights of the Higher Education System and the National System of Innovation (NSI) and will consider the recommendations of the review panels and select the Research Chairs to be awarded taking into account the strategic objectives of SARChI and the transformation needs of the sector.

6.3. Selection Criteria

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 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.

The full proposal must also give specific details on:
- Proposed teaching/administration to research time ratio;
- Research objectives for the 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.

The application must therefore demonstrate the following:
- Alignment of the proposed Research Chair with the institutions research strategy and PQM of the affiliated university where Masters and PhD students will be registered;
- Alignment of the proposed Research Chair's focus with that of existing research activities or capacity;
- Institution's commitment for creating an enabling environment with regards to:
  - 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 institutional structure.

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[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.

6.4. Award levels

Following the peer review process of the full proposal and the *curriculum vitae* of the candidate, the NRF and SAIMI commit to co-fund and award one (1) SARChI Research Chair that can operate at either a Tier 1 or tier 2 level. The award Tier levels are explained in the table below:

Table 1: Criteria for the award of SARChI Tier 1 and 2 Research Chairs

Tier 1 Research Chairs	Tier 2 Research Chairs
- Should be appointable at the level of a full Professor benchmarked nationally[5]; - Should be an outstanding and innovative researcher whose accomplishments have made a major impact in their field; - Should be recognised internationally as an undisputed 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 post-graduate 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	- 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

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[5] Candidates with exceptional industry background will be considered provided the institution can provide evidence that the candidate is appointable as an associate or full professor, and commit to the appointment after the Research Chair is awarded.

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.	in the diaspora willing to reside full-time in South Africa for the duration of the Chair are eligible for consideration.

An added advantage for a candidate to be recommended at a Tier 1 level, would be that the candidate must be typically an A- or B-rated researcher. Chairs who meet the Tier level criteria but are not rated at the time of application, must be rated within the first five (5) year funding cycle.

7. Accountability and Management of the Chair

The Deputy Vice-Chancellor responsible for research at the South African host university will be directly accountable for the Research Chair.

After the Research Chair has been awarded to the institution, the NRF will require the approved candidate for the Chair to enter into a five year performance agreement in the form of '*Conditions of Grant*' and will evaluate the performance of the Chair every five years against the research plan, stated objectives and targets. The plan will be reviewed.

Tier 1 Research Chairs will be tenable for five years, renewable for two further five-year funding 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 period giving a total lifespan of 10 years, also subject to satisfactory performance by the Chair following each five-year in-depth review. 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. A tier upgrade will be informed by the

recommendations from a five-year term review panel and approved by the NRF and SAIMI executive.

At the end of each financial year the incumbent will be required to submit to the NRF a Progress Report (PR) addressing the milestones and expected outcomes as presented in the research activity plan of the application. During year four/five[6], 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_.
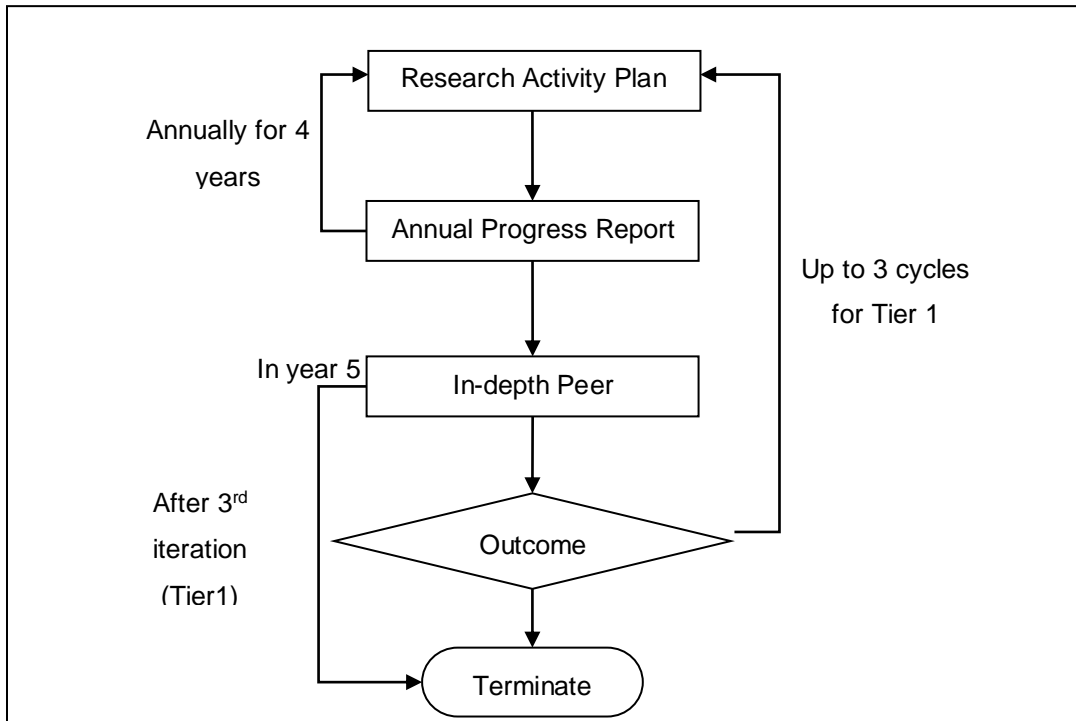

Figure 1: Management of the Chair

8. Funding Levels

SARChI funding instrument provides initial awards of up to R2, 850,000 for Tier 1 Chairs and R1, 850,000 for Tier 2 Chairs. The award covers salaries; postdoctoral

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[6] This depends on which semester (one or two) the Chair was taken up by the incumbent.

fellowships; 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 2.

Table 2: Guidelines for SARChI Budget

Budget category	Sub-item	Cost pa (ZAR)	Minimum number of people	Maximum number of people
Salaries	Chair	700 000 (Tier 1) 550 000 (Tier 2)	1	1
	Admin support	30 000	0	1
	Research assistants (per person)	30 000	0	3
Fellowships	Postdoctoral fellows (per person awarded pro rata)	370 000	1	Variable
Research equipment or infrastructure	Variable	Up to R400 000	Not applicable	Not applicable
Running	Variable	Up to 30% of total budget	Not applicable	Not applicable
Overheads	Variable	Up to 10% of total budget	Not applicable	Not applicable

It is important to note that Table 2 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 and needs. 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. Incumbents must apply for grants for large equipment (above R400k) through the NRF Infrastructure Funding Instrument. However, Tier 2 Chairs may apply for NRF grants as outlined in the Multiple Grants Eligibility Overview. 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.

9. Postgraduate Student Policy

In 2021, the NRF implemented the *DSI-NRF Postgraduate Student Funding Policy* wherein postgraduate funding allocations are underpinned by the principles of equity of opportunity; representivity; prioritisation; and enhanced access, success and throughput. The *DSI-NRF Postgraduate Student Funding Policy* gives effect to the Ministerial guidelines for improving equity in the distribution of DSI-NRF Bursaries and Fellowships (2013). Citizenship, age, gender and disability are considered in the allocation of funding, with transformation of the postgraduate cohort as the core objective. Financial need is included as a criterion for determining the level of funding. To attract and retain a diverse range of students, funding levels cover the full cost of study for students who meet the required criteria.

The NRF's minimum academic requirements for postgraduate funding are as follows:

- **For first-time honours funding -** A minimum average of 65% for major subjects in the final undergraduate year of study;
- **For first-time master's funding -** A minimum average of 65% for all subjects at the honours level OR a minimum average of 65% for all subjects of a postgraduate diploma OR a minimum average of 65% for all final year subjects of a four-year degree; and
- **For first-time doctoral funding -** A minimum of 65% at the master's level.

South African citizens or permanent resident applicants who have **graduated from 2022 academic year with a classification of Pass will not be allowed to apply in the current call**, only applicants with a numerical pass mark may apply for NRF funding. However the following individuals will be allowed to apply without a numerical mark:

- South African citizens or permanent residents who graduated prior to 2022 academic year with a 'Pass' and 'Pass with a distinction'. Applicants with a 'Pass' should enter the 'Pass' under the academic achievement section of the application form, and those with 'Pass with a distinction' should enter 75%;
- South African citizens or permanent residents with a 'Pass with distinction'. These applicants should enter 75% mark in the application form; and
- International applicants applying for masters and doctoral scholarships. These applicants should enter a 'Pass' in the application form.

The eligibility criteria for funding at Full Cost of Study (FCS) and Partial Cost of Study (PCS) listed in Table 3 apply to all first-time applicants for honours, master's and doctoral funding.

Table 3: Eligibility criteria for first time applicants for the DSI/NRF Student Funding for FCS and PCS

Study level	Full Cost of Study		Partial Cost of Study
	Exceptional Achievers	**Financially Needy and Applicants with a Disability**	Other
Honours	Average of ≥ 75% mark for major subjects in the final year of undergraduate study	Average of ≥ 65% mark for major subjects in the final year of undergraduate study	Average of ≥ 65% mark for major subjects in the final year of undergraduate study
	Applicants for honours funding must be **28** years of age or younger in the year of application i.e. applicants **must not be over 28 years** by 31 December 2023. Only South African citizens and permanent residents are eligible for honours scholarships.		
Master's	Minimum average of 75% for all subjects at the honours level; OR Minimum average of 75% for all subjects for a	Minimum average of 65% for all subjects at the honours level; OR Minimum average of 65% for all subjects for a	Minimum average of 65% for all subjects at the honours level; OR Minimum average of 65% for all subjects for a

	Postgraduate diploma level; OR Minimum average of 75% for final year subjects of a four-year degree	Postgraduate diploma; OR Minimum average of 65% for final year subjects of a four-year degree	Postgraduate diploma; OR Minimum average of 65% for final year subjects of a four-year degree
	Applicants for master's funding must be **30** years of age or younger in the year of application i.e. applicants **must not be over 30 years** by 31 December 2023.		
Doctoral	Minimum average of 75% for Master's degree	Minimum average of 65% for Master's degree	Minimum average of 65% for Master's degree
	Applicants for doctoral funding must be 32 years of age or younger in the year of application i.e. applicants must not be over 32 years by 31 December 2023**.**		

Only South African citizens and permanent residents who are either financially needy, living with a disability or exceptional academic achievers are eligible for FCS. Applicants that are eligible for FCS can be awarded at PCS due to budget constraints. The NRF reserves the right not to make an award or adjust a grant under any circumstances from PCS to FCS. The PCS funding will be awarded to South African citizens, permanent residents and 5% of international students.

The entry age requirement is 28, 30 and 32 years for honours, master's and doctoral studies respectively, in the year of application, regardless of first year of registration.

For more information on the student policy, please go onto the NRF online.

10. Evaluation and Impact of Research Chairs

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

11. Ethical Clearance

It is the responsibility of the grant holder, in conjunction with the institution, to ensure that all research activities carried out in or outside South Africa comply with the laws and regulations of South Africa and/or the foreign country in which the research activities are conducted. These include all human and animal subjects, copyright and intellectual property protection, and other regulations or laws, as appropriate. A research ethics committee must review and approve the ethical and academic rigor of all research in accordance with institutional ethical policies and procedures. The ethical clearance approval should be held by the institution and the grant holder and accessible on request, if necessary. Please also refer to the "Statement on Ethical Research and Scholarly Publishing Practices" on the NRF website at https://www.nrf.ac.za/statement-on-ethical-research-and-scholarly-publishing-practices/.

12. References

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13. NRF Contact Persons

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