



science  
& technology

Department:  
Science and Technology  
**REPUBLIC OF SOUTH AFRICA**

## **Framework for the Establishment of DST-NRF Centres of Excellence**

Managed by the Research Chairs  
and Centres of Excellence (RCCE)

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**National  
Research  
Foundation**

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## 1. Executive Summary

Centres of Excellence (CoEs) are physical or virtual Centres of research which concentrate existing capacity and resources to enable researchers to collaborate across disciplines and institutions on long-term projects that are locally relevant and internationally competitive in order to enhance the pursuit of research excellence and capacity development. CoEs have become a common research funding instrument, having already been established in several countries including Australia, Canada, and the USA. In 2004, following consultations with experts from various countries, the Department of Science and Technology (DST) and the National Research Foundation (NRF) developed a CoE Programme Framework document, or guide, for the establishment of CoEs. The DST and the NRF signed a memorandum of agreement (MoA) through which the NRF was appointed to perform the operational management of the CoE programme for “ a maximum of ten (10) years, until the winding up of [the] CoE programme, or as otherwise agreed between parties”. The DST-NRF CoE Programme was launched in 2004 focusing primarily on South Africa. At the same time, the NRF actively pursued collaboration through bi-lateral and multi-lateral initiatives aimed at developing and linking into similar CoEs across the African continent as well as with similar initiatives linked to capacity building through north-south collaborative ventures.

In the first round open call for proposals, seven CoEs were established. In 2009 an additional CoE was established based on a closed call process and in 2010 the process to establish another CoE based on a top-down, targeted and closed call process was initiated.

In 2009 the five-year review of the first seven established DST-NRF CoEs and the first review of the CoE programme were conducted. A number of issues, both positive and negative, were identified and recommendations made.

The lessons learned since 2004; outcomes of the 2009 review of the CoEs and the programme; and the prospects of establishing a number of new CoEs have made it imperative that the framework document and guide for the establishment and management of the DST-NRF CoEs, and the associated handbook to assist with operations of CoEs, be revised.

## 2. Strategic Context

CoEs are physical or virtual Centres of research which concentrate existing capacity and resources to enable researchers to collaborate across disciplines and institutions on long term projects that are locally relevant and internationally competitive in order to enhance the pursuit of research excellence and capacity development. As such, they constitute an additional dimension of the funding support that the NRF provides to researchers and research groups that are at different points of development on the research spectrum, that is, the new generation of researchers and established researchers. Centres of Excellence are also required to contribute to the development and promotion of emerging researchers.

The National Research and Development Strategy (NRDS)<sup>1</sup> of 2002 identifies the need to create “Centres and networks of excellence” in science and technology, including in the social sciences, as a key component of the human capital and transformation dimensions of government policy. This is re-emphasised in the Ten Year Innovation Plan<sup>2</sup> (2008). It is envisaged that such Centres will stimulate sustained distinction in research while

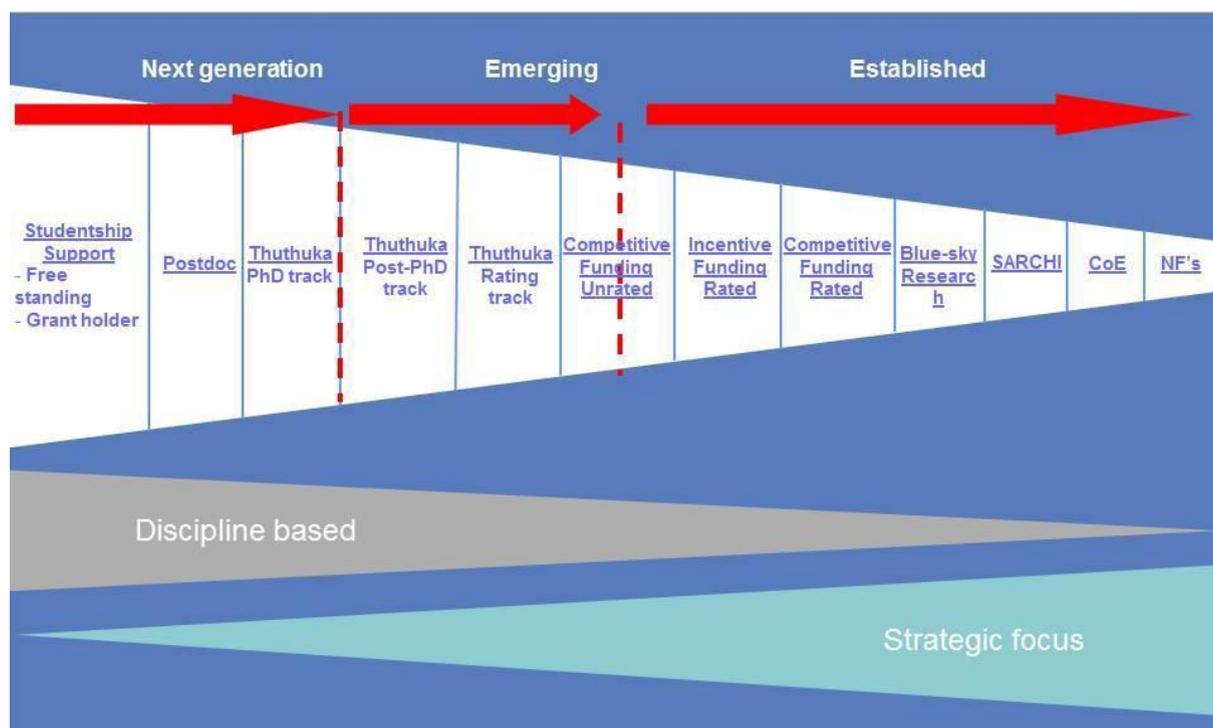
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<sup>1</sup> South Africa’s National Research and Development Strategy, 2002

<sup>2</sup> Innovation Towards a Knowledge-based Economy: Ten-Year Plan for South Africa (2008-2018)

simultaneously generating highly qualified human resource capacity in order to impact meaningfully on key national and global areas of knowledge. The CoE programme is envisaged to exploit the competitive advantage vested in outstanding researchers and it focuses on established researchers as reflected in the Human Capacity Excellence Pipeline below. While recognising that the DST may, from time to time, establish additional Centres of excellence based on this framework, in order to meet its own specific strategic objectives, the NRF is the main implementer of this strategic initiative. It is also recognised and encouraged that other government departments and indeed parastatal bodies may wish to use this brand instrument and the NRF as the main implementer to meet their own specific strategic objectives. To this end, the NRF and the DST have developed this revised framework for the creation of the DST-NRF CoEs as set out below.

## Human Capacity Development Excellence Pipeline



### 3. Programme Title and Description

#### 3.1. Programme Title

Department of Science and Technology-National Research Foundation – Centres of Excellence (DST-NRF Centres of Excellence) Programme

#### 3.2. Description

Centres of Excellence (CoE) are physical or virtual Centres of research which concentrate existing capacity and resources to enable researchers to collaborate across disciplines and institutions on long-term projects that are locally relevant and internationally competitive in order to enhance the pursuit of research excellence and high-level capacity development. As

such, they constitute an additional dimension of the funding framework that the NRF provides to researchers and research groups that are at different points of development on the research spectrum.

### **3.3. Key Activities and Services of CoEs**

Each CoE should manage and provide the following activities and services:

#### 3.3.1. Research

The main activity of a CoE is research. The work that is undertaken should be focused on the creation and development of new knowledge and technology. In meeting this responsibility, the gender relevance of all research undertakings should be made explicit. A CoE should focus on niche knowledge area, or field, in which it commands exceptional expertise and comparative advantage over other research institutions/centres.

#### 3.3.2. Education and training

Human capital development will focus on support for Honours, Masters, Doctoral students, post-Doctoral fellows, interns and research staff. This will include support for students to study abroad and joint ventures in student training. The human capital development efforts will target the development of high level scarce skills in the relevant disciplines within specialised fields of knowledge. In creating, broadening and deepening research capacity, a CoE needs to pay particular attention to racial and gender disparities while seeking the inclusion of people living with disabilities.

#### 3.3.3. Information brokerage

CoEs are to provide access to a highly developed pool of knowledge, maintaining data bases, promoting knowledge sharing and knowledge transfer, etc.

#### 3.3.4. Networking

A CoE is expected to actively collaborate with reputable individuals, groups and institutions. Equally, it must negotiate and help realise national, regional, continental and international partnerships, etc.

#### 3.3.5. Service rendering

A CoE is to provide and analyse strategic information for policy development, as well as other services including informed and reliable advice to government, business and civil society.

### **3.4. Key Conditions for Successful Centres of Excellence**

For CoEs to achieve their goals, they must have the following:

#### 3.4.1. Effective governance and management

- i. An outstanding leader (principle investigator) with high international standing as a scientist in the field or discipline related to the focus of the centre;
- ii. A Steering Committee with advisory powers to provide strategic direction to ensure the Centre's alignment with the identified focus of research and human capital development and to take
- iii. A CoE management committee will be a constituted body comprising of the Director, Node Head, Manager and representatives of the collaborating

institutions, with responsibility for allocation of CoE finances for Human Capital Development and research activities.

- iv. Fiduciary responsibility for the centre lies with the host and all beneficiaries and recipients of the NRF CoE funding;
- v. A clearly determined research focus;
- vi. Intellectual and management skills of the management collective to integrate and deliver on identified activities and services;
- vii. Mechanisms to ensure staff satisfaction and to avoid high turnover; and
- viii. A clear sustainability and/or transformation plan for the centre beyond the initial contract period.

#### 3.4.2. Appropriate staffing and researchers

- i. A high local and international academic profile;
- ii. Capacity to generate high quality work that is acknowledged widely by peers and other users as having a critical impact on the field of study;
- iii. Sufficient staff as well as a diversity of skills;
- iv. Senior researchers with adequate student support expertise;
- v. Multi-disciplinary capacity;
- vi. Exchange programmes to enable high calibre international interactions and short-term visitor staffing; and
- vii. Staff who are able to participate in local and international consortia.

#### 3.4.3. Institutional commitment

- i. The host and Co-host institution is to formally support the CoE initiative from inception and throughout its existence (contract period);
- ii. The host and Co-host institution is to be involved in the oversight and effective integration of the CoE into its broader institutional context;
- iii. The host and Co-host institution is to meet all basic CoE infrastructure and some administrative needs;
- iv. Appropriate contractual arrangements are to be signed between the NRF and the host and Co-host institution;
- v. Appropriate contractual arrangements are to be signed between the director of the Centre and the host institution; and
- vi. Appropriate contractual arrangements are to be signed between the Node Head of the Centre and the Co-host institution.

#### 3.4.4. Appropriate location

- i. "Clicks and mortar" - a central physical location that can be networked electronically both locally and internationally;
- ii. Possible use of physical co-location (proximity) of institutions;
- iii. Involvement of established institutions of higher learning;
- iv. Adequate infrastructure; and
- v. Proximity to relevant industry and research organisations to ease the exploitation of knowledge and networking.

#### 3.4.5. Effective funding

Funding for CoEs should be applied within the following parameters:

- i. Seed funding for development;
- ii. Seed funding for establishment, where appropriate;
- iii. Core funding for 10 years, where appropriate, to ensure continuity and longer-

- term research;
- iv. Standard costing model (full declaration of costs);
- v. Equipment grants;
- vi. Support based on principles of equivalence – refer to post-doctorates ~ lecturers; grant holder-linked bursaries ~ prestigious scholarships; centre staff ~ senior lecturers, associate professors, professors;
- vii. Salary subsidy for the Centre Director and Node Head;
- viii. Contributions by the host institution; and
- viii. Project income and other methods of raising funds to ensure longer term sustainability.

#### 3.4.6. Strategic positioning

Centres need to take active measures to position themselves strategically, by inter alia:

- i. Ensuring staff serve on industrial and governmental bodies, management boards, etc.
- ii. Providing services to a wide range of users in public and private sectors.
- iii. Maintaining links with ex-students and staff.
- iv. Developing novel approaches to engage with users e.g. industry clusters, benchmarking groups, etc.; and
- v. Outlining a clear information dissemination strategy.

## 4. Objectives

There are multiple reasons why CoEs are appropriate human capital development instruments for the DST, NRF and other subscribing government departments. Particularly, they aim to:

- Promote knowledge and human capital development in areas of strategic importance to South Africa;
- Promote collaborative research;
- Promote and develop interdisciplinary research;
- Systematically develop a creative research training environment that is internationally competitive;
- Strive for the highest standards of quality, international competitiveness and esteem of their science; and
- Diffuse knowledge to where it is needed.

The objectives of the DST-NRF CoEs are to:

- Ensure the integration of several smaller and related research initiatives into large science programmes.
- Reward, retain, sustain and improve scientific excellence.
- Exploit the competitive advantage vested in outstanding researchers.
- Promote knowledge and human capital in areas of national strategic importance (including indigenous knowledge).
- Promote collaborative research.
- Promote and develop interdisciplinary research.
- Systematically develop a creative research training environments that are internationally competitive.
- Raise the quality, international competitiveness, visibility and esteem of South African science e.g. by an increase in global share of research outputs.
- Promote better diffusion and exploitation of the knowledge produced by tertiary institutions.
- Achieve economies of scale through the optimisation of resources and effort through sharing personnel, equipment, data, ideas etc.

- Ensure secure and stable funding for research and dissemination.
- Allow for planned, strategic, long-term research.
- Reduce micro-management of resources by the funding agency.

## **5. Modus Operandi**

In operationalising the CoE initiative, the NRF will pursue an invitation model that allows for both:

- The recognition of existing research excellence AND the stimulation and support of potential research excellence; and
- Open AND closed calls in order to meet governmental and research community needs and interests.

### **5.2. Procedure**

Closed calls will be extended from time to time to institutions in order to meet specifically identified stakeholder needs. The process to be followed is described below.

With respect to the open call, the NRF will initiate:

- A competitive call for CoEs based on identified themes of national importance.
- Invite pre-proposals for initial selection.

The process will then follow the development or recognition route (see below).

### **5.2. Development Route**

- Seed funding for further pre-proposal development where potential exists or strategic importance is identified; and
- Re-submission of pre-proposal after 12 months.

### **5.3. Recognition Route**

- Selection and invitation for full proposals;
- Seed funding for proposal development, where appropriate;
- Funding based on level of maturity, funding leverage, nature of centre, extent of multi-discipline, additional resources, needs of applicant, and other relevant factors.

## **6. Eligibility**

The CoEs will be awarded on a competitive basis through a combination of open and focused calls to publicly funded Higher Education Institutions (HEIs) including Science Councils. Eligibility criteria will be based on the human capacity, infrastructure and institutional commitment to host CoEs. In addition, hosting institutions must clearly demonstrate how they will meet the collaborative and inter-disciplinary objectives of the programme. They must also show how they plan to sustain or transform the centre beyond the initial contract of 10 years.

## **7. Frequency of Calls**

The frequency of calls for new CoEs is entirely dependent on the availability of funds. The calls can be bottom-up or top-down, open or closed as specified by the principal funding government department, parastatal etc.

## **8. Funding Cycle and Evaluation**

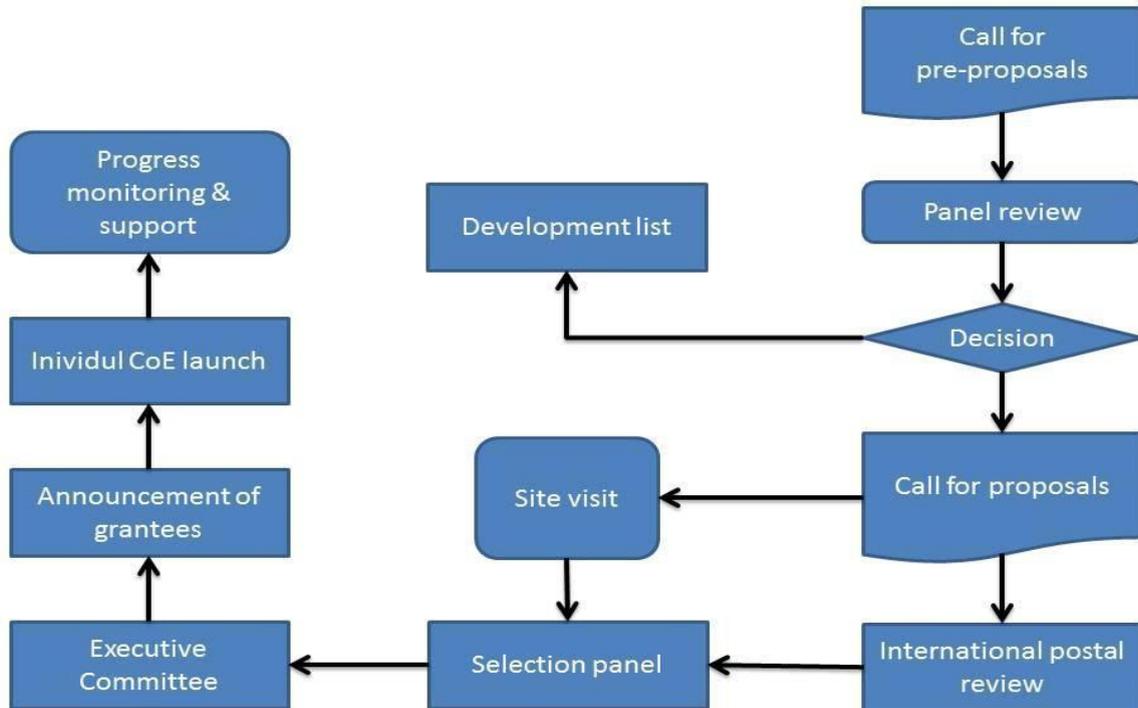
The CoE is to be initially (Phase 1) funded for 10 years:

- CoEs are to be annually monitored by suitably appointed Steering Committee. Of particular interest will be the CoE's strategic direction and financial control. Steering Committee can recommend the closure of Centres if progress is not satisfactory and aims and targets are not met.
- Stringent external renewal/continuation evaluation is to be performed in year five indicating outputs, outcomes and (expected) impact of NRF support.

## **9. Assessment process and funding**

The assessment process is described below and illustrated by the Assessment and Granting flow-diagram:

- Call for pre-proposals: brief proposal outline (10 page maximum);
- Submission of pre-proposal;
- Assessment of pre-proposals according to set evaluation criteria (described in this guide) resulting in two short lists, where appropriate:
  - Call for full proposal (maximum 50 pages) detailing plans for 10 years of work by the CoE;
  - Development list - Use seed funding for further pre-proposal development or for full proposal development;
  - Submission of full proposal
  - Evaluation of full proposal according to set evaluation criteria (described in guide), including:
    - International postal review
    - Site visits
    - Recommendation by selection committee
    - Funding decision
    - Signing of conditions of grant (CoG).



**Figure 2: Assessment and granting flow chart**

## 10. Exit Strategy

The end phase (summative) evaluation will be contractually agreed upon and undertaken in the penultimate year, or on completion of the Phase1 funding cycle, to determine the exit strategy.

## 11. Financial Control & Reporting

Each CoE will be expected to provide both management and financial reports to the NRF as stipulated in their individual Memorandum of Agreements (MoAs), Service Level Agreements (SLAs) and conditions laid out in Section 5 (The Funding Cycle and Evaluation) of the Handbook for DST-NRF CoEs document. This will include the following:

- A list of students who are being supported by the centre;
- Business plans which show how each centre will carry out its mandate;
- A quarterly report (March, June, September and December) of current “nuggets” of information for publication on the CoE website;
- Audited set of financial statements at the May Steering Committee meeting reflecting the financial situation of the CoE during the previous financial year;
- Quarterly cash-flow statements within 19 days of the end of each three month period, indicating expenditure and commitments;
- Annual Progress Report by no later than May each year to be reviewed by the CoE Steering committee; and
- A Statement of Compliance by no later than May each year.

## **12. NRF contact persons**

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