THE NATIONAL RESEARCH FOUNDATION
MANAGEMENT RESPONSE TO
THE REVIEW OF THE CENTRES OF EXCELLENCE PROGRAMME

Introduction and background

Centres of Excellence (CoEs) are physical or virtual centres of research which concentrate existing capacity and resources to enable researchers to collaborate across disciplines on long-term projects that are locally relevant and internationally competitive. This is in order to enhance the pursuit of research excellence and capacity development. CoEs have become a common research funding instrument, appearing in several countries like Australia, Canada, and the United States. In 2004, following consultations with various countries and experts, the Department of Science and Technology (DST) and the National Research Foundation (NRF) launched the DST/NRF CoE Programme. The initiative was focused primarily on South Africa. At the same time, the NRF anticipated the pursuit of collaborative, bi-lateral and multi-lateral initiatives aimed at developing and linking into similar Centres from across the African continent as well as other initiatives linked to capacity building through north-south collaborative ventures.

The plan was “…to fund CoEs for 5 to 7 to 10 years, as appropriate”. In the end, the DST and NRF agreed that the first cohort of CoEs should be funded for ten (10) years, with a mid-term review to assess the performance of the programme and individual centres in terms of their respective mandates outlined in the approved proposals. 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 or until the winding up of [the] CoE programme, or as otherwise agreed between parties…”

The NRF, on behalf of the DST, targeted the funding of CoEs so as to:

1. Exploit the competitive advantage vested in outstanding researchers;
2. Reward, retain, sustain and improve scientific excellence;
3. Integrate smaller and related research initiatives into one programme;
4. Achieve economies of scale through the optimisation of resources and effort by sharing personnel, equipment, data and ideas;
5. Provide secure and stable funding for research and knowledge dissemination;
6. Support planned, strategic, long-term research; and
7. Reduce micro-management of academics and their resources by the funding agency.

The aims of individual CoEs were set out as follows:

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

To achieve the above aims all CoEs were expected to address the following primary and generic key activities and services:

- **Research**: as the main activity of a CoE. That is, 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.

- **Education and training**: Human resource development to be done through masters and doctoral programmes, post-doctoral support, internship programmes, support for students to study abroad, joint ventures in student training, etc. In creating, broadening and deepening research capacity, a CoE was expected to pay particular attention to racial and gender disparities.

---

1 Gender relevance refers to the differential implications that the research problem and outcome might have for men or women or the relationship between men and women. Research may also be gender neutral.
- **Information brokerage**: provide access to a highly developed pool of knowledge, maintaining data bases, promoting knowledge sharing and knowledge transfer, etc.

- **Networking**: actively collaborate with reputable individuals, groups and institutions. Equally negotiate and help realise national, regional, continental and international partnerships, etc.

- **Service rendering**: provide information, analysis, policy, and other services, including informed and reliable advice to government, business, and civil society.

The DST/NRF contract and the resulting programme stipulated that:

- CoEs were to be annually monitored by suitably appointed Advisory Boards. Of particular interest were the strategic direction and financial control. Advisory Boards could recommend closure of Centres if progress was not satisfactory and aims and targets not met.
- Stringent external renewal/continuation evaluation [would be conducted] in year five and year seven (of the 10-years of the programme) indicating outputs, outcomes and impact of NRF support.
- End phase evaluation would be contractually agreed and undertaken in the penultimate year, or on completion of funding cycle in order to determine the exit strategy.

In the first round of the open call to implement the programme the following seven CoEs were established since 2004 and were reviewed in 2009:

- DST/NRF CoE for **Biomedical TB Research** to research new tools for the diagnosis, treatment and prevention of tuberculosis (Established in June 2004);
- DST/NRF CoE in **Birds as Keys to Biodiversity Conservation** to focus on understanding and maintaining biodiversity using birds as indicators (Reconstituted in September 2004);
- DST/NRF CoE for **Invasion Biology** to address the biodiversity consequences of biological invasions (Established in June 2004);
- DST/NRF CoE in **Tree Health Biotechnology** to concentrate on understanding and combating diseases affecting South Africa’s indigenous trees (Reconstituted in June 2004);
- DST/NRF CoE in **Catalysis** to drive innovation in catalysis, a key process in the chemical and manufacturing sector (Established in June 2004);
- DST/NRF CoE in **Strong Materials** to seek to understand and improve the properties of advanced strong materials to increase their efficiency and reduce their cost (Established in June 2004);
- DST/NRF CoE in **Epidemiological Modelling and Analysis** to use mathematics to understand predict and ultimately combat diseases (Established in May 2006).

**The Review Process**

In recognition of the conditions of the contract and founding document of the CoE programme, reviews of the performance of individual CoEs and the Programme itself, involving international review panels were conducted in 2009. The Terms of Reference (c.f. Appendix 1) for the Review of the DST/NRF Centres of Excellence Programme including the performance of individual centres stated in part that the scope of the review was “…a retrospective view covering the periods since the dates of inception to the present of the… programme as well as respective seven … CoEs”. Seven specialist panels were appointed to review each of the CoEs. The review reports of individual centres were submitted to the management of each centre. In turn, management of each of the CoEs reviewed the respective reports and prepared management responses – addressing issues raised in the report, views about the reports, and providing general plans for the future. It must be noted that due to time constraints no time was made available at end of individual reviews for verbal report back by the review panels to the stakeholders of each centre. **Both the reviewer-reports and management responses of each of the CoEs are available under separate cover.**

In addition to the review of individual CoEs, a two-person international review panel conducted a review of the CoE Programme. The two members were: Dr. Susan Cozzens (Associate Dean for Research, Ivan Allen College of Humanities and Social Sciences, Georgia Institute of Technology, Atlanta Georgia, USA) and Dr. David R. Woods (retired Vice Chancellor and Principal, Rhodes University, South Africa). The **Review Panel**
was requested to assess the conception, implementation and management of the DST/NRF CoE programme from its inception to 30 June 2008, and make recommendations for the future to enhance the programme. In conducting the programme review the Woods-Cozzens panel had access to, and reflected on the seven CoE Review Reports and respective management responses in addition to other written and interview sources of review data and information. The Review Panel prepared and submitted the report: Review of the DST/NRF Centre of Excellence (CoE) Programme (c.f. Appendix 2). Prior to submitting the final report, the panel held a verbal report-back session to which members of the NRF, DST and management of CoEs were invited. The verbal feed-back session provided an opportunity for the panel to present the findings and their recommendations to key stakeholders, to ask further questions and seek clarity on some aspects of the findings and recommendations. Stakeholders were also provided with an opportunity to seek clarity on some issues, ask questions and correct any factual errors.

This NRF management response addresses selected, pertinent and common issues and recommendations that flowed from the seven CoE reviewers’ reports as well as the programme review panel. Those issues that are the direct responsibility of and or within the control of the NRF were emphasised. Issues, comments and recommendations that are either general or have been adequately addressed in the management responses of the respective CoEs are not addressed in this management response. Reviewers’ comments and recommendations that are of a strategic and/or policy nature, and that are within the direct control of the DST have been flagged with comments and possible ways-forward suggested where appropriate.

**Comment on the Review Process**

The NRF would like to sincerely thank members of the Programme Review panel, members of the seven individual CoE review panels, management and staff of the CoEs, and all the review participants for their contributions and assistance in support of this exercise. Conducting on-sight reviews such as these involve complex arrangements including the identification of appropriate reviewers, reorganization of panel members’ and stakeholders’ diaries, travel and are inevitably time-consuming. In the process of reviewing the seven centres, all the CoEs were requested to nominate peers and or experts, both international and local, that they considered appropriate for appointment to the review panels. Consequently, all panel members, consisting of both local and international experts were appointed in consultation with the CoEs concerned. The Review Reference Group chaired by the then Acting President and Vice President [Research and Innovation Support and Advancement (RISA)] and consisting of experienced/senior university executives and researchers, and executives of the DST and NRF oversaw the process. As indicated earlier, following submissions of each review report, CoE management were provided an opportunity to respond to the findings and recommendations of the reviewers. Due to logistical constraints panels and stakeholders did not have the opportunity to verbally engage and consider review reports before finalisation. However, we conclude that the review process can be said to have been fair, adequate and objective. It is the view of the NRF that the review process and the resulting reports were of high quality, objective and provide information that will facilitate decision making about the future of the individual CoEs specifically and about the programme in general.

**NRF Responses and comments on Review comments and recommendations**

The NRF gratefully acknowledges the comments and recommendations of the Programme Review panel. The NRF further agrees that the Programme Review Report submitted an impartial and useful assessment of the current situation, the progress made by all CoEs since the inception of the programme and suggestions for the future management of the programme. The NRF also acknowledges the reviewer comments and recommendations for which it [the NRF] is responsible that were presented in the seven CoE Review reports. The management of the seven CoEs have provided responses to those aspects of their respective reports for which they are directly responsible.

Presented below are the Review comments and recommendations followed in each case, by the NRF response and/or comments. The first part of this section presents comments and recommendations from the review of the CoE Programme and those that are of a general nature or reflected in two or more CoE Review Reports. The second section deals with comments and recommendations relating to specific CoEs. It is envisaged that an action list and responsibilities will be generated after consideration of these comments, recommendations and responses by the NRF/DST as well as the respective COE’s.
Programme and cross-cutting comments and recommendations

1. The CoE Programme was well thought through and implemented through an open call and selection process which was perceived to be thorough and fair.

The NRF acknowledges and concurs with this sentiment. The NRF would like to further point out that due to the success of the CoE concept there has been a noticeable increase of interest within the DST itself, other government departments, quasi-government and private organizations wanting to establish more DST/NRF centres, modeled on the DST/NRF CoE approach. In order to retain the DST/NRF CoE brand it is necessary that a rigorous (open and preferably competitive) selection and review process of prospective or proposed centres be retained.

The other noticeable change with respect to the DST and the establishment of centres is that, unlike in the first round call, when the DST put up funds for a collective-call and subsequent award of initially six centres, in recent years, individual DST programmes/divisions have funded the establishment of specific/ specialized centres at intermittent times. While this practice is appropriate for meeting the objectives of the individual DST programmes, it would be helpful in order to facilitate the management and necessary mid-term reviews of these centres, if in the future the DST (together with the NRF of course) could consider clustering and coordinating the timing of calls and establishment of centres in a given year. Such a clustered approach would however be limited by funding realities.

2. The bottom-up process was important and a is a model that should be followed whenever appropriate in future.

The NRF acknowledges this observation. It is also important to note that with the success of the first seven centres, more directed centres in specific/specialized areas or foci were proposed through sponsored DST Programmes, other government departments or organizations. It is unlikely that this need will disappear all together. This will in effect mean that a hybrid system is likely to emerge, containing a mix of "bottom-up" centres as well as strategically directed “top-down centres, including possibly even closed “calls". As indicated in 1 above if we are to retain the “excellence” brand of the DST/NRF CoE it will be necessary that the NRF and DST agree in advance on the nature of and core principles that will govern any top- down processes. In addition, the need to issue open and competitive calls must remain part of the arsenal to ensure and enhance the excellence brand to the CoE. This requirement is emphasised in recommendation 11 below.

3. Implementation via a “stage-gate” model and different Service Level Agreements worked well and all seven centres were established successfully.

The nature of a CoE supports this notion and the NRF is of the view that the “stage-gate” model should be retained. The NRF further strongly recommends that the “stage-gate” model should also be used in the case of CoEs that are established through the any “top-down” or strategically driven CoE establishment process.

4. Although the monthly cash flow reports were important initially, they have become unnecessary as the centres have matured and can be replaced by quarterly reports.

The purpose of this arrangement was primarily to ensure that the CoEs, during their initial stages, continuously monitor their cash flow throughout the financial year. With the first cohort of centres having successfully reached the ‘Performing Stage’, the NRF concurs with the Panel that this requirement should be reduced to quarterly reporting, aligned with the NRF-DST reporting cycle if feasible. The NRF would like to recommend however, that those CoEs that have found this monthly exercise valuable must continue with it for their internal management purposes. The NRF also recommends that new centres be subjected to this form of stringent monitoring of cash flow, until they reach the “Performing Stage”.

5. Management of the CoEs has benefitted from the appointment of first rate managers.

The NRF concurs with this sentiment.
6. CoE Boards have been important in the management and strategic direction and interaction with the Host university of the CoE. The NRF should re-consider their representation on the Boards and ensure a greater consistency of representation. 

The NRF would like to endorse the important role that CoE Boards play in providing the collective strategic leadership and direction of CoEs. The NRF is committed to ensuring that there is consistent and appropriate representation on the CoE Boards. This will be facilitated by the appointment of a CoE Programme Director as in 7 below. The NRF will also further engage the DST to agree on the nature of DST’s representation on boards as more and more DST/NRF CoEs are established.

7. There is much value in having a stable CoE Programme Director at the NRF

The NRF fully agrees with this view. A full-time CoE Programme Director post (similar to the full-time SARChI Programme Direct) within the Knowledge Fields Development (KFD) directorate of the NRF will be established. This is especially important as the number of CoEs grow into the future. The incumbent will manage the strategic direction of the CoE Programme and ensuring the implementation of the recommendations of the review reports, in addition to other responsibilities like ensuring “…greater [NRF] consistency of representation” on the CoE Boards; updating content and maintenance of the CoE website; organisation of the annual CoE Directors’ forum etc.. He/she will also internally within the NRF work closely with the Programme Director – Grant Management whose main responsibility is overall grant management and administration.

8. CoEs have been pro-active in the recruitment of black students although the majority of black students have been recruited from other African countries

The NRF recognize this continued challenge which affects all centres, but to varying degrees. We are continuously looking for possible solutions to attract and retain students from designated groups within the country - for them to continue studies at postgraduate levels. Some of the possible solutions that the NRF is exploring include increasing the values of CoE bursary monies available, sourcing funds from the private sector and to leverage existing NRF investments in students to secure student loans on favourable terms and at preferential rates from the South African banking sector.

9. The creation of the Research Chairs has caused problems for directors of CoEs as they are perceived to be more prestigious, having a 15 year life span and the money is better. Both initiatives (CoEs) and the South African Research Chairs Initiative (SARChI) are essential for SA and the DST/NRF need to manage the perceptions of researchers and institutions so that both can flourish.

The NRF has noted this problem and is mindful of the fact that if this is not satisfactorily resolved it will lead to fewer highly skilled and productive researchers/academics taking up leadership roles of CoEs and or wanting to work at CoEs. The NRF also recognises that in some cases some of the Directors of the CoEs would easily or potentially obtain research chairs if they had the opportunity to apply. The NRF therefore proposes the following to the DST (and other future CoE funders) to consider:

- Provision of funds for Leadership supplement: CoE Directors should be remunerated at least at the same level as SARChI chair holders;
- Provide opportunities for persons working at or associated with the CoEs to apply through the normal avenues for SARChI chairs. This would mean that the SARChI investments could complement CoE investments.
- The total package and scale of support to CoEs should provide additional support not normally available to SARChI Chairholders, including:
  i. the ability to appoint a science manager (see 5 above);
  ii. the appointment of technical support staff;
  iii. leveraging additional collateral institutional investments;
  iv. sufficient funding to tackle the big science questions and problems across disciplinary, departmental and institutional boundaries; and
  v. be clearly policy or industry relevant and driven in the research programme to secure additional income.
10. The DST/NRF should continue funding each of the individual CoEs for a further five years.

The NRF concurs with the Programme Review Panel’s conclusion that positive individual review reports from all the CoEs indicate that this is a valuable intervention in our National System of Innovation (NSI) and thus that the CoEs should be funded for a further five years. The continued funding must however be subject to some conditions specific to each centre. The NRF will engage with the DST on the continued viable future funding of this Programme – at the bare minimum funding for each CoE should escalate each year at the rate of inflation.

A clear funding strategy and commitment for the support of CoEs needs to be put in place from 2010/11 financial year. It must be emphasised and recognised that international experience and the principle upon which CoEs are established points to the fact that they cannot be funded in perpetuity. However, given the South African context various scenarios for the ultimate termination of the CoEs will need to be considered by the DST and the NRF. Possibilities that must be explored in discussions between the DST and the NRF regarding the future of this Programme should include:

- Continuation of funding after the 10 year period (fully or partial funding);
- Immediate termination of funding after 10 years - with the termination decision being based upon the outcome of the penultimate review of each CoE conducted at least 18 months prior to the end of the 10-year cycle;
- Phased funding exit strategy after 10 years - with the phase-out/extension period based upon the outcome of the penultimate review of each CoE conducted at least 18 months prior to the end of the 10-year cycle;
- On going use of the DST/NRF CoE brand without associated funding after the funding period;

In addition, it is recommended that all CoEs under the leadership of their respective Advisory Boards, should urgently start developing sustainability plans for their centres beyond the 10 year funding period. Scenarios that include or exclude continued NRF/DST funding should be developed.

11. The DST/NRF should encourage other government departments to participate in the CoE programme by providing funding to the NRF for the establishment and management of specialised and strategically directed centres, preferably awarded on an open and competitive basis.

The NRF agrees with this recommendation and as reflected in 1 and 2 above this is already happening. It is important however, that the process of establishing specialised and directed centres must follow the same rigorous processes that led to the successful brand establishment after the first cohort of CoEs. It will also be necessary for the NRF and the DST to agree on a naming policy for Centres that are funded through other government departments.

NRF responses to CoE-Specific comments and recommendations
This section presents the NRF responses and comments on selected CoE-specific review comments and recommendations.

12. Centre of Excellence in Biomedical TB Research:

New tools for the diagnosis, treatment and prevention of tuberculosis (WITS and Stellenbosch)

The NRF has noted and acknowledges all the recommendations of the Review Report and the management responses to these. It is however, important that the Biomedical TB Research CoE immediately embark on an assessment and development of its sustainability plan and possible future collaborations with related programmes and projects both within the country and internationally.

---

2 These conditions are presented in the section of comments and recommendations relating to specific CoEs
13. Centre of Excellence: Birds as Keys to Biodiversity Conservation:

Understanding and maintaining biodiversity using birds as indicators (UCT)

The NRF acknowledges the panel’s concern that while the CoE may have technically met its goals according to its proposed activities, it does not serve as a centre for conservation and biodiversity partly due to what the panel observed as excessive resources devoted to areas peripheral rather than core to biodiversity and conservation research. The NRF will work with the centre to ensure that this matter is rectified and as condition for further and full-funding.

The NRF also concurs with the panel’s recommendation that the budget of the CoE, which in the last five years has been provided at 50% should be expanded. However, this must be on condition that the CoE presents a clear plan of the value-add and benefits that will be accrued by increased funding in addition, to the following important brief:
- Terrestrial bird biodiversity component to be strengthened
- Potential full funding benefits
- Strategic alignment with ADU activities and programmes
- Sustainability prospect assessment beyond the 10-year funding cycle

14. Centre of Excellence in Invasion Biology:

The NRF acknowledges the recommendations of the Review Report and management response of the CoE. It is strongly recommended that CIB embark on an assessment and development of its sustainability plan beyond the DST/NRF funding period.

15. Centre of Excellence for Tree Health Biotechnology:

Understanding and combating diseases of South Africa’s indigenous trees (University of Pretoria)

The NRF concurs with the panel’s recommendation that the budget of the CoE, which in the last five years has been provided at 50%, should be increased to 100%. However, this must be on condition that the CoE presents a clear plan of the value-add and benefits that will be accrued by increased funding. The Centre should also develop and present to the NRF its sustainability plan beyond the DST/NRF funding period.

16. Centre of Excellence in Catalysis:

Innovation in catalysis as a key process in the chemical and manufacturing sector (UCT)

The NRF concurs with the panel’s recommendation that research leadership of the centre must be strengthened. This can be done by extending the opportunity for the centre to participate in the SARChI programme and or the DST/NRF awarding the centre an earmarked research chair.

Similar to other centres, the NRF strongly recommends that c*Change CoE should immediately embark on an assessment and development of its sustainability plan beyond the DST/NRF funding period, particularly in collaboration with clear industry partners and interest groups.

17. Centre of Excellence in Strong Materials:

Understand and improve properties of advanced strong materials to increase efficiency and reduce cost (WITS) sustainability prospect assessment.

The NRF acknowledges the recommendations of the Review Report and management response of the CoE. It strongly recommends that the centre develop its sustainability plan beyond the DST/NRF funding period, particularly in collaboration with clear industry partners and interest groups.
18. Centre of Excellence in Epidemiological Modelling and Analysis:
Mathematical Modelling to understand, predict and combat diseases (STIAS).

It is recognized that this centre which was established two years after the others was reviewed after only 3 years in existence. It is therefore acknowledged that it’s penultimate review should be in 2014 and ten year funding ending in 2016.

The NRF further concurs with the recommendation that the staffing and succession planning need to be addressed as a condition of continued funding for its remaining five years. The addition of a Research Chair to this Centre may provide the necessary impetus to take the activities and capacity to the next level. Furthermore, efforts to attract South African students into the field of epidemiological modelling need to be continued and expanded.

The NRF will engage the DST on the above. The NRF will also work with the CoEs and their Boards to ensure that the above recommendations, those contained in their specific Review Reports and actions that will be the outcomes of the DST and NRF engagements are addressed. These recommendations and actions should be reflected in CoEs’ strategic plans for the next five years.

Dr. Gansen Pillay
Vice President and Managing Director, RISA