



ARUA Centres of Excellence

Introduction

The African Research Universities Alliance (ARUA) is pursuing its goal of enhancing research and graduate training in member universities through a number of channels, including the setting up of Centres of Excellence (CoEs) to be hosted by member universities. A Centre of Excellence (CoE) may be defined as “a team, a shared facility or an entity that provides leadership, best practices, research, support and/or training for a focus area. The focus area might be a technology (e.g. Java), a business concept (e.g. BPM), a skill (e.g. negotiation) or a broad area of study (e.g. women's health). A center of excellence may also be aimed at revitalizing stalled initiatives”¹

The ARUA CoEs are intended to be focal points for aggregating world-class researchers from member universities to undertake collaborative research in priority thematic areas while providing opportunities for graduate students from the region and elsewhere to work with the researchers. The CoE is therefore an *assembly point* for good and committed researchers and students seeking to do cutting-edge work.

The motivation behind the development of ARUA CoEs is drawn from the need to work collaboratively to expand significantly the generation of knowledge in the region. ARUA recognizes the pockets of excellence associated with each university, but needs to achieve critical mass to tackle specific persistent development challenges. CoEs provide the flexibility for bringing good researchers together from different backgrounds and disciplines. This is not easily possible in

¹ George, Mark O. (2010). *The Lean Six Sigma Guide to Doing More with Less*. John Wiley and Sons. p. 261.

traditional academic units of universities that are ordered according to specific disciplines and do not make room for persons outside of those units.

Centres of Excellence around the World

There are several models of CoEs that have been established around the world. The Australian Research Council (ARC) maintains that “ARC Centres of Excellence are prestigious foci of expertise through which high-quality researchers maintain and develop Australia’s international standing in research areas of national priority”.²

The ARC Centres of Excellence make possible research collaborations between universities, publicly funded research organisations, other research bodies, governments and businesses in Australia and overseas. These ARC Centres of Excellence aim to “undertake highly innovative and potentially transformational research that aims to achieve international standing in the fields of research envisaged and leads to a significant advancement of capabilities and knowledge” among other things. They are expected to tap “existing Australian research strengths and build critical mass with new capacity for interdisciplinary, collaborative approaches to address the most challenging and significant research problems”.³

In South Africa, the Department of Science and Technology and National Research Foundation⁴ have since 2004 operated 12 CoEs that are associated with different universities. The South African CoEs “are physical or virtual centres of research that concentrate existing research excellence and 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”. Their five key performance areas are (1) Research/knowledge production; (2) Education and training; (3) Information brokerage; (4) Networking; and (5) Service rendering.

² <http://www.arc.gov.au/arc-centres-excellence>

³ <http://www.arc.gov.au/arc-centres-excellence>

⁴ <http://www.nrf.ac.za/division/rcce/instruments/centre-of-excellence>

It is certainly not unusual for national research councils to sponsor high-calibre CoEs at universities. In Norway⁵, “the Research Council of Norway has initiated a Centres of Excellence (SFF) scheme with the intention to establish time-limited research centres characterised by focused, long-term research efforts of a high international calibre, and where researcher training is an important aspect. High scientific quality is the main criterion for the selection of the centres”.

In the mid-2000s, there was a move to establish African Continental or regional Networks of CoEs which focus on specific thematic areas, such as the AU/NEPAD Networks of Water Centres of Excellence (www.nepadwatercoe.org) and the AU/NEPAD Southern African Network for Biosciences (www.nepadsanbio.org) – both flagship programmes of the AU/NEPAD and mandated by the African Union.

Both of these networks focus on specific science areas. For the AU/NEPAD Networks of Water CoEs, for example, two networks are currently established for Southern- and Western Africa comprising 16 Universities and research institutions in the sub-regions. In addition, a third network is currently being established for Central/Eastern Africa. These member universities act as country nodes and are closely linked to the Regional Economic Communities (RECs) where they are established, with support from the various ministries in the sector. With such regional networks, research and capacity development can be undertaken to address locally relevant issues, under the umbrella of a continental initiative. In 2014 the World Bank initiated the Higher Education Centres of Excellence Project for Africa. The idea behind it was to support “recipients to promote regional specialisation among participating universities in areas that address regional challenges and strengthen the capacities of these universities to deliver quality training and applied research”. The first component of the project sought to provide assistance to 19 centres of excellence in selected higher education institutions to produce top-quality graduates while undertaking applied research to address specific development challenges in the region. The second component is intended to largely enhance regional capacity and evaluation and it is financed through a regional International Development Association (IDA) grant to the Association of African Universities (AAU).

⁵ https://www.forskingsradet.no/prognnett-sff/Home_page/1224067001813

A significant departure from the sponsorship of national research councils and international organisations would be when University of Ghana established four CoEs in 2013 using only internally generated funds. The four centres were for malaria research, food security, climate change adaptation and poverty monitoring. The idea behind these was to set up multidisciplinary teams of the best researchers at the university to find solutions to national challenges through the conduct of cutting-edge research.

It is evident that the prime motivation behind the setting up of CoEs is to create a pool of the most talented and resourceful researchers available to move institutions forward in the pursuit of their goals. Moreover, where these CoEs are established as a network of networks, such talent and resources can be drawn from a number of institutions under a common goal.

Thematic Areas

ARUA proposes to operate Centres of Excellence in the 13 priority thematic areas that it has adopted. It is further acknowledged that ARUA thematic CoEs should preferably be interdisciplinary in nature. While observing that these areas are broadly stated, it is intended that host institutions will specify aspects of the theme that they would like to focus on, and how they would address the potential interdisciplinary nature of a CoE.

The thematic areas are

Climate Change	Poverty and Inequality
Food Security	Unemployment and Skills Development
Energy	Notions of Identity
Water Conservation	Good Governance
Materials Development and Nanotechnology	Urbanisation and Habitable Cities
Non-Communicable Diseases	Migration and Mobility
	Post-Conflict Societies

Defining the Scope of Work for ARUA Thematic CoEs

An ARUA thematic CoE is expected to be hosted by a member university that is capable of drawing on existing university infrastructure and human resources. In collaboration with ARUA partner universities, the CoE shall

- Conduct cutting edge research that is innovative and with the potential for transformation. This should be highly regarded internationally and generate a global recognition of African research capabilities and contribution to knowledge
- Seek to bring together the leading researchers from Africa and elsewhere in working groups in order to generate a critical mass of interdisciplinary researchers capable of working collaboratively to tackle Africa's most crucial development challenges through their work
- Pursue partnerships worldwide with a view to locking African researchers into global networks that assist them to achieve global competitiveness
- Strengthen capacity-building for research in Africa by enabling researchers of high international repute and very promising research students to come together for appreciable periods of time
- Provide appropriately high-quality environments for significantly expanded postgraduate and postdoctoral training
- Provide opportunities for African researchers to work on large-scale problems over long periods of time
- Seek to develop an interactive relationship with the wider community including with other universities, African governments, industry and NGOs.

Structure of an ARUA Centre of Excellence

Each host university is expected to propose an appropriate structure for an ARUA CoE it plans to host, depending on its own traditions, norms and what is convenient. It is important, however, that each CoE has a Director drawn from among the university's renowned academics. The Director of a CoE must be a

highly accomplished and internationally recognized researcher. Leading the CoE as its Chief Academic/Researcher will be the main function of the Director⁶.

Funding for ARUA Centres of Excellence

ARUA CoEs are expected to be funded from three sources for (1) Operations and Management and (2) Research and Training.

For (1) Operations and Management, these are expected to be supported by (a) a grant mobilized by ARUA from various sources⁷, and (b) a contribution from the host university.

For (2) Research and Training, a major pre-occupation of the leaders of each CoE would be the application for research grants from various grant awarding institutions worldwide. ARUA is built around the idea that the collaborative effort of Africa's best universities would make grant applications much stronger and easier to fund. Grant applications will be made with strong support from the ARUA Secretariat.

Applying to Host an ARUA Centre of Excellence

Each paid-up ARUA member university is eligible to apply to host a Centre of Excellence. Host universities are expected to show commitment to ARUA and its ideals in very practical ways. In order to give opportunity for as many member universities as possible to host a Centre of Excellence, it is understood that no university will initially be allowed to host more than two Centres of Excellence. This is agreed with the expectation that all member universities are keen on hosting CoEs.

ARUA member universities interested in hosting a Centre of Excellence may submit a concept note to the ARUA Secretary-General before 15th August 2017. These concept notes will be screened by the Secretariat and reviewed at a

⁶ Persons proposed to become Directors of CoE may be assessed for scientific, technical merit and suitability through a Peer Review process.

⁷ ARUA will aggressively seek to raise funds to support the annual budgets of CoEs. This is expected to be in the region of \$100-200,000 per annum per CoE.

meeting of ARUA DVCs on 15th September 2017 in order to make recommendations to the ARUA Board of Directors for a decision to be made by 30th September 2017.

Approved Centres of Excellence will be expected to be operational by 1st January 2018.

In considering applications to host a CoE, member universities will be expected to:

- Show the broad ARUA thematic area they are interested in and the focus of the specific research programme(s) being contemplated
- Indicate how they will collaborate with other ARUA Universities and researchers from the thematic areas. An example of such a collaboration will be the adoption of a “hub and spoke” model - one university will lead as the hub, with other universities joining as collaborators or extensions through a network of researchers (spoke)
- Establish readiness and commitment of the university to host the proposed CoE by providing an enabling environment with respect to:
 - ✓ Office and/or laboratory space
 - ✓ Infrastructure (equipment, IT facilities, etc.)
 - ✓ Academic support (information, resource facilities and related research groups)
 - ✓ Support for international faculty and students;
 - ✓ Management and leadership; and
 - ✓ Financial support (direct and indirect);

The application/concept note must provide information on:

- Research objectives for the first five-year period;
- Expected knowledge outputs in the five-year period
 - Recognized research outputs in the discipline/field i.e., peer reviewed articles/conference proceedings; books/chapters, etc.
- Expected human capital outputs in five years;
- Proposed budget;
- Existing and planned collaborations;

Applications should not exceed 10 pages altogether.

In reviewing applications, attention will be paid to

- Alignment of the proposed CoE with the university research strategy.
 - ARUA would prefer universities to leverage existing centres/institutes to take on board the ARUA vision, objectives and strategies to achieve the envisaged outcomes in the ARUA Concept Note
 - Where there are no relevant existing centres/institutes, universities may create new CoEs if they are in a position to support these substantially
- Potential of the proposed CoE to enhance the international research and/or innovation competitiveness within the related disciplines
- The potential of proposed research to positively impact on social and/or economic development in Africa
- Specific objectives, (anticipated) outputs and outcomes for the first five-year period.