SOUTHERN AFRICA: Call for a regional research fund

Karen MacGregor
05 June 2011
Issue: 79

Southern African universities have called for a regional fund to boost public sector research, which is considered critical to the ability of countries to innovate and develop economically. A detailed plan for a $100 million five-year fund was submitted to the continent's biggest higher education event, the biennial conference of the Association of African Universities, held at Stellenbosch University this week.

Piyushi Kotecha, CEO of the Southern African Regional Universities Association (SARUA), proposed the research fund in a presentation on Thursday, joining other higher education stakeholders in the call but for the first time outlining how it might work.

The proposal is contained in a just-published report from SARUA, written by Kotecha with David Walwyn and Cristina Pinto, titled *Deepening Research Capacity and Collaboration across Universities in SADC: A Southern African Universities Regional Research and Development Fund*.

Kotecha said the fund would strengthen research and development (R&D) in the region by financing collaborative projects. Lack of research funding was repeatedly stressed as a major constraint on university development by vice-chancellors at the AAU conference.

The fund's objectives would be to:

* Strengthen the research capacity of universities in Southern Africa.
* Build South-South networks of researchers in the region, particularly between countries that have historically not collaborated despite good reasons for doing so.
* Increase the research output of universities in areas of relevance to the region including health, infrastructure, social sciences, mining, financial services and manufacturing.
* Increase the output of postgraduates from universities that are equipped to develop innovative products and services to meet regional needs.

Context

The socio-economic benefits of innovation, and the associated R&D activity, are globally recognised and supported by developed and emerging countries. International bodies including the UN have stressed their key role in dealing with developing world problems.

China is a good example of a nation that has followed an R&D-intensive approach to development, according to the SARUA report, and "this policy approach is now urged on all developing countries", for instance by the OECD.

Research capacity - the facilities to undertake R&D, funding for projects, experienced staff to supervise research and postgraduate students to conduct research - are severely limiting the research outputs and human capital development of SADC universities.

"Unfortunately many universities in Southern Africa have been weakened by a combination of poor political management, insufficient public investment and the haemorrhaging of talent to developed nations," the SARUA report argues.

"Despite the efforts of development agencies and continent-wide initiatives pioneered by the African Union (AU) and others, universities in the region continue to struggle and lag behind similar institutions in Brazil, India and China, to name only a few countries."

Aside from South Africa and Mozambique, R&D spending as a ratio of Gross Domestic Product in SADC falls below 0.5%, while the minimal target of research spending for developing countries is 1% of GDP.

"Increased levels of student enrolment are essential to transitioning from commodity- to knowledge-based economies, and far more funding for doctoral studies is needed along with a shift towards full-time PhD study," according to SARUA.

The field of health provides a strong argument for strengthening African research, to ensure that health problems endemic to Africa are tackled, the SARUA report argues. This led to the recent launch of the African Network for Drugs and Diagnostics Innovation (ANDI).

ANDI has estimated that Africa's health research funding gap is at least $1 billion a year and identified the three main health R&D challenges as the "knowledge gap for diseases disproportionally affecting Africa, the low degree of collaboration among African researchers and insufficient investment and ownership of R&D in and for Africa".

A 2010 White Paper on Africa-Europe Higher Education Cooperation for Development, produced by the European University Association, argued that urgent action was needed to ensure that African countries have the higher education capacity to respond to domestic and global challenges.

The white paper called among others thing for higher levels of international exchange and cooperation; more innovative partnerships to strengthen North-South and South-South collaboration; more funding for intra-Africa collaboration; enhanced exchange especially in doctoral education; and more support for internationalisation of universities.

It said producing postgraduates with top-levels skills was critical: "Universities do not only need to produce PhDs for their own purposes, but for societies and economies that require research-trained labour in a growing number of professional fields."

In SADC, with its low research output, South Africa dominates in the production of scientific publications, PhDs, student enrolments and the number of public universities. But while South Africa accounts for 89% of PhDs in the region, studies have shown that the production of doctorates has been stable for years and that rapid growth in high-level qualifications will not happen soon within existing systems.

R&D collaborative initiatives

Collaboration and partnerships are acknowledged worldwide as being important to the production of new knowledge. But while there are extensive North-South collaborations (science and engineering articles from several SADC countries have 90% foreign co- authorship), "the same cannot be said of South-South partnerships," says SARUA.

"There is some collaboration within Africa, but this tends to be organised in four very distinctive and separate clusters, namely the northern Arabic countries, the former French colonies, former British colonies excluding South Africa and her neighbours, and the remainder."

SARUA surveyed major initiatives to ascertain the funding landscape and models for the proposed fund. It found that there has been growing focus on South-South collaboration, and that while some initiatives were still "embryonic in execution, the enthusiasm and willingness to meet challenges provides impetus for motivating the formation of a regional R&D fund."

Inter-institutional collaboration on research is difficult to establish and maintain. Principles that need to be in place to ensure successful collaboration include a clearly identified purpose, mutual interest, incorporation of 'messengers' (mostly people exchange), and sufficient resources and measurable deliverables and outputs.

SADC researchers have raised concerns about collaborative research, including that developed country academics often take the lead, visiting academics adopt a top-down approach to securing resources, universities often cannot afford significant project costs, and top-quality universities do not want to collaborate with lowly-ranked universities.

If the fund were to succeed, SARUA argues, it would need to ensure that each project included a number of universities from different countries (with South-South partnerships prioritised), that the principle investigators were from a range of countries, and that sufficient resources were allocated so that projects are not overly restricted by budgets.

The fund would encourage collaboration between high performing and lower performing institutions, so that 'best-in-class' communities of practice can be shared within projects and assist in upgrading the outputs of the participating universities.

Experience with instruments similar to the proposed fund has been that competitive funding is highly effective. "Although a relatively small number of projects are funded, the systems responds at an overall level to the new challenges and the necessary behavioural change is achieved."

The Proposed R&D Fund

SARUA proposes that the University R&D Fund would:

* Support basic and applied research in public universities in SADC.
* Fund projects through a competitive proposal-driven process
* Initially have a portfolio of about 15 projects, with each funded over three to five years at a maximum value of $250,000 a year.
* Have funding allocation driven by an expression of interest, followed by detailed proposals assessed in a peer reviewed, ex ante evaluation process.
* Require the participation of at least three universities in each project, preferably from different countries and including at least one institution with a poor research output.
* Limit each university to being the principal coordinator in only two proposals, although it could participate in other proposals.
* Provide $100 million over the first five years, sourced from donors and participating countries.
* Prefer projects with high strategic alignment with the R&D policies of their countries.
* Fund each project initially for a year. It would need to establish value to become eligible for a further three years of funding, during which it would need to deliver most of the following: peer-reviewed

publication, including joint authorships and lead authorship by at least one participating institution; provisional patents where applicable; PhD graduates; and success in raising additional funds for collaborative research.

SARUA proposes that the initial focus is on the S&T fields of information and communication technology, climate change, health, human and social dynamics, energy security, and food security.

The report suggests that management of the fund be outsourced to a "suitable agency", and that the fund be evaluated after the first round of projects, against five-year targets in the areas of strengthening research capacity, improving South-South partnerships and increased research productivity.

"The need for the fund is highly evident and although there are similar initiatives within Africa, none of these initiatives are specifically targeted at public universities," the SARUA report points out.

It stresses that sustainable R&D in the region "will never be achieved through a fund of the size proposed. Governments would need to follow through on their commitments to build and maintain strong public universities by re-investing in the institutions and providing adequate levels of funding for basic research."

"Universities should similarly engage in contributing to such efforts."