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## Promoting Developmental Research: A Challenge for African Universities

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### Research and Development

There are two well-known and often-quoted facts about Sub-Saharan Africa. One is that, in spite of significant progress made in recent years, Africa remains the least developed region in the world and is unlikely to achieve all the Millennium Development Goals by 2015. The other is that Africa fares very poorly in terms of research and innovation; it produces only about 1% of the world's research publications and 0.1% of global patents, and the bulk of these emanate from just two countries – South Africa and Nigeria. There is a clear link between these two phenomena, and while there is general acknowledgement that the research output from Africa must be dramatically increased in order to overcome the development challenges, achieving that objective appears to be elusive. Promoting research that leads to innovation, which then directly impacts on development remains a challenge for Africa.

### Constraints

There are several reasons for this. First, there is the fact that because of the dramatic increase in student enrolment in African universities, where the bulk of the research is undertaken, teaching has become the prominent activity at the expense of research and community engagement, the other two important missions of a university. Not only are academic staff overloaded with teaching responsibilities but the teaching is invariably conducted through lectures delivered in a magisterial mode in crowded lecture halls. This hardly encourages learning and inquiry among the students, a key factor for promoting research and innovation. There are also very few research-strong staff – those who have a PhD – who can initiate and supervise research. Also, a lack of funds and poor research facilities, especially in the science and technology fields, are major constraints.

But perhaps the greatest impediment lies in the way research is looked upon in African universities. It is considered to be an activity that must result in a Master's thesis, PhD dissertation, and/or a paper that can be published in an internationally-refereed journal. That immediately circumscribes the orientation of the research work. Since most universities follow European standards for postgraduate theses, and international journals use referees who equally apply strict publication standards, academic staff who depend on their PhD degree or their publications for promotion or personal development tend to avoid developmental research. Also, developmental research usually entails a multi-disciplinary approach, requiring collaboration among researchers from different disciplines. African academics tend to regard research as a personal enterprise, and shy away from research where their contribution is only partially acknowledged. And as research in African universities is to a large extent funded by external donors, the orientation of the research is often determined by the funder, not the African researcher. However, external funders of research in Africa are now increasingly encouraging the promotion of developmental research.

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## Developmental Research

There is no reason for developmental research to be regarded as inferior or of poor quality. The same rigour as in any another research work should be applied: identifying a problem, surveying existing solutions to similar problems, designing and applying the most appropriate solution and disseminating the results. In addition, for developmental research to be meaningful, the identified solution must be applied in the field and an assessment of the outcome made. And the results, in addition to being published in an appropriate journal, should be made accessible to the direct beneficiaries and/or policy makers.

The real development challenges in Africa lie in the rural areas. These can be in agriculture, maternal and child health, water and sanitation, infrastructure development, etc. To a large extent, the needs of the community should determine the developmental areas to be researched at the university. An important aspect of developmental research, therefore, is that it has to be conducted in close consultation with and involving the community. This is perhaps its greatest asset as it brings the university closer to the community and facilitates interaction, which then promotes learning both in the community and the university, which in turn stimulates development.

A factor often ignored by African universities is the huge potential that their students represent in promoting developmental research. Through short attachments, either during their vacation period or as part of their relevant course, students can assist communities in areas of health and nutrition, basic education, agricultural practices, environmental protection, etc. and, at the same time, learn about the valuable indigenous practices of the communities involved. Their findings can then be incorporated into the teaching curricula or become areas for research. Through their experiential learning in the community, the students thus provide opportunities for continuous and meaningful dialogue between the university and the community, and they become important agents for promoting learning and innovation in the community and the university. The end result is a symbiosis, a fusion of the three key missions of the university: teaching and learning, research and innovation, and community engagement.

There are several good examples of developmental research carried out by African universities. Two such examples are briefly outlined below. Both of them were presented as case studies of a project on governance of research and innovation in West and Central Africa undertaken by the Association of African Universities with support from the International Development Research Centre (IDRC) of Canada.

### University of Development Studies, Ghana: the Adapted Hoe Project

During a needs assessment of the farmers in communities served by the University of Development Studies in Ghana, it was found that the short-handled hoe used by farmers for weeding was uncomfortable to use, resulting in back pains, blistered hands and dusty eyes and nostrils.

The University then embarked on a series of adaptation, innovation and trial testing of a modified hoe, with the farmers closely involved throughout the process. The end result was a long-handled hoe, with the addition of a rake on the upper side of the hoe. The Calabash Foundation, a non-governmental organisation, was involved and the project was funded by TNO, the Netherlands Organisation for Applied Scientific Research. An additional positive outcome of the project was the involvement of community blacksmiths and carpenters in helping to craft the modified hoe.

This was a simple research project but all the important steps of any research project were followed and it led to an innovation, in addition to making a difference in the quality of life of the farmers. It brought the university closer to the farming community and both learned from each other: the farmers gained technical knowledge from the university and the latter learned about indigenous farming practices from the farmers.

### University of Ouagadougou, Burkina Faso: Shea Nut Processing

In several countries in West Africa, the nut of the shea fruit is processed into shea butter, mainly by women, and then used as cooking oil and for producing cosmetic products. Shea is an important export product for Burkina Faso but, since the 1980s and 1990s, its

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production had been falling, mainly because of the poor quality of the product.

Therefore, the government initiated a national project in 1994 to revamp the shea processing sector, and the Laboratory of Biochemistry and Applied Chemistry (LaBioCA) of the University of Ouagadougou played a key role in the venture. It first examined the shea butter to understand its biochemical composition and then, eventually, identified the importance of harvesting and processing the nut differently in order to improve the butter. The women, mainly through their associations, were then trained in the new techniques of harvesting and processing the nuts. In parallel, PHYCOS, a private company that uses shea butter for producing cosmetic products, was involved and was able to improve the quality of its products and make them more competitive with imported products. The university also learned about the degradation of the fruit as a result of aging trees, and it developed a new programme for the protection and genetic enhancement of plants.

The project created a new dynamism among the community of women, improved the revenue of PHYCOS, which then provided some funds to LaBioCA, and also resulted in Master's and PhD theses, dissertations and research publications. Last, but not least, the project made a significant impact on the national economy.

## Conclusion

The two examples above illustrate the huge potential for developmental research and the enormous benefits that accrue to communities, universities and the country. Several of the new public universities being set up in Africa are in rural areas and such research is particularly relevant to them. To promote developmental research, however, African universities may need to re-examine the way they assess and reward research, and ensure that their rules and regulations in no way discourage academics from embarking on developmental research or disadvantage them. They equally need to establish closer links with the community, review their approach to teaching and learning and provide experiential learning opportunities to their students through short attachments.

This, however, does not mean that research in African universities should all be of a developmental nature. Where universities can embark on important fundamental research and where they can participate in international research projects (for example, in connection with food security, communicable diseases or climate change), they should do so, since Africa must not stand isolated in the international arena of research.

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