Strengthening Climate Change Research in Africa

Introduction

There is growing demand for climate change research in sub-Saharan Africa. However, the capacity needed to undertake this research by African scholars is sometimes lacking. As such, the research is often conducted by external consultants, and is subsequently rarely mainstreamed into national development policy. To support mainstreaming efforts climate change analysis should be undertaken by national researchers, and should answer questions relevant to national policy makers. To address the gap between research and policy, UNU-WIDER has partnered with the African Economic Research Consortium (AERC) to strengthen the capacity of African scholars to conduct climate change research, and to incorporate climate change teaching within African universities.

Project objectives

The first objective of UNU-WIDER’s partnership with AERC is to offer small research grants along with technical supervision—by international experts on climate change and development economics—to African scholars to conduct policy-relevant climate change research. Initial technical support is arranged in the form of a four-week online training course. Overall, this activity provides a learning-by-doing platform, which our experience suggests is the most effective way of building capacity for research and policy analysis.

The project’s second objective is to facilitate teaching climate change issues within African universities. UNU-WIDER has developed a curriculum for teaching ‘science and economics of climate change’ in the economics departments at a number of African universities. The AERC, as Africa’s premier network of academic economists, has an ongoing programme for training graduate lecturers on traditional economics subjects. UNU-WIDER has commissioned international climate change experts to develop a core curriculum that will be taught to university lecturers within the AERC network.

Project approach

Before issuing the research grants it was necessary to provide applicants with sufficient background knowledge on the basics of climate change. UNU-WIDER developed a four-
week online training course on ‘Climate Change Science and Modelling of Biophysical Impacts’. Scholars who completed the online course were then asked to submit proposals for the research grants. AERC has used its network of researchers to advertise the online course and the call for proposals.

The online course provides core knowledge of good climate science and best modelling practices. The course materials include short videos, readings, lectures (with voice-over PowerPoint presentations), discussion groups, and a final small group project. International experts were commissioned to compile sets of learning materials. The course has three parts:

1. **Climate system**: evidence and scepticism of climate change; climate change models’ output and reliability; downscaling climate change to local levels; and using climate projections for research.

2. **Biophysical impacts**: modelling of hydrology, flooding, and droughts; crop modelling; water resources modelling; and infrastructure modelling.

3. **Economics**: greenhouse gas emissions from economic activity; market failures; principles of discounting; mitigation and adaptation policies; global- and country-level economic modelling.

To successfully complete the course and receive a UNU-WIDER-AERC certificate, scholars must participate in online group meetings and complete the discussion questions and final project.

A call for proposals was issued via the AERC network for fifteen small research grants. Submissions have been reviewed and shortlisted by a panel of resource persons arranged by UNU-WIDER and AERC. Grant recipients have one year to complete their research. The research papers will be compiled as a special edition of a journal, which provides an important incentive for academics.

The materials from the online course were expanded to a full graduate level curriculum on the ‘Economics of Climate Change’. The curriculum meets the standards of the AERC graduate course review process and is being distributed to university lecturers within the AERC network. Unlike the online course, the economics component has been extended to eight weeks such that the curriculum covers a full twelve-week graduate semester.

**Key outcomes**

Three online training courses were held in 2011. The first course focused on climate science and biophysical modelling and was followed up by a one-week face-to-face course on the ‘Economics of Climate Change’ hosted by the University of Cape Town. Following positive feedback, it was decided that subsequent courses should be held be entirely online. This confirms that online teaching is a viable and cost-effective option in sub-Saharan Africa. In total, 80 researchers from 19 African countries participated in the online training programme. Most participants were under 40 years of age and one third was female. Written feedback from participants was overwhelmingly positive, as shown in the selected responses below:

- ‘Thank you for giving me the opportunity to learn more about climate change. The course has broadened my horizon as far as climate change is concerned.’
‘This was my first time to attend an online course, the communications and logistics were very efficient, making it easy for learners.’

‘The instructors were very useful and gave meaningful insights in all the questions addressed to them. In fact, they gave all known sources for the relevant materials on the topic where the question was raised. I was impressed.’

‘The course content was very useful to me. I have learned a lot form it, and I recommend other people with interest on climate change to do the course.’

UNU-WIDER and AERC continue to receive requests from people to participate in future online courses. We hope to continue to offer the course and open it to a wider audience, including government officials from ministries of finance, planning, and environment. This would also further the effort to mainstream climate research in development policy.

Following the online courses, a call for research proposals for research grants was issued. There has been an overwhelming response from researchers in sub-Saharan Africa, with 117 proposals received from 14 countries. Shortlisted proposals that do not need revising have been accepted. Academics whose shortlisted proposals do require revisions have been invited to attend a one-day forum at the AERC biannual meetings in June 2012, where they will present their proposals and receive feedback from the appointed resource persons and other shortlisted applicants.

A highly successful workshop on the climate change curriculum was held in Nairobi and was attended by 15 African scholars from AERC network universities. It is hoped that the course can be offered to AERC PhD students starting in 2012. It will also be offered to Masters students following approval by all network universities in 2013.

Post-training findings

Participants have used the knowledge gained from the online courses in many different ways. Some have used it in their lectures, others as source for their research. Below are selected comments from course participants on how they have used the material:

‘I just incorporated the climate change mitigation and adaptation policies into my master's course syllabus for the spring semester 2012 … I do believe that your course syllabus has equipped [me] with all necessary tools for my teaching and publications purpose in this field.’

‘I have been fortunate enough to use the material from the course while writing my PhD proposal. Hopefully the project will be approved and I will use the material further over the next 3 years.’

I have used the material ‘as literature for my research papers. The materials were up to date, as most of the study materials were references less than 2 years old.’

‘I have used the material in workshop presentations. The materials were explicit and easy for the audience to understand.’
We believe this experience proves that a serious training course can be delivered online to African scholars and that scholars will allocate time to participate and engage in the materials. A key ingredient for success is an explicit effort to build a ‘community of learners’, which is possible, albeit challenging, using online training. Finally, delivery of online training at the professional level is highly cost effective. For example, the cost of the one-week face-to-face workshop (excluding material development costs) substantially exceeded the costs all three of the online training sessions (including the cost of adapting course materials for web-based learning).

**Project output**

Access to the online training course materials and website is available upon request.