

(RISE)ing up for water education in Africa

Africa's water challenges calls for the continent to develop its own skilled body of expertise. Sukhmani Mantel and Denis Hughes introduce one academic network that is aiming to do just that.

A student from the Institute of Water Research undertaking invertebrate sampling.



The development of solutions to sub-Saharan Africa's water resource problems is currently hindered by a shortage of trained personnel, especially at high levels of academic and professional expertise. This gap is frequently filled by consultants from outside the region, who may contribute to the solution of specific problems, but do little to contribute to longer-term development of capacity within the region.

With this need in mind, the Sub Saharan Water Resources Network (SAAWRN) was launched in 2008 with funding from the Regional Initiative in Science and Education (RISE) programme of the Carnegie Corporation of New York. The programme is aimed at strengthening higher education in the science and engineering fields by increasing the number of skilled Doctorate and

Masters persons in Africa. The network is one of five African networks funded by the Carnegie Corporation.

SAAWRN's focus has been on fundamental and applied science that can contribute to solutions to the diverse problems facing the region in terms of securing adequate (in terms of quantity and quality) water supplies that are environmentally sustainable. There are many water-related pressures facing the region, including declining observation networks (and therefore a decline in the information available for management), declining human capacity, increasing resource use, and the very real possibility of increasing resource variability associated with future climates.

As the region strives toward improving both political and economic stability, the importance of

providing secure water supplies will assume increasing significance. If this is neglected, there is the potential for conflicts within communities (through a lack of water and sanitation services provision) as well as between countries (through a lack of agreement on transboundary sharing of water resources).

Prof Denis Hughes (Director of the Institute of Water Research or IWR at Rhodes University) is the Academic Director of SSAWRN, a network that comprises four university nodes. Besides IWR, the other three institutions are the Okavango Research Institute at the University of Botswana, Department of Geology at Eduardo Mondlane University in Mozambique, and the School of Veterinary Medicine and Animal Resources at Makerere University in Uganda.

RESEARCH AREAS AND GRADUATES

Water resource science should be seen as a multi- and interdisciplinary science that addresses the problems and issues associated with managing water resources, including surface and groundwater quantity, water quality and related ecological dependencies, water use and its management. There are many research opportunities in the field of water resource science within sub-Saharan Africa, covering many basic disciplines, including civil engineering, geography, hydrology, ecology, water chemistry, geology and environmental science.

The students at SSAWRN are conducting projects that are aligned to applied research, and that address the solutions to identified socio-economic problems affecting various countries, thus creating a bridge between academia and society. In the past five years, the network has recruited 27 students (and three post-doctoral students) from ten different African countries. A total of seven PhD students and six MSc students have graduated in the disciplines of hydrology, water resources science, natural resource management and hydrogeology.

NETWORKING: OPPORTUNITIES AND LIMITATIONS

Some of the benefits that the students and the institutions have derived by being part of a network include growth in the profile of indigenous African research in the field of water resources, largely through the outputs of the students, as well as successful applications to other funding bodies. The latter has allowed the students to expand the resources available to them to complete their studies and launch their careers.

The students also benefit from disseminating research ideas and results at regional and international

conferences and workshops. This contributes to their academic confidence, increases their exposure to other scientists and boosts the reputation of their host institutions. Finally there is the sharing of research, resources and co-supervision of students, which have fostered a multi-disciplinary approach to water resource science research.

The SSAWRN has encountered some limitations that are being addressed where possible. Some of these present lessons for other water institutions. As examples, the broad subject scope of the students projects and the limited number of available supervisory staff has limited co-supervision possibilities across the network nodes, primarily due to the small numbers of experienced supervisors, who already have heavy workloads. The high costs of travelling within the region are a major stumbling block in bringing supervisors and students together more than once or twice a year.

Language barriers have also limited co-supervision possibilities for students from French or Portuguese speaking countries. Some of the students have identified the need for additional short training courses at the start of their studies to fill any gaps in their academic skills. The diverse standard for training across

Africa makes this particularly problematic for students registering for a thesis-based postgraduate degree. In this regard, there are two taught masters programmes that will be commencing over the coming year at Eduardo Mondlane University and Rhodes University that offer advanced disciplinary and trans-disciplinary courses, short courses on postgraduate research and writing, and address issues of language (where possible).

FUTURE OF THE NETWORK AND STUDENTS

The majority of the network graduates have joined universities as post-docs or departmental staff members in Democratic Republic of Congo, Uganda, Zimbabwe, Mozambique, Botswana and South Africa. There is continued networking between some of the graduates that have returned to their home countries.

Following the six years of RISE funding, the SSAWRN network will be entering the final phase of its three-year funding by the Carnegie Corporation in 2014, and more graduates will be joining the ranks of academics, researchers and practitioners in the near future as a realisation of the network's vision. □

Recent Rhodes graduates Sitabile Tirivarombo, Paul Mensah and Irene Naigaga.

