

Doing Science with Africa: Partnership Opportunities with the Regional Initiative in Science and Education (RISE)

RISE supports PhD and MSc-level scientists and engineers in sub-Saharan Africa through university-based research and training networks. To date, most RISE activities have been based in Africa and have involved only African faculty and students. In this session, we will discuss opportunities for visiting professors to teach at RISE universities and for RISE students to spend time at universities outside of Africa, with a goal of setting the stage for ongoing international research collaborations.

About RISE

RISE aims to strengthen higher education in sub-Saharan Africa by increasing the population of qualified faculty teaching in Africa's universities. RISE supports PhD- and MSc-level scientists and engineers through university-based research and training networks in selected disciplines. RISE networks provide comprehensive graduate training programs, where students and faculty seeking advanced degrees can take advantage of the complementary instruction, research opportunities and laboratory facilities available at each institution within the network.

While the core mission of RISE is to prepare scientists and engineers to staff and strengthen Africa's universities, it has a broader goal of building capacity in science, technology and innovation as a key to economic development in sub-Saharan Africa.

RISE is supported by a grant from Carnegie Corporation of New York and administered by the Science Initiative Group at the Institute for Advanced Study.

Five RISE networks, listed on the next page, were selected in 2008 from among 48 proposals.

For Discussion: Opportunities for Collaboration

Collaborative opportunities might include (but are not limited to) the following:

- Research visits by RISE students of up to an academic year at universities outside Africa.
- Short courses of 1-4 weeks at RISE universities by visiting professors from non-African universities in subjects relevant to the network but where the network lacks expertise.
- Visiting professorships of a semester or longer in RISE universities, possibly using sabbatical funds

Discussion is invited about how these and other collaborative activities could work in practice, including matchmaking mechanisms between professor/student and host university; and about what sorts of collaboration would be most beneficial to students, faculty and universities both in and outside of Africa.

The RISE Networks

AMSEN: African Materials Science and Engineering Network

This network is based largely on the premise that increased skills in materials science and engineering are needed in southern Africa to develop and add value to the extensive mineral deposits of the region. AMSEN benefits from existing collaborations, including the DST/NRF Centre of Excellence in Strong Materials established at Wits in 2004 and the Wits-Namibia Engineering Curriculum Development Program in nanotechnology, sponsored by Norway's SANTED Programme. To reduce the brain drain in this field from academia to industry, AMSEN uses a retention strategy that includes supplementation from industry, allowing staff to consult for and be seconded to industry, and providing incentives for publishing in academic journals.

Nodes and Coordinators

University of the Witwatersrand, South Africa (Prof. L.A. Cornish, AMSEN Director)
University of Botswana (Prof. P.K. Jain)
University of Nairobi, Kenya (Prof. George Rading)
University of Namibia (Prof. F.P.L. Kavishe)
Federal University of Technology, Akure, Nigeria (Prof. J.O. Borode)

RISE-AFNNET: African Natural Products Network

In the face of rapid population growth, loss of agricultural lands, and insufficient human capacity, RISE-AFNNET works to develop Africa's rich biodiversity into a natural products industry of social and economic significance. Building on an already active research network of 10 member countries called NAPRECA, RISE-AFNNET expands existing research programs and formalizes educational activities in such natural products (NP) fields as engineering, biochemistry, environmental science, pharmacology, economic development and nutrition. Students work on NP research projects in the context of poverty alleviation, gender equity, and Millennium Development Goals.

Nodes and Coordinators

Makerere University, Uganda (Prof. John David Kabasa, RISE-AFNNET Director)
University of Nairobi, Kenya (Dr. Stephen Kiama)
Sokoine University of Agriculture, Tanzania (Prof. Robinson Mdegela)

SABINA: Southern African Biochemistry and Informatics for Natural Products Network

Because of the great biodiversity of southern Africa, increased capacity in natural products research has the potential to increase food security, public health, and value-added exports. The SABINA network trains both PhD and MSc scientists through research in the biochemistry and chemistry of natural products, including bioinformatics as an essential tool for data management and the elucidation of structure and function. Research focuses on increasing the understanding of useful plants or fungi (such as mushrooms, seaweeds, and tea crops) through the study of screening assays, biosynthetic pathways, gene expression, modes of action, synthetic production and genetic diversity.

Nodes and Coordinators

University of Malawi (Prof. John D. Saka, SABINA Director)
Tea Research Foundation of Central Africa, Malawi (Prof. Hastings Nyirenda)
University of Namibia (Prof. Martha Kandawa-Schulz)
Council for Scientific and Industrial Research (CSIR), South Africa (Dr. John Becker)
University of Pretoria, South Africa (Prof. Zeno Apostolides)
University of the Witwatersrand, South Africa (Prof. Charles De Koning)
University of Dar es Salaam, Tanzania (Dr. Sylvester Lyantagaye & Dr. Quintino Mgani)

SSAWRN: Sub-Saharan Africa Water Resources Network

SSAWRN fits the RISE model by building on two existing networks – one that emphasizes research and another that promotes postgraduate education. It addresses the most pressing water issues of the region, including rising use, declining quality, insufficient research and teaching capacity, inadequate weather stations and the likelihood of increased variability of water supplies associated with future climates. The network assigns first priority to research projects that address practical issues and contribute to problem solving. Students are encouraged to share research experience with others and to participate in consultancy work. SSAWRN is working to develop a culture of multidisciplinary problem solving.

Nodes and Coordinators

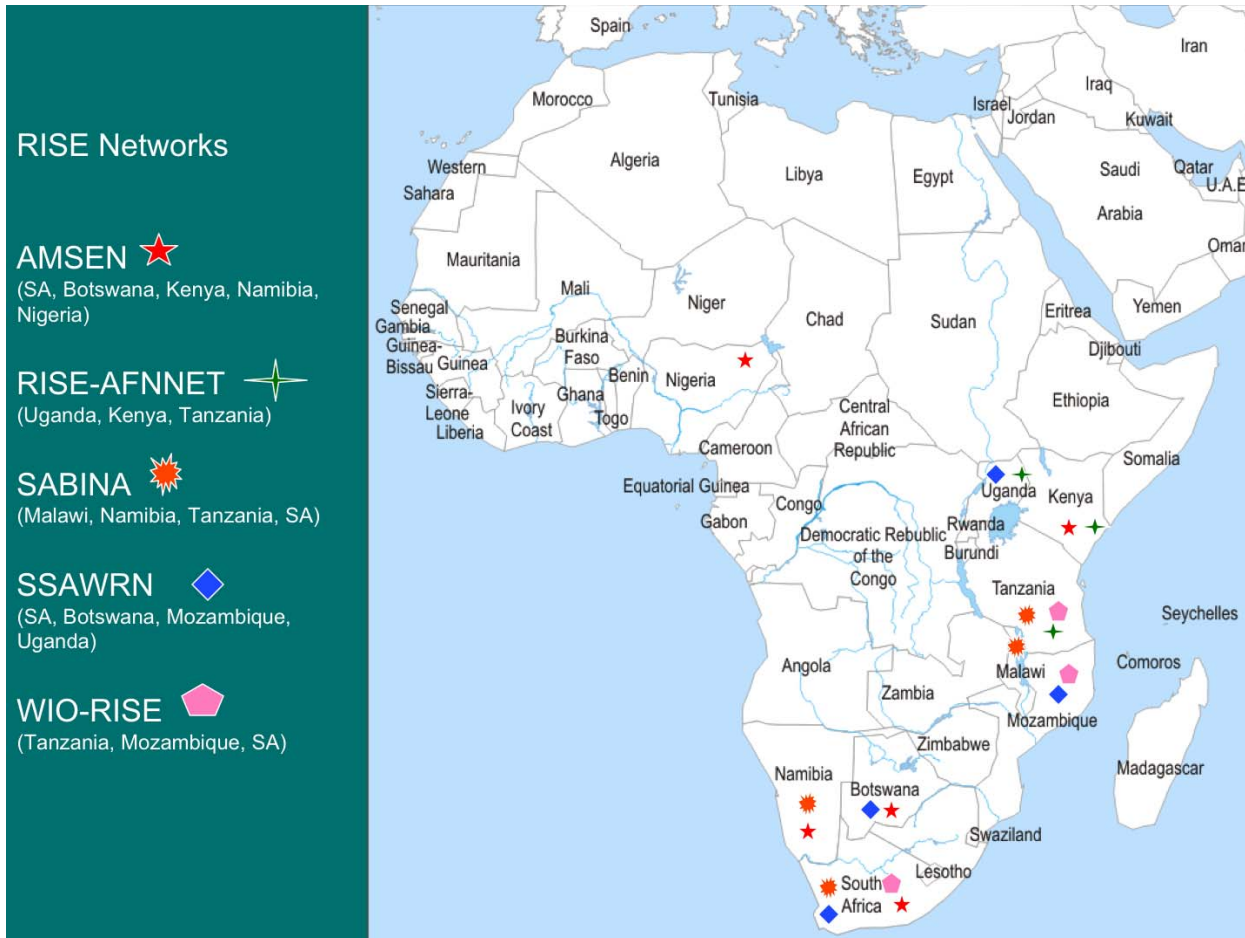
Rhodes University, South Africa (Prof. Denis Hughes, SSASWRN Director)
University of Botswana (Prof. Wellington Masamba)
Eduardo Mondlane University, Mozambique (Prof. Elonio Muiuane)
Makerere University, Uganda (Prof. Michael Ocaido)

WIO-RISE: Western Indian Ocean Regional Initiative

WIO-RISE provides research and training in skills associated with the utilization of coastal and marine resources and protection of the coastal and marine environment. The network avails itself of the long experience of the IMS/UDSM, which has roots in the former East African Marine Fisheries Research Organization, and the affiliated Western Indian Ocean Marine Science Association based in Zanzibar. The School of Marine and Coastal Studies at Eduardo Mondlane University is strategically located near the Sofala Bank, a major fishery and aquaculture resource, and the University of Cape Town has the only department in southern Africa offering graduate training in physical oceanography, climate science, and atmospheric science.

Nodes and Coordinators

University of Dar es Salaam, Tanzania (Dr. Margareth Kyewalyanga, WIO-RISE Director)
Eduardo Mondlane University, Mozambique (Prof. Antonio Hoguane)
University of Cape Town, South Africa (Prof. Chris Reason)



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