Promising Model for Promoting Quality Research and Education in Africa: Regional Initiative in Science and Education (RISE) Model

Africa Forum on Science, Technology and Innovation
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RISE Goals: Three interrelated goals

- Increase number and quality of academic staff in African universities: training and retaining a new generation of problem-solving S&T research leaders in African universities
- Build sustainable capacity of African universities in providing quality postgraduate education to young talented African scientists
- Build Africa’s capacity to apply STI to generate wealth and solve real-life problems
RISE Networks

- Selection of topics
- Selection and nature of networks
- Funding and administration
- Early results
- Benefits
- Expansion and sustainability
Selection of Topics

The image contains a Venn diagram with three overlapping circles representing different groups: Academics, Policy-Makers, and Industrialists. The overlapping areas indicate shared interests or themes among these groups.
Selection of Topics

- Planning workshop (Nairobi 2007): consultation with various stakeholders
Selection of Topics

- Materials science
- Chemistry (natural products and biochemistry)
- Mathematics (modeling)
- Informatics, instrumentation, software engineering
- Energy (Renewable)
- Water (Management and Quality)
RISE Networks

- Selection of priority areas
- *Selection and nature of networks*
- Funding and administration
- Early results
- Benefits
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Selection and nature of networks

- Open call for proposals in selected themes
- Merit-based, competitive selection by international committees of renowned scientists, in two stages: concept notes and fully developed proposals
- Eligible proposals are networks of competent research and training institutes: each involving at least 3 different universities in 3 different countries in sub-Saharan Africa
- Each selected network must have a clear strategy for training a good number of MSc and PhD students as well as a joint research plan for academic staff and students. Each network member (node) is expected to take part in implementing the strategy.
48 concept proposals involving 29 countries*

12 full proposals involving 14 countries*

*Symbols indicate countries, not specific cities.
5 Networks selected:

**AMSEN** 🌟
(SA, Botswana, Kenya, Namibia, Nigeria)

**AFNNET** 🌟
(Uganda, Kenya, Tanzania)

**SABINA** 🌟
(Malawi, Namibia, Tanzania, SA)

**SSAWRN** 🌟
(SA, Botswana, Mozambique, Uganda)

**WIORISE** 🌟
(Tanzania, Mozambique, SA)

(Symbols indicate countries, not specific cities.)
RISE - AMSEN: African Materials Science and Engineering Network

- Academic Director: Lesley Comish, University of the Witwatersrand, South Africa

Other participating institutions:
- University of Namibia
- University of Nairobi, Kenya
- Federal University of Technology, Akure, Nigeria
- University of Botswana

AMSEN focuses on developing the skills in materials science and engineering needed to develop and add value to the extensive mineral deposits in southern Africa.
RISE - AFNNET:
African Natural Products Network

- Academic Director: John David Kabasa, Makerere University, Uganda

Other participating institutions:
- University of Nairobi, Kenya
- Sokoine University, Tanzania

AFNNET seeks to develop Africa’s rich biodiversity into a natural products industry of social and economic significance through coursework and research in engineering, biochemistry, environmental science, pharmacology, economic development, and nutrition.
RISE - SABINA: Southern African Biochemistry and Informatics Network

- Academic Director: John Saka, University of Malawi

Other participating institutions:
- University of Namibia
- University of Dar es Salaam, Tanzania
- University of Pretoria, South Africa
- University of the Witwatersrand, South Africa
- CSIR, South Africa
- Tea Research Foundation of Central Africa, Malawi

SABINA works with natural products that have the potential to increase food security, public health, and value-added exports. Its research emphasis is on biochemistry and chemistry of natural products.
RISE - SSAWRN: Sub-Saharan Africa Water Resources Network

- Academic Director:
  Denis Hughes, Rhodes University, South Africa

Other participating institutions:
- Eduardo Mondlane University, Mozambique
- University of Botswana
- Makerere University, Uganda

- SSAWRN focuses on the most pressing water issues of sub-Saharan Africa, 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.
RISE - WIO: Western Indian Ocean Regional Initiative

- Academic Director: Margareth Kyewalyanga, University of Dar es Salaam, Tanzania

Other participating institutions:
- Eduardo Mondlane University, Mozambique
- University of Cape Town, South Africa
- University of Mauritius

WIO provides research and training in skills associated with the utilization of coastal and marine resources and protection of the coastal and marine environment.
RISE Networks

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Funding and administration

- Funded by Carnegie Corporation US$5M grant 2011-2013
- Leveraged US$2M from other sources
- Each network receives US$800K over three years; majority for PhD/MSc training
- Each network has its own secretariat at one member university; substantial autonomy on academic, administrative and financial management
- Coordination and general administration provided by Science Initiative Group (SIG) at IAS, Princeton.
- Africa-based secretariat: Agreement signed with AUST-Abuja
RISE Networks

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Early results

- Completed: 20 MSc; 6 PhD
- Currently enrolled: 40 MSc; 59 PhD
- Workshop proceedings, conference papers, journal publications
- At least 5 patent applications submitted
Early results

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<th>Currently Enrolled</th>
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RISE Networks

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Benefits

- Acquisition of major scientific instrumentation with pooled funds
- Improved collaboration among universities; promoting a culture of co-supervision and quality assurance.
- Establishment of joint MSc curriculum in natural products involving 3 universities (Kenya, Tanzania, Uganda)
- Encouraging stronger institutions to support weaker ones
- Enabling students to gain skills not available at home and strengthening their capacity to conduct top quality research in an African environment
RISE Networks

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Expansion and sustainability

- More universities per network
- More networks (biological sciences)
  - Competitively selected
  - Targeted fields
  - Targeted geographic areas (e.g. west and north Africa)
- Links with non-African universities
  - Visiting professors
  - Students and staff exchange
- Product development and commercialization
- African co-secretariat: AUST-Abuja
- Financial support: African and non-African governments, AfDB, World Bank, AU, ...
Thank you

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Further information: www.ias.edu/sig