

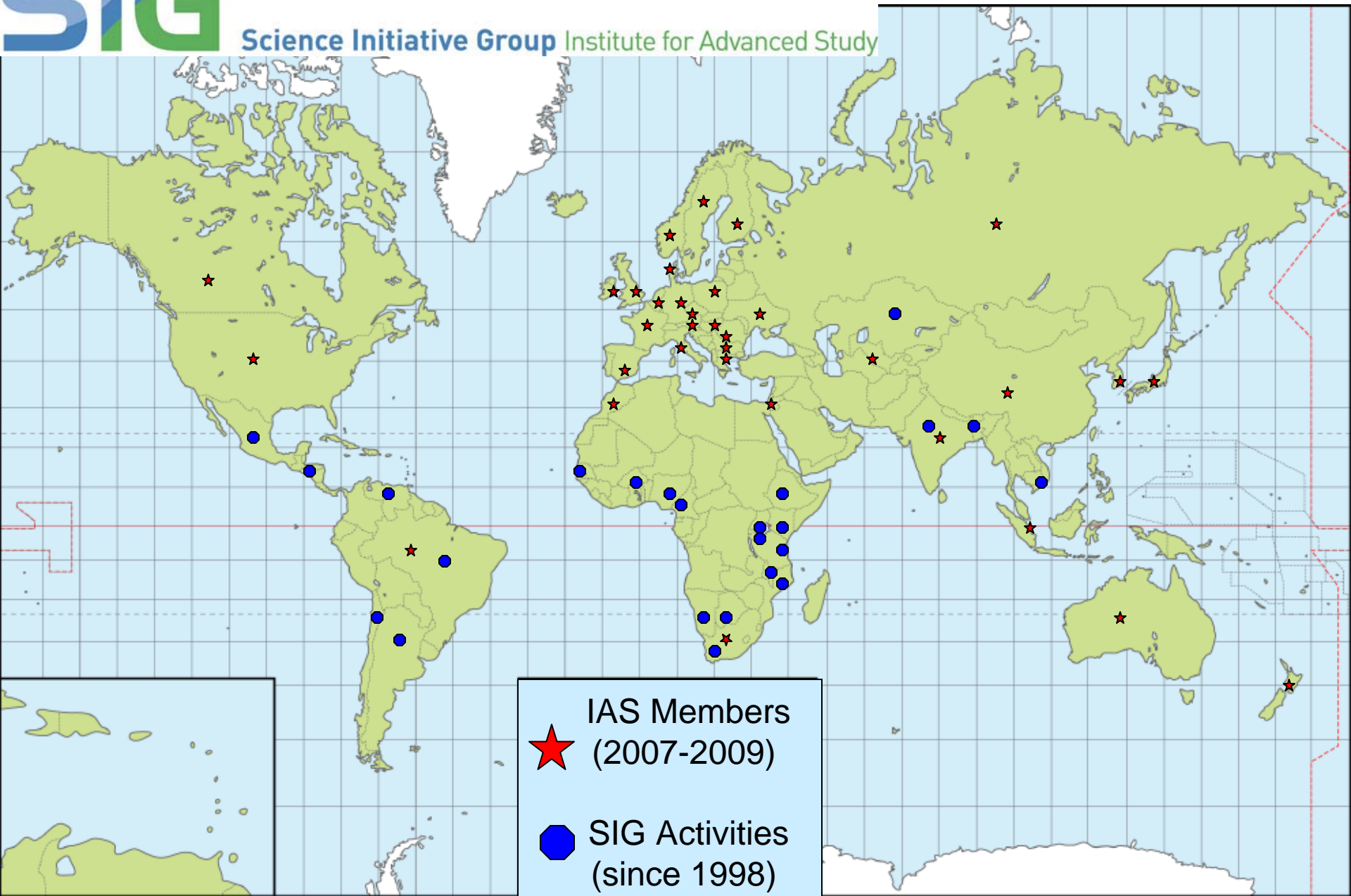


Science and Technology in the Developing World: The Institute's Role

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May 1, 2009

www.ias.edu/sig



The Vital Role of Technical Knowledge in Economic Development

- After World War II, development focused on capital and construction.
- In the late 1950s a few economists began to appreciate the essential role of “knowledge” in promoting economic growth.
- Robert Solow: A “residual” pattern of economic growth stems from technological advances and far outweighs contributions of capital or labor.
- Until the current decade, only a few large donors realized need to develop human resources at the university level.

More Organizations Now Promoting S&T for Development

- World Bank: new structure for S&T in development
- African Development Bank: a new unit focuses on higher education and S&T
- SIDA/SAREC, Sweden
- International Development Research Centre, Canada
- The Netherlands, Denmark, Norway, Germany
- Department for International Development, UK

Models of Development (1)

- Old model: Consultancies by outside experts
- New model: Strength developed within each country
 - Identify local scientific and academic leaders
 - Help them identify local opportunities and train people to address them
 - Help create partnerships so these leaders can adapt innovations developed elsewhere
 - Link academia with public and private actors who can use new knowledge and tools
 - Articulate the values of objective experimentation and evidence-based results – the culture and power of science

Models of Development (2)

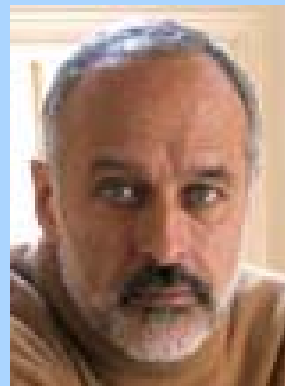
- Link those who teach with those who use knowledge
- Help academics understand their role
 - University mission: teaching, research and service
- Help industry understand the value of research

It all started with James D. Wolfensohn:
Chairman, IAS Board of Trustees, 1986-2007
President, The World Bank, 1995-2005



and

Claudio (Teitelboim) Bunster:
Member, IAS, 1978-80 & 1989
Science Advisor to



President Eduardo Frei, Chile,
1994-2000



Funding



the David &
Lucile Packard
FOUNDATION

The Andrew W. Mellon Foundation



The World Bank

THE
ROCKEFELLER
FOUNDATION

NATIONAL ACADEMY OF SCIENCES
THE NATIONAL ACADEMIES



SIG Board established June 1999. Current Membership:



← Phillip Griffiths*, Institute for Advanced Study, USA (chair)

Mohamed Hassan, TWAS & African Academy of Sciences, Trieste, Italy →



← J. Tomas Hexner*, Development Consultant, USA

Chung W. Kim*, Korea Institute for Advanced Study →



← Jacob Palis*, Instituto Nacional de Matemática Pura e Aplicada (IMPA), Rio de Janeiro, Brazil



← CNR Rao*, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, India

Harold Varmus, Memorial Sloan Kettering Cancer Center, USA →



Staff:

Arlen Hastings* →



and
sometimes



← Lori Piranian



← Alan Anderson

Kiera Carlisle →



Origins of the MSI: Chile 1998

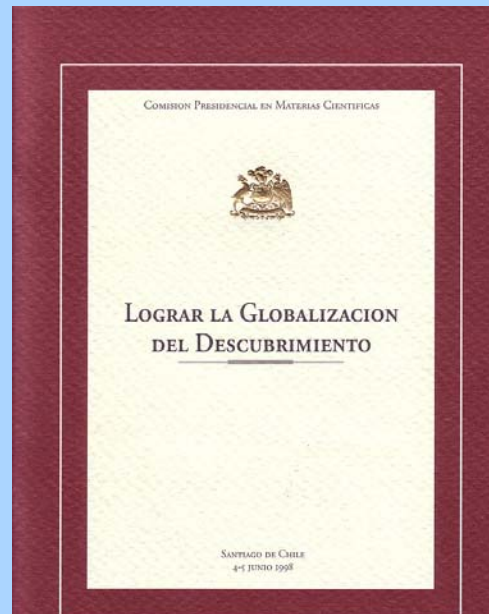


A 10

VIDA SOCIAL



EL MERCURIO
Santiago de Chile, Lunes 8 de Junio de 1998 \$ 300

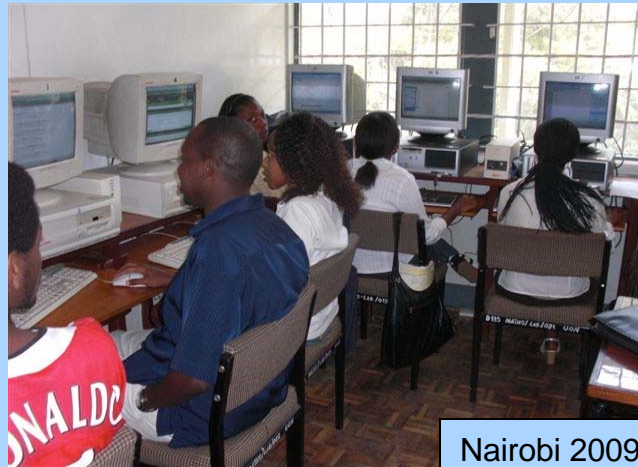


www.mideplan.cl/milenio

MSI Expansion

- Followed by an MSI in Brazil; another IAS connection.
- Chile and Brazil were joined by Mexico. The first two continue to serve as models for other projects implemented or planned in Uganda, Kazakhstan, Rwanda, Vietnam.

Opportunities and Challenges



Nairobi 2009

The MSI in Africa



Kampala 2002



African Mathematics Millennium Science Initiative

www.ammsi.org

- A network of mathematics research, training and promotion throughout sub-Saharan Africa
- Fellowships, scholarships, conferences

AMMSI Regional Coordinators:



Wandera Ogana
U of Nairobi,
Kenya
(East Africa)
Program Coordinator



Bitjong Ndombol
U of Yaoundé,
Cameroon
(Central Africa)



Edward Lungu
U of Botswana
(Southern Africa)



Samuel Ilori
U of Ibadan,
Nigeria
(Western Africa –
Anglophone)



Hamidou Toure
U of Ouagadougou,
Burkina Faso
(Western Africa –
Francophone)

Uganda MSI



Y. Museveni

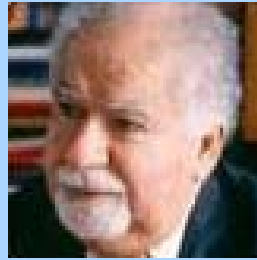


www.uncst.go.ug

RISE (1)

- Vartan Gregorian's invitation to initiate a program for higher education in Africa.
- Preparation pointed to need for dual, linked objectives: to prepare scientists to teach in universities and to do this in context of competitive research activities.

RISE (2)



➔ Carnegie planning grant to SIG/IAS, April 2007



← Planning workshop, Nairobi, June 2007

Consultations, July-November 2007:
Botswana, Ethiopia, Kenya, Nigeria,
Rwanda, Senegal, Tanzania, Uganda;
also AAS, AAU, IFS, NAS, PHEA, TWAS,
World Bank, U.S. university partners



G. Ogunmola
Nigeria

W. Ogana/ P.Masila
Kenya

J. Olang/ T. Egwang
Kenya/Uganda

B. Abegaz
Botswana/
Ethiopia

A. Johnson
Carnegie Corp

S. Lwakabamba
Rwanda

T. Givens
UT-Austin

W. Soboyejo
Princeton U

Senegal/
Kenya/UK/
Netherlands

RISE (3)

9/07 – Initial grant from Carnegie Corporation for three networks

12/07 - Request for Concept Proposals

1/08 - Selection Committee appointed:



Lishan Adam
Ethiopia



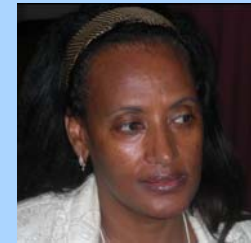
John Ball
UK



Anthony Cheetham
UK/US



Cheryl de la Rey
South Africa



Nighisty Ghezae
Eritrea/Sweden



Narciso Matos
Mozambique

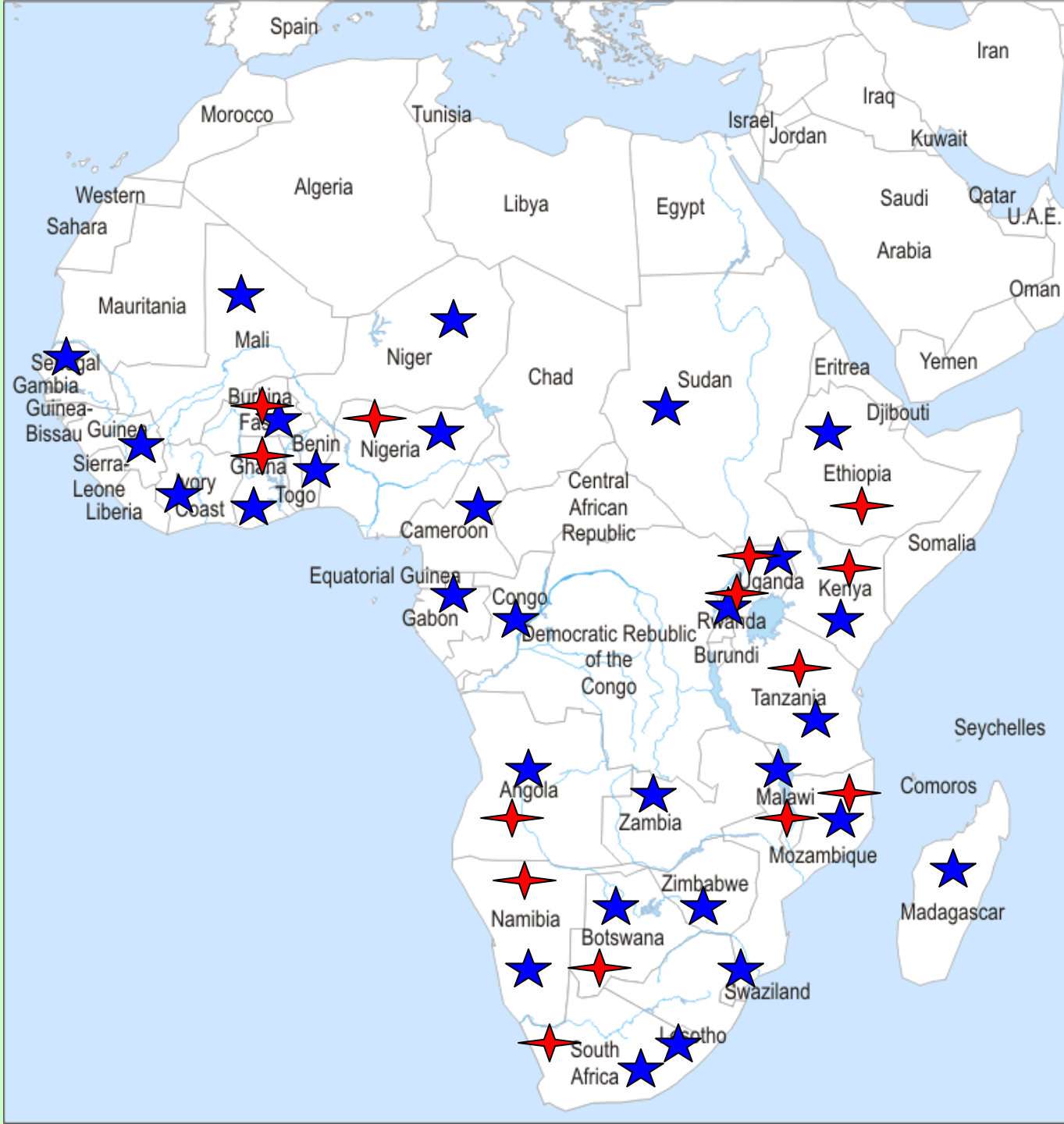
3/08 - Concept Proposal deadline



48 concept proposals
involving 29 countries



12 finalists
involving 14 countries



RISE (4)



- 7/08 - Partnership with African Academy of Sciences
- 7/08 - Three networks announced
- 9/08 - \$1.6 million grant from Carnegie for two additional networks
- 10/08 - Inaugural meeting of RISE network representatives, Nairobi ↓



RISE Networks

AMSEN ★
(SA, Botswana, Kenya, Namibia, Nigeria)

RISE-AFNNET ✦
(Uganda, Kenya, Tanzania)

SABINA ★
(Malawi, Namibia, Tanzania, SA)

SSAWRN ◆
(SA, Botswana, Mozambique, Uganda)

WIO-RISE ⬠
(Tanzania, Mozambique, SA)



AMSEN: African Materials Science and Engineering Network

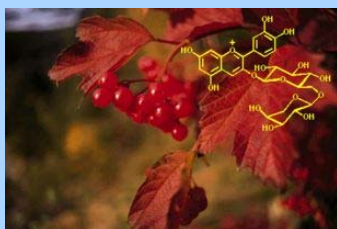


University of the Witwatersrand, South Africa
University of Namibia
University of Nairobi, Kenya
Federal University of Technology, Akure, Nigeria
University of Botswana



Increased skills in materials science and engineering are needed in southern Africa to develop and add value to the region's extensive mineral deposits. AMSEN will benefit from existing collaborations, including the DST/NRF Centre of Excellence in Strong Materials and the Wits-Namibia Engineering Curriculum Development Program in nanotechnology. To reduce the brain drain from academia to industry, AMSEN plans a retention strategy that includes allowing staff to consult for and be seconded to industry.

RISE-AFNNET: African Natural Products Network



Makerere University, Uganda
University of Nairobi, Kenya
Sokoine University, Tanzania



RISE-AFNNET seeks to develop Africa's rich biodiversity into a natural products industry of social and economic significance. RISE-AFNNET will expand existing research programs and formalize educational activities in such natural products fields as engineering, biochemistry, environmental science, pharmacology, economic development, and nutrition. Students will be recruited to identify and work on natural products research projects in the context of poverty alleviation, gender equity, and Millennium Development Goals.

Why Networks?

- Mitigate professional and geographic isolation
- Mentoring for graduate students
- Research partners for faculty
- Share instrumentation and other resources
- Links with international partners
—
- Carnegie sponsoring humanities program parallel to RISE: ACLS initiative for humanities faculty in Africa

Moving Toward the Network Model

- *Consolidated Plan of Action*, African Union, 2006-2010
- *Strategic Approaches to Science and Technology*, World Bank
- *Inventing a Better Future*, InterAcademy Council
- *Eliminating World Poverty: Making Governance Work for the Poor*, UK White Paper

What Does RISE Need to Succeed?

- Metrics to assess progress in capacity building
- Government support
- Stronger links to private sector
- Transfer to local leadership

