



*African Mathematics Millennium
Science Initiative (AMMSI)*

by

W. Ogana

Programme Director

Brief History

- ❖ World Bank/SIG meeting in February 2000
- ❖ Formation of African MSI Task Force
- ❖ Several meetings culminating in a meeting in Kampala, Uganda in January 2002

*Priority areas
established by the Kampala meeting
for initial stage of African MSI:*

- ❖ Instrumentation & Information Technology
- ❖ Biotechnology
- ❖ Mathematics

*African Mathematics Millennium Science
Initiative (AMMSI)*

Writing Group constituted in January
2003 to prepare a draft proposal for the
first 5 years of operation of AMMSI

Writing Group Members

- Professor Wandera Ogana (Chairman)
University of Nairobi, Kenya
- Professor Edward Lungu
University Botswana, Botswana
- Professor David Bekolle
University of Yaounde 1, Cameroon
- Professor Sunday Iyahun
National Mathematics Centre, Nigeria
- Professor Leif Abrahamson
Uppsala University, Sweden
- Dr. Alan Anderson, USA (grant-writer, non-voting)

AMMSI Writing Group Proposal

- ❖ **5-Year proposal**
- ❖ **Balancing various activities subject to funding**
- ❖ **Forwarded to SIG in December 2003**
- ❖ **Submitted for funding consideration**

Current Situation

- ❖ **Funding from various sources for activities (since 2005)**
- ❖ **Agreement to operate as an autonomous programme of the African Academy of Sciences (March 2007)**
- ❖ **AMMSI conducts its activities through individuals in existing institutions**

AMMSI Goal

**Nurture the next generation
of African mathematicians
and mathematical leadership**

OBJECTIVES

- ❖ **Training and Education**
- ❖ **Research**
- ❖ **Linkages and Networking**
- ❖ **Outreach and Public Education**
- ❖ **Information and Communication Technologies (ICT)**

Advanced mathematics training and education in the African continent

Support existing centers of quality through:

- ❖ Postgraduate training (M.Sc./Ph.D; Tutorial Fellows/Graduate Assistants)
- ❖ Postdoctoral fellowships
- ❖ In-service training and short courses for university lecturers
- ❖ Visiting lectureship programmes
- ❖ Acquisition of textbooks, electronic access to journals
- ❖ Regional access to postgraduate courses

Research in mathematics and mathematics education, including interdisciplinary research in areas involving application of mathematics

- ❖ *Basic and applied research, with special emphasis on multidisciplinary projects*
- ❖ *Planning and design of research projects*
- ❖ *Participation in international research projects involving application of mathematics*
- ❖ *Regional conference support*
- ❖ *Access to electronic communication and international journals*
- ❖ *Local and international research mentoring*

Linkages and networking

--necessary to leverage all available resources

- ❖ African Mathematical Union
- ❖ African Institute of Mathematical Sciences (www.aims.ac.za/)
(joint application for NEPAD Center of Excellence)
- ❖ National/regional mathematics organizations
- ❖ Organisation/attendance of professional meetings
- ❖ Databases and websites, “Clearinghouse of African Mathematics”
- ❖ Facilitate exchange of students and staff

Outreach and Public Education

- ❖ AMMSI Prize for excellence in research and distinguished contribution to mathematics
- ❖ The African woman in mathematics
- ❖ University/government/private sector interaction
- ❖ Public lectures and exhibitions that provide non-technical exposition of mathematics
- ❖ Mathematics Olympiads (National, Regional, International)

Information and Communication Technologies (ICT)

- ❖ ICT for university research: scientific literature, computing resources, fast internet access etc.
- ❖ ICT for university education: computer hardware and software, distance learning tools etc.
- ❖ ICT for schools: computers and other technologies etc.

ADMINISTRATIVE STRUCTURE

- Distributed network with 5 regional offices:
 - ❖ Central Africa
 - ❖ Eastern Africa
 - ❖ Southern Africa
 - ❖ Western Africa (Zone 1)
 - ❖ Western Africa (Zone 2)
- Programme Committee
- Selection and Evaluation Committee

AMMSI Programme Committee

- Professor Wandera Ogana (Chairman)
University of Nairobi, Kenya
- Professor David Bekolle
University of Yaounde 1, Cameroon
- Professor Samwel Ilori
University of Ibadan, Nigeria
- Professor Professor Edward Lungu
University Botswana, Botswana
- Professor Mary Niane
Université Gaston Berger de Saint-Louis, Senegal

Selection and Evaluation Committee

(Fellowship candidates selection; Research projects selection and evaluation)

- Augustin Banyaga
Pennsylvania State University, USA
- Bernt Oksendal
University of Oslo, Norway
- Hamidou Toure
University of Burkina Faso

ACTIVITIES TO DATE

RESEARCH/VISITING FELLOWSHIPS

- **Awarded 5 Fellowships each in 2005 and 2006**
- **Fellowship amount US \$ 3,000**
- **Amount increased to US \$ 5,000 in 2007**
- **Announcement for 2007 Fellowships to be out this week --- **Online applications****

POSTGRADUATE SCHOLARSHIPS

- **Every year each AMMSI Region has US \$ 6,000**
- **Awarded 54 and 57 partial scholarships during 2005 and 2006, respectively, with amounts ranging from US \$ 300 to US \$ 1,000**
- **Maximum scholarship amounts raised to US \$ 2,000 from 2007**
- **Announcements for 2007 scholarships to be out this week**
--- Online applications

SUPPORT OF SCIENTIFIC MEETINGS

- **Conference in Porto Novo, Benin**
 - ✓ **10 – 17 August 2005**
 - ✓ **Representation Theory in Geometry and Physics**
- **Conference and Workshop in Nairobi, Kenya**
 - **4 – 10 December 2006**
 - **General Conference followed by Mathematical Biology Workshop**
- **SAMSA Conference in Windhoek, Namibia, November 2007**

CONFERENCE SUPPORT TO POSTGRADUATE STUDENTS

- **Support by the London Mathematical Society for several postgraduate students, each, to attend the following:**
 - ✓ **Conference in Benin, August 2005**
 - ✓ **GIRAGA meeting, Cameroon, September 2006**
 - ✓ **SAMSA Conference, Botswana, November 2006**
 - ✓ **Conference & Workshop, Kenya, December 2006**

MENTORING AFRICAN RESEARCH IN MATHEMATICS (MARM)

- **Promote mentoring relationships between mathematicians in other continents and sub-Saharan African colleagues, together with their students.**
- **Promote collaboration in mathematical research and in mathematics education**
- **Create joint research projects and cultivate longer-term partnerships between institutions in Africa and those elsewhere**

MARM (Continued)

- **First call for expressions of interest was in late 2005**
- **11 institutions responded**
- **Following selected and are participating:**
 - ❖ **Addis Ababa University, Ethiopia**
 - ❖ **University of Buea, Cameroon**
 - ❖ **Kwame Nkurumah University of Science & Technology, Ghana**
- **Second call was in late 2006; 12 institutions responded; Selection ongoing**

SUPPORTING ORGANIZATIONS

- **Financial support:**
 - ❖ **Mellon Foundation**
 - ❖ **Nuffield Foundation**
 - ❖ **Leverhulme Trust**
 - ❖ **US National Committee on Mathematics**
 - ❖ **London Mathematical Society**
 - ❖ **International Mathematical Union (IMU)**

SUPPORTING ORGANIZATIONS (Cont.)

- **Office space, facilities, or general administrative support:**
 - ❖ **Universite Gaston Berger, Senegal**
 - ❖ **University of Botswana, Botswana**
 - ❖ **University of Ibadan, Nigeria**
 - ❖ **University of Nairobi, Kenya**
 - ❖ **University of Ngaoundere, Cameroon**
 - ❖ **Science Initiative Group (SIG)**

LINKS AND PARTNERSHIPS

- **African Academy of Sciences (AAS)**
 - ❖ **Autonomous programme of AAS**
 - ❖ **Administrative and financial services by AAS**
 - ❖ **Access to African Union countries**
 - ❖ **Joint projects by AAS and AMMSI**
- **Memorandum of collaboration with AESEDA**
 - **Alliance for Earth Sciences, Engineering & Development in Africa**
 - **Coordinated from Penn State University**
- **Committee member of 2iE**

EXPERIENCE (+VE)

- **Making a difference to professional careers through Fellowships**
- **Making a difference to academic future through Scholarships**
- **Enabling staff and institutions in different continents to collaborate through MARM**
- **Providing opportunities for younger researchers to participate in conferences**

ROOM FOR IMPROVEMENT

- **Limited funds, hence small scholarship awards, and lack of diversification of activities**
- **Administrative structure in 5 regions**
- **Lack of strong secretariat – funding constraints**
- **Incorporating Anglophone-Francophone interaction in administrative structure**
- **Transfer of funds to awardees -- **nightmare****
- **Slow response by institutions and individuals to announcements**
- **Slow submission of reports by awardees**
- **Communication problems – poor database**

WEBSITE:

<http://www.ammsi.org>