A National Science Foundation (NSF) Sponsored Workshop:

THIRD WORKSHOP ON US-AFRICA RESEARCH AND EDUCATION COLLABORATION

PROGRAM

Theme: “Promoting Research and Education in Power, Information Technology and Environment”

Abuja, Nigeria, December 13-15, 2004

HOSTS:
National Electric Power Authority (NEPA)
Nigerian Academy of Engineering (NAE)
Nigerian Society of Engineers (NSE)
The US-Africa Research and Education workshop is an outgrowth of the biennial International Conference on Power System Operation and Planning (ICPSOP), which the National Science Foundation (NSF), a host of utility companies, and universities in the US and Africa have funded. Previous workshops, organized by Howard University, have led to collaboration in Faculty exchange, recruitment of students, and joint work between US professors and African colleagues.

To extend the activities and achieve the intellectual merits and broader impacts of science and engineering in the power / energy, information systems, a US-Africa research and education collaboration initiative in energy and environment was started by the Division of Electrical and Communications Systems (ECS) at NSF. ECS grantees serve as PIs with several African co-PI researchers. To kick-off the research activities, NSF sponsored two-day workshop, under the theme “Promoting Research and Education in Power, Information Technology, and Environment”, nurtures the following objectives:

- Developing a roadmap for future research activities in power / energy, information systems technology, environmental and social dynamics, education pedagogy, and to develop a test bed for validating new ideas and techniques developed by research teams.
- Developing collaboration between Mathematics, Physics, and System experts.
- Promoting the NSF mission to prepare US students to be globally engaged in the workforce of the 21st Century.
- Enhance/foster existing collaboration between US and Africa researchers. Promote the dissemination of results and technology transfer.

The first workshop of this US-African Collaboration was held at Howard University, Washington DC in November 2003 in the United States with participants form US and Sub-Sahara Africa including seven Universities from Nigeria and representatives from the Nigerian society of Engineers and NEPA. Other Countries represented are Ghana, Cameroon, Cape Verde, Botswana, South Africa and Senegal.

In Puerto Rico, from July 9 – 12, 2004 the universities again met to review progress on the research projects. At the meeting, a thorough review was made; recommendations for improvements were suggested. It was then agreed that there would be a follow up meeting at Abuja from December 13th – 15th, 2004, to redefine the ways and means of ensuring greater participation of all stakeholders with the view to ensuring greater participation of governments and other interested parties.

We thank the hosts (NEPA, NAE and NSE) and all the participants including Vice Chancellors and Professors from the US and Africa for enabling us to achieve the goals of this US-Africa initiative. Hopefully, at the end of the meeting, we will engage with the government representatives and Universities for launching a long range US-Africa center for research and education in energy, IT and environment.

Again, welcome to Abuja, Nigeria and please take some time out of your busy schedule to enjoy the beautiful and peaceful setting here in the Nigerian capital.

Dr. James Momoh, Program Director
Electrical and Communications Systems Division (ECS)
National Science Foundation
Tel: 703 292-8339; Fax: (703) 292-9147
Email: jmomoh@nsf.gov; jmomoh@msn.com ; jm@scs.howard.edu
Monday, December 13, 2004

VENUE: Abuja Sheraton Hotel and Towers

7:45 – 8:00	Coffee and Refreshments
8:00 – 8:30	Welcome and Introduction

- Professor James A. Momoh, Program Director
  Electrical and Communications Systems Division (ECS)
  National Science Foundation, USA

- Professor Joe H. Chow
  Chairman, US-Africa Collaboration Committee, USA.
  Rensselaer Polytechnic Institute, USA

8:30 – 9:00	NSF Cooperative Research Programs Overview

- Professor James A. Momoh, Program Director
  Electrical and Communications Systems Division (ECS)
  National Science Foundation, USA

SESSION I

9:00 – 9:45	Market Dynamics of Power System Planning Under Deregulation
- Prof. K. Tomsovic, Washington State Univ., USA
- Mengstab Gebremicael, Washington State Univ., USA

9:45 – 10:30	Formal comment and presentations from African counterparts on session I
- Prof. T.C. Nwodo, Federal Univ. of Sc. & Tech., Owerri, Nigeria
- Prof. J. Ngundam, Univ. of Yaounde, Cameroon
- Prof. Musa Momoh, Usman Dan Fodio Univ., Nigeria

10:30 – 10:45	Break

SESSION II

10:45 – 11:30	Determination of Available Transfer Capacity
- Prof. C.C. Liu, Univ. of Washington, USA
- Guang Li, Univ. of Washington, USA

11:30 – 12:15	Formal comment and presentations from African counterparts on session II
- Prof. R. Salawu, University of Lagos, Nigeria
- Prof. Adj Mamadou, Campus Universitaire – ESP, Dakar
12:15 – 1:15  Lunch

SESSION III

1:15 – 2:00  New Voltage Control Methodologies
- Prof. V. Ajjarapu, Iowa State Univ., USA
- Selorm Atiedu, Iowa State University, U.S.A.

2:00 – 2:45  Formal comment and presentations from African counterparts on session III
- Prof. George Anderson, Univ. of Botswana, Botswana
- Dr. T. Abubakar, Ahmadu Bello University, Nigeria

2:45 – 3:00  Break

SESSION IV

3:00 – 3:45  Optimization Methods/ Locational Marginal Price Methodologies for deregulated Power Market
- Prof. James Momoh, Howard Univ., USA
- Garfield Boswell, Howard University, U.S.A.

3:45 – 4:30  Formal comment and presentations from African counterparts on session IV
- Prof. P. Kuale, Univ. of Benin, Nigeria
- Professor E. Jackson, Kwame Nkrumah Univ. of Sc. & Tech., Ghana
- Dr. J. Ekeh, Ambrose Alli Univ., Nigeria

4:30 – 5:00  Open discussion – prepared comments

Moderator  Professor Joe H. Chow
Chairman, US-Africa Collaboration Committee, USA.
Rensselaer Polytechnic Institute, USA

5:00 – 6:00  Dinner
Tuesday, December 14, 2004

VENUE: Abuja Sheraton Hotel and Towers

7:45 – 8:00  Coffee and Refreshments

8:00 – 8:30  Welcome and Introduction

- **Professor James A. Momoh**, Program Director
  Electrical and Communications Systems Division (ECS)
  National Science Foundation, USA

- **Professor Joe H. Chow**
  Chairman, US-Africa Collaboration Committee, USA.
  Rensselaer Polytechnic Institute, USA

- **Engr. J.O. Makoju**
  MD/CEO, National Electric Power Authority, NEPA, Nigeria

8:30 – 9:15  NSF Cooperative Research Programs Overview

  - **Professor James A. Momoh**, Program Director
    Electrical and Communications Systems Division (ECS)
    National Science Foundation, USA

9:15 – 10:00  Road-Map on Long Term Research Cooperation

  - **Professor Joe H. Chow**
    Chairman, US-Africa Collaboration Committee, USA.
    Rensselaer Polytechnic Institute, USA

10:00 – 10:15  Break

SESSION I  West African Government Perspectives

10:15 – 10:50  West African Government Perspectives on Environment, and Infrastructure

  - **Prof. Adewoye**,
    Director General / Chief Executive
    National Agency for Science and Engineering Infrastructure

10:50 – 11:25  Government Initiative and Opportunities for Research and Development

  - **Hon. L. Imoke**,  
    Hon Minister, Ministry of Power & Steel, Nigeria

11:25 – 12:00  West African Government Perspectives on Energy and Power System Development

  - **Engr. J.O. Makoju**
    MD/CEO, National Electric Power Authority, NEPA, Nigeria
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<tr>
<th>Time</th>
<th>Session</th>
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<td>12:00 – 1:00</td>
<td>Lunch</td>
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<td>1:00 – 1:35</td>
<td>Research and Development Session</td>
<td>West African Power Pool Research and Development</td>
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<td><strong>Engr. Mustapha Bulama</strong></td>
<td>President, Nigerian Society of Engineers</td>
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<td><strong>Engr. Foluseke A. Somolu</strong></td>
<td>Immediate Past President, Nigerian Society of Engineers</td>
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<td>1:35 – 2:10</td>
<td>Engineering and other Professional Societies:</td>
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<td><strong>Engr. V. I. Maduka,</strong></td>
<td>President, National Academy of Engineering, Nigeria</td>
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<td>Role of NAE in Research and Development (University, Industry and Government Collaboration)</td>
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<td><strong>Professor G.B. Ogunmola</strong></td>
<td>President, National Academy of Sciences, Nigeria</td>
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<td>Role of NAS in Research and Development (University, Industry and Government Collaboration)</td>
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<td>2:10 – 2:13</td>
<td>Break</td>
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<td>Session Chairman: <strong>Prof. Ibidapo Obe</strong>, VC. University of Lagos</td>
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<td><strong>Vice Chancellors (VC) of Collaborating Universities:</strong></td>
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<td><strong>Prof. E.A.C. Nwanze</strong>, VC, University of Benin, Benin, Nigeria</td>
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<td><strong>Prof. A.S. Sambo</strong>, VC, Abubakar Tafawa Balewa University (ATBU), Bauchi, Nigeria</td>
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<td><strong>Prof. Abdullahi Shehu Usman</strong>, VC, Ahmadu Bello University, Zaria, Nigeria</td>
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<td><strong>Prof. J. Njoku</strong>, VC, Federal Univ. of Science &amp; Technology, Owerri</td>
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<td><strong>Vice Chancellor</strong>, Ambrose Alli University, Ekpoma (VC’s Name to be provided)</td>
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<td><strong>Professor T.M. Bande</strong>, VC, Usman Dan Fodio University, Sokoto, Nigeria</td>
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<td><strong>Prof. Fame Ndongo</strong>, VC, University of Younede, Cameroon</td>
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<td><strong>Prof. Kwesi Andam</strong>, VC, Kwame Nkrumah Univ. of Sc. &amp; Tech., Kumasi, Ghana</td>
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<td><strong>Prof. Bojosi Othogle</strong>, VC, University of Botswana, Botswana</td>
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<td><strong>Prof. Abdou Salam Sall</strong>, Recteur de l’Université Cheikh Anta Diop de Dakar</td>
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<td><strong>Prof. George Brito</strong>, VC, Jean Piaget University, Cape Verde.</td>
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2:45 – 3:00  Break

SESSION 1V: General Session

3:00 – 4:30  Research on Energy and Power Systems Activities

- Prof. Arunsi Chuku, Tuskegee University (USA)
- Other Researchers from West Africa

4:30 – 5:00  Open discussion – Prepared Comments

Moderator:  Professor Joe H. Chow
Chairman, US-Africa Collaboration Committee, USA.
Rensselaer Polytechnic Institute, USA

5:00 – 6:00  Dinner
5:00 – 5:10

Wednesday, December 15, 2004

Tutorials/Workshop Wrap-up

VENUE: Abuja Sheraton Hotel and Towers

7:45 – 8:00  Coffee and Refreshments

8:30 – 10:00  Individual Group Meetings

- US-Africa Collaborative Groups

10:00 – 10:15  Coffee Break

10:15 – 11:00  Tutorials on Power System Controls

- Professor Joe H. Chow
Chairman, US-Africa Collaboration Committee, USA.
Rensselaer Polytechnic Institute, USA

11:00 – 11:15  Photo Session

11:20 am  Adjournment
Post Workshop Activities: December 15 – 17, 2004

Schedule of visits to universities

Wednesday, Dec. 15th

12:00 – 6:00  Travel from Abuja to Ekpoma / Environs
6:00 – 8:00  Tour of University and meetings at Ambrose Alli University, Ekpoma

Thursday, Dec. 16

8:00 – 12:30  Lectures / Meetings with Prof. P. A. Kuale
12:30 – 2:00  Lunch / Tour of Campus and city of Benin.
2:00 - 7:00  Travel back to Abuja

Friday, Dec 17th  Depart to the US from Abuja
Acknowledgments from NSF

The National Science Foundation, the Division of Electrical and Communications Systems (ECS) wishes to thank all members of the local committees at Rensselaer Polytechnic Institute (RPI) and Howard University for coordinating and hosting these series of workshops, which serve to promote research and education in power, information technology, and environment.

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