

**Meeting of the Advisory Committee for  
International Science and Engineering  
Sept 28-29, 2009  
National Science Foundation, Room 920**

**SUMMARY MINUTES**

**Members Present:**

**Gretchen Kalonji, Chair**, Director of Systemwide Research Development,  
University of California, Office of the President, Oakland, CA.

**Lueny Morell**, Director of University Relations, Hewlett Packard Company, Palo Alto, CA.

**Barbara Olds**, Professor Emeritus, Division of Liberal Arts and International Studies, Colorado School of  
Mines, Golden, CO.

**Saifur Rahman**, Director, VT Advanced Research Institute, Arlington, VA.

**Nicholas Vonortas**, Director, Center for International Science and Technology Policy, George Washington  
University, Washington, DC.

**Janis Weeks**, Professor, Institute of Neuroscience, University of Oregon, Eugene, Oregon.

**Daniel Wubah**, Vice President and Dean for Undergraduate Education, Office of the Provost  
Virginia Tech, Blacksburg, VA.

**Members Present via teleconference:**

**Evelynn Hammonds, CEOSE Liaison**, Dean of Harvard College and Barbara Gutmann Rosenkrantz  
Professor of the History of Science and of African and African American Studies, Harvard University,  
Cambridge, MA.

**Kevin Pilz**, Commodity Security and Logistics Adviser, Commodities Security and Logistics Division,  
Office of Population and Reproductive Health, Bureau of Global Health, U.S. Agency for International  
Development, Washington DC.

**Lilian Wu**, Program Executive, University Relations, Corporate Technical Strategy Development, IBM  
Corporation, Yorktown Heights, NY.

**Members Absent:**

**Ignacio Grossmann**, Director of the Center for Advanced Process Decision-Making  
Carnegie Mellon University, Pittsburgh, PA.

**Vasudev M. (Nitant) Kenkre**, Director of the Consortium of the Americas  
for Interdisciplinary Science, University of New Mexico, Albuquerque, NM.

**Ismail Serageldin**, Director, Library of Alexandria, Alexandria, Egypt.

## **OISE Senior Staff Present**

**Larry Weber**, Director of OISE

**Mark Suskin**, Acting Deputy Director of OISE

The autumn meeting of the Advisory Committee for International Science and Engineering (AC/ISE) was held at NSF in Room 920, Stafford I on September 28-29, 2009.

### ***September 28, 2009***

#### ***Welcome and Introductions***

Dr. Gretchen Kalonji, AC/ISE Chair, called the meeting to order at 8:30 a.m. and welcomed the attendees. She mentioned that the meeting agenda was focused on the three, newly-formed AC/ISE Working Groups: Partnerships for International Research and Education (PIRE); Developing Countries; and Strategic Planning.

#### ***Update on OISE, NSF, and International Engagements***

Dr. Larry Weber, OISE Director, provided a summary of senior staffing changes within NSF and OISE since the last AC/ISE meeting. He presented detailed breakdowns of the OISE and NSF FY2009 budgets and the FY2010 request. Recent examples of international engagements throughout NSF were described as well as science diplomacy events. A preview of the meeting agenda was presented.

#### ***Working Group on Partnerships for International Research and Education***

Dr. Barbara Olds, Chair of the PIRE Working Group, introduced Dr. Libby Lyons, OISE PIRE Program Coordinator, who opened this session with a review of the first two PIRE competitions and a status report on the current competition. She described the following challenges that face PIRE:

- Integration across NSF
- Funding
- Communication and dissemination
- Evaluation
- Coordination with other Funding Agencies

#### ***Topics/issues related to PIRE that the AC/ISE discussed:***

- Assessments should be made on how recent changes (e.g. removal of the budget cap) have affected the PIRE program.
- Metrics should be established to assess the success of the program. These could include:
  - quality of science
  - length of continued collaboration following the award

- ability of collaborators to secure future NSF or other funding following the award
- impacts on the careers of participating scientists
- number of participating students who obtained an international research experience
- The promotion of PIRE:
  - must increase awareness of academic institutions to PIRE and get their full commitment to PIRE objectives
  - stress the value-added of PIRE grants in:
    - providing international experiences for students
    - addressing research and education problems/challenges that could not be fully addressed domestically

### ***Working Group on Developing Countries***

Dr. Daniel Wubah, Chair of the Developing Countries Working Group, introduced Dr. DeAndra Beck, OISE Developing Countries Program Manager (acting), who made a presentation that included the context for developing country initiatives, examples of new NSF activities involving the developing world, an update on the NSF/USAID MOU for Cooperation, and a summary of NSF policies concerning the funding of developing country scientists.

### ***Topics/issues related to Developing Countries that the AC/ISE discussed:***

- Funding visiting scientists from developing countries in US labs
- Guidelines regarding Intellectual Property rights
- Challenges to implementing USAID/NSF MOU
- Encouraging greater collaboration with developing countries via workshops and planning visits
- Competing with countries like China for collaborations in the developing world
- Need for a low bandwidth version of the NSF website to accommodate scientists in developing countries
- Collaborating with UNESCO and US government agencies such as USDA
- Leveraging industry partnerships in the developing world (e.g. the IBM collaboration in Sub Saharan Africa)

### ***Draft International Policies and Practices***

Mr. John Tsapogas, representing the OISE Working Group on Policies, Practices, and Planning, provided a status update on the draft document entitled, “Policies and Practices for International Engagements”, which was in the final stages of approval within NSF. Mr. Tsapogas stated that this document will serve as a guide to help NSF staff better understand how to approach international engagements. He highlighted three specific areas that this document addresses:

- Additional review criteria for solicitations with international engagements
- Joint review of proposals with foreign counterparts
- Procedures for receiving foreign visitors

***Working Group on Strategic Planning***

Ms. Lueny Morell, Chair of the Strategic Planning Working Group, introduced Mr. John Tsapogas, OISE Program Coordinator for Global Initiatives, who provided an update on the NSF and OISE Strategic Plans. Mr. Tsapogas stated that the process for revising the current NSF Strategic Plan was underway and that Dr. Mark Suskin, Acting Deputy Director of OISE, was a member of the working group that was revising the NSF Strategic Plan. Mr. Tsapogas described the NSF Strategic Plan Core Values, Vision, and Goals. He then stated that the OISE Strategic Plan was submitted to the NSF Director in October 2008. The OISE Strategic Plan is goal-oriented with a stated mission to promote excellence in U.S. science and engineering research and education through international collaboration.

*Topics/issues related to Strategic Planning that the AC/ISE discussed:*

- The relationship between the NSF strategic plan and the OISE strategic plan.
- The importance of including the role of international science and engineering in planning for the future.
- Are the OISE goals and the OISE implementation framework targeted at results over which the office has a reasonable degree of influence?
- How can we document progress towards these goals?
- Change the language to incorporate greater use of the words global and international.
- Justifications for more “international” language in the NSF strategic plan
  - research infrastructure is global
  - subject matter is global: e.g., energy, climate change, cyberinfrastructure
  - NSF should be proactive – actively promote international instead of simply respond to an increasingly global scientific enterprise.

***OISE Program Evaluation – Planned Activities***

John Tsapogas provided an overview of OISE evaluation and assessment activities. Included in his presentation were the planned reverse-site visits for the 2007 PIRE cohort in early 2010 as well as the evaluation and assessment of the International Research Fellowship Program (IRFP) and East Asia & Pacific Summer Institutes (EAPSI) to be conducted by Abt Associates over the next two years. He also mentioned the workshop held at NSF conducted by Sigma Xi, The Scientific Research Society, in July 2008 that resulted in a publication entitled, “Developing Evaluation Approaches to International Collaborative Science and Engineering Activities”.

*Discussion with Dr. Arden L. Bement, Jr., Director, National Science Foundation*

Dr. Bement began by speaking about capacity building stating that increasing the research and educational capacity of countries is key to solving endemic problems in those countries. In his view, factors that promote capacity building include:

- Service organizations like Engineers Without Borders and Scientists Without Borders
- Reverse diaspora of US-trained scientists and engineers
- Funding of international collaboration between scientists via funding agencies

With respect to the NSF budget, Dr. Bement commented that usually in times of tight budgets, governments tend to focus internally. However, despite the recent economic downturn, there still appears to be bi-partisan support for international engagements. Specifically,

- Science diplomacy is getting a lot of attention
- Funding agencies are the primary vehicle for science diplomacy

On the topic of Muslim-majority countries, he spoke briefly about our collaborations with Pakistan to increase broadband and to increase the quality of education. He then mentioned his recent trip to Saudi Arabia as Head of the US Delegation to the opening ceremony of the King Abdullah University for Science and Technology (KAUST). KAUST is a self-contained community of 2,000 students that is modeled on the US centers of scientific excellence. Dr. Bement said that by building KAUST, the Saudis “took several lessons from our playbook”.

*Topics/issues the AC/ISE and Dr. Bement also discussed:*

Reverse diaspora is speeding up and could cause shortages of skilled labor in the US work force. An increase in the quality of universities and an opening of society in many foreign countries are making it more appealing for foreign scientists trained in the US to return home.

The world of the future will look very different from the world of the past. The increase in broadband is greatly shrinking the world.

Scientific research often addresses the specific needs of a country, so the frontier of science may look different in different parts of the world.

Association with the US is considered prestigious in the international scientific community. A country may have the ability to carry out much of its science independently, but collaboration with the US is deemed desirable.

***September 29, 2009***

***NSF Overseas Offices***

Dr. Frances Li, OISE Program Coordinator for East Asia & Pacific, provided an overview of the three NSF Overseas Offices (Tokyo, Europe, and Beijing). Dr. Li described the purposes of the offices and punctuated her presentation with illustrative examples. Dr. David Stonner, Head of the NSF Europe Office, joined the discussion via videoconference and described his role as the NSF representative stationed in Paris.

*Topics/issues related to NSF Overseas Offices that the AC/ISE discussed:*

- Science condominiums and the embassy science fellows program
- Establishing new offices should be considered based on a set of criteria that include the need to make a country/region a strategic scientific partner.
- Having a physical presence in another country is ideal, but when that is not an option, NSF should utilize the latest electronic networking capabilities.

***Muslim-Majority Countries***

Dr. Osman Shinaishin, OISE Program Coordinator for Africa, the Near East, and South Asia, made a presentation on the Muslim-Majority Countries (MMC) Initiative. This initiative grew out of the speech that President Obama made in Cairo in June 2009. The goal of this interagency initiative is to open centers of scientific excellence in Africa, the Middle East and Southeast Asia, and appoint new science envoys to facilitate collaboration on new sources of energy, creation of green jobs, digitization of records, clean water, new crops, and other areas of mutual interest.

*Topics/issues related to Muslim-Majority Countries that the AC/ISE discussed:*

- Insuring that women are represented in this initiative.
- The differences between what the President is requesting and what NSF does.
- Many of the MMC do not have the requisite scientific capability to meet NSF's merit criterion.
- The role of the science envoys to MMC.
- The appearance that this is more of a development initiative than it is research.
- NSF should consider leveraging what industry is doing in MMC. For example, Hewlett-Packard is working to prevent brain drain in Africa.
- Does NSF intend to increase funding and create new programs for collaborations with MMC or plan on using existing programs? Will the initiative support virtual centers or "bricks and mortar" centers?
- Suitability of NSF mechanisms (STC, ERC, etc.) to support the Centers of Scientific Excellence portion of the initiative.
- There is excellent research being conducted in the Near East. NSF should look at what KAUST and the Qatar Research Fund are providing in terms of resources.

- The relationship and fit of this initiative to NSF's strategic plan.

### ***Cross-Foundation Activities***

Dr. Harold Stolberg, OISE Program Coordinator for the Americas, made a short presentation about NSF cross-cutting initiatives in climate change and energy, and the opportunities that exist for NSF to cooperate in these areas with other U.S. agencies, foundations, NGOs, and foreign organizations.

### ***Topics/issues related to Cross-Foundation Activities that the AC/ISE discussed:***

- The need for NSF to communicate with national and international professional societies in order to facilitate international collaborations in climate and energy research and education.
- Models for collaboration
- How best to integrate NSF's climate/energy initiatives and Developing Countries initiatives.
- Effective ways for NSF to engage with other countries to identify and promote potentially transformative research in climate/energy research and education.
- How to best assess the impact of international experiences on preparing students to be successful in the energy and climate science professional workforce.

### ***Committee Discussion of AC-ISE Working Groups***

#### **Strategic Plan (discussion leader: Ms. Lueny Morell)**

- Discussion centered on editing the Core Values and Strategic Goals in NSF's Strategic Plan. How, and where, should the concept of "international" be woven into the strategic plan?
- Suggestions included:
  - incorporating international into existing Core Values and Strategic Goals;
  - making international a separate Strategic Goal, possibly for a defined time period (e.g. 5 years);
  - revising all the Strategic Goals to focus more on innovation and transformative research, while incorporating the concept of international as a "strategic lever for innovation"
- There was general agreement among committee members that modern science is inherently international; discovery and innovation take place in a global context. NSF's strategic plan should support/enable international research, and should emphasize the benefits of international for the U.S. scientific community. The plan should also be perceived by the global scientific community as an invitation to international scientific collaboration.

- There was some concern that separating international into its own Strategic Goal would weaken the other strategic goals. Some committee members believed that integrating international within existing goals was a better option.
- However, there was also concern that international could be “buried” within the existing goals, and therefore lose its impact. The phrase “if it’s everywhere, it’s nowhere” was used to describe this potential issue.
- One AC member suggested that international would fit best under the Core Values, since they cut across all of the Strategic Goals. There was general agreement on this from the AC, with the added stipulation that international should also be stressed throughout the Strategic Plan. Another member stated that international, like diversity, should be part of the fabric of NSF: embedded in all aspects, and everyone’s responsibility.
- The AC/ISE agreed on three conclusions:
  - International should be a Core Value in NSF’s Strategic Plan
  - International should be included in as many areas of the Strategic Plan as possible (redundancy strengthens the message)
  - The committee revising NSF’s Strategic Plan should incorporate ambitious, forward-looking, imaginative ideas, and should strongly consider re-formulating the current Strategic Goals

**PIRE (discussion leader: Dr. Barbara Olds)**

- Discussion was framed around how the external community can contribute to moving PIRE forward.
- The AC/ISE believed that it was important to advertise PIRE widely to the academic community; however, committee members also acknowledged that this would create increased proposal pressure, and that it was important to keep a reasonable success rate to avoid PI frustration.
- Suggestions for improved outreach (with the caveat that PIRE’s budget must be able to keep up with the increased demand):
  - Coordinate with disciplinary Program Officers attending professional society meetings
- One AC member suggested that the cap of three preproposals per university be raised; there was some agreement from the AC/ISE that internal university competitions may prevent some creative proposals from being submitted, and are also poorly advertised and handled by some universities. However, the committee acknowledged that raising the preproposal cap would increase the workload of NSF staff and external reviewers, and could also negatively impact success rate.
- Suggestions for handling internal university competitions:
  - Provide guidance to grants offices (perhaps at NSF Days) regarding NSF expectations, suggestions for internal competitions
  - Could information be placed on the OISE website? (NSF’s Policy Office has discouraged this in the past)
- What can be done to involve all NSF directorates and offices in the PIRE program? There was discussion of OISE’s success in obtaining some co-funding

of PIRE grants from other directorates. The discussion then turned to the PIRE model itself: is it transformative? Will directorates follow this model of international collaboration in funding similar types of projects? How can the “added value” of the PIRE model be demonstrated? The discussion ended on this question.

### **Developing Countries (discussion leader: Dr. Daniel Wubah)**

- Daniel Wubah opened the discussion with a question: What are our goals in establishing connections with developing countries?
- Some responses from the committee:
  - Address important global science questions with input from the rest of the world
  - Provide opportunities that the U.S. would otherwise miss
  - Access to a diversity of ideas, people, challenges, solutions, resources, ecosystems
  - Definition of global problems/challenges
  - Provide meaningful, potentially life-changing experiences for a broad set of U.S. faculty and students
- One member raised the question of whether capacity building was within NSF’s mandate. This member also mentioned the issue of U.S. scientists “parachuting in” to other countries without developing meaningful collaborative relationships with the research communities there. There was general agreement that OISE’s criterion of true intellectual engagement was important in supporting international activities. OISE staff also confirmed that limited NSF support for developing country participants was permissible.
- Partnerships between NSF and external agencies are important, but need to be strategic; right now it appears that interagency collaborations are “hit or miss.”
- NSF should clarify to the U.S. scientific community that all NSF grants can include international collaboration.
- Some members of the committee felt that NSF should consider a “matchmaker” role in connecting U.S. researchers with foreign scientists. Some ways that NSF could facilitate the development of new international collaborations:
  - Develop a “low bandwidth” abstracts database accessible in developing countries
  - Support regional workshops in the developing world
  - Explore online “social networking” platforms for scientists
- Other related suggestions:
  - Look into partnerships with EHR; tap into existing resources and programs
  - Explore the international potential of cyberlearning
  - Develop follow-on activities from the recent workshop on developing a globally engaged workforce
  - Consider ways to engage students, including those who do not travel, in internationally-focused activities

**The Autumn Advisory Committee meeting was adjourned at 12:30 pm.**

APPROVED:

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Gretchen Kalonji, Chair

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Date