

**COMMITTEE ON EQUAL OPPORTUNITIES IN  
SCIENCE AND ENGINEERING**

**MEETING MINUTES**

**February 28, 2012**

**MEETING PARTICIPANTS**

**Members Present**

**Dr. Karl S. Booksh**, University of Delaware, DE  
**Dr. Cecilia Conrad**, Pomona College, Claremont, CA  
**Dr. George Middendorf**, Howard University, Washington, DC  
**Dr. Evelyn Hammonds**, Harvard University, Cambridge, MA (*Virtual Participant*)  
**Dr. Richard E. Ladner**, University of Washington, Seattle, WA  
**Dr. Marigold Linton**, University of Kansas, Lawrence, KS  
**Dr. Maria (Mia) Ong**, TERC, Cambridge, MA (*Virtual Participant*)  
**Dr. Eugenia Paulus**, North Hennepin Community College, Brooklyn Park, MN  
**Dr. Alexander Ramirez**, San Antonio, TX  
**Dr. Wendy Raymond**, Williams College, Williamstown, MA  
**Dr. Keivan G. Stassun**, Vanderbilt University, TN  
**Dr. Joseph A. Whittaker**, Morgan State University, MD

**Members Absent**

**Dr. Joseph S. Francisco**, Purdue University, West Lafayette, IN  
**Dr. Lueny Morrell**, Hewlett Packard, Mayaguez, PR  
**Dr. Ainissa F. Ramírez**, Yale University, CT

**Federal Agency Liaisons to CEOSE Present**

**Dr. Katie E. Blanding**, United States Department of Education  
**Dr. Linda Gunderson**, United States Department of the Interior  
**Ms. Susan Heller-Zeisler**, National Institute of Standards and Technology  
**Dr. Meldon Hollis**, White House Initiative on Historically Black Colleges and Universities  
**Dr. Jeremy Lawson**, NIST  
**Ms. Era L. Marshall**, Smithsonian Institution  
**Dr. Audrey A. Trotman**, National Oceanic and Atmospheric Administration  
**Dr. Jermelina Tupas**, United States Department of Agriculture

**Federal Agency Liaisons Absent**

**Dr. Paul T. Anastas**, United States Environmental Protection Agency  
**Ms. Lisa Evans, J.D.**, National Institutes of Health  
**Ms. Evelyn Kent**, United States Department of Defense  
**Dr. Sara Klucking**, United States Department of Homeland Security  
**Dr. Carl S. Person**, National Aeronautics and Space Administration  
**Dr. Muquarrab Qureshi**, United States Department of Agriculture

**CEOSE Designated Federal Officer – Executive Liaison**

**Dr. Wanda E. Ward**, Senior Advisor to the Director, Office of the Director, National Science Foundation (NSF)

**CEOSE Executive Secretary**

**Dr. Kelly Mack**, ADVANCE Program Officer, NSF

**OIA/NSF Primary Support Staff Members**

**Mr. Steven Buhneing**, NSF

**Non-Members Who Attended the Meeting, Participated in Discussions, and/or Made Presentations:**

<p><b>Dr. Bernice Anderson</b>, EHR/NSF  <b>Dr. Robert Barnhill</b>, Society for Advancement of Chicanos and Native Americans in Science  <b>Dr. Esther Bolding</b>, EEC/ENG/NSF  <b>Dr. Alan Cheville</b>, EEC/ENG/NSF  <b>Dr. Kellina Craig-Henderson</b>, BCS/SBE/NSF  <b>Dr. Rachel Croson</b>, SES/SBE/NSF  <b>Dr. Terry Davies</b>, GEO/NSF  <b>Dr. Earnestine Psalmonds Easter</b>, DGE/EHR/NSF  <b>Dr. Omnia El-Hakim</b>, ENG/NSF  <b>Dr. Amanda Edelman</b>, OAD/EHR  <b>Dr. Jaquelina (Jaqui) Falkenheim</b>, NCSSES/SBE/NSF  <b>Dr. Michael Feder</b>, White House  <b>Dr. Myron Gutmann</b>, SBE/NSF  <b>Dr. Jong-on Hahm</b>, OISE/NSF  <b>Dr. Bernadette Hence</b>, Department of Education  <b>Dr. Peter Henderson</b>, National Academies  <b>Dr. Krisen Hodge</b>, Association of American Universities  <b>Mr. Tyrone Jordan</b>, OAD/EHR</p>	<p><b>Dr. Fae Korsmo</b>, OD/NSF  <b>Dr. Mark Leddy</b>, HRD/EHR/NSF  <b>Dr. Theresa Maldonado</b>, EEC/ENG/NSF  <b>Dr. Krish Mathur</b>, Department of Education  <b>Dr. Gail McClure</b>, EHR/NSF  <b>Dr. Mary Moriarty</b>, HRD/EHR/NSF  <b>Dr. Eileen Parsons</b>, AAAS Fellow/EHR/NSF  <b>Dr. Alice Popejoy</b>, Association for Women in Science  <b>Dr. Muriel Poston</b>, HRD/EHR/NSF  <b>Dr. Claudia Rankins</b>, HRD/EHR/NSF  <b>Dr. Ashok Sangani</b>, CBET/ENG/NSF  <b>Dr. Victor Santiago</b>, HRD/EHR/NSF  <b>Ms. Marilyn Suiter</b>, HRD/EHR/NSF  <b>Dr. Amber Story</b>, BCS/SBE/NSF  <b>Dr. Jennifer Thronhill</b>, OAD/SBE/NSF  <b>Dr. Joanne Tornow</b>, OAD/SBE/NSF  <b>Dr. Mark Weiss</b>, BCS/SBE/NSF  <b>Dr. Patricia White</b>, SES/SBE/NSF</p>
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**Welcome and Introductions**

The meeting was called to order at 9AM by Dr. Richard Ladner, Chair of the CEOSE. The meeting began with introductions of members and federal liaisons.

Dr. Richard Ladner invited comments and/or corrections to the minutes from the October, 2011 meeting. All members concurred on the minutes with no changes noted.

A Farewell Statement by Dr. Richard Ladner was delivered. His remarks are as follows:

*It's really been an incredible experience for me to meet all of you and to admire all the work you have done out there in the field at your Universities and societies and I'm inspired by all of you. We did lose one member, Bill McCarthy, who passed away about a year and a half ago. I really admire his dedication to and passion for an inclusion of people with disabilities. I have worked with a lot of staff members here at NSF, and they are also incredibly dedicated and helpful to the committee and me, personally. We now have Kelly Mack, who is our executive secretary and program director for the ADVANCE program, who's been familiar with broadening participation and Senior Advisor, Wanda Ward who is the Executive Liaison and the*

*Committee's direct line to the Director's Office.*

*I would like to honor Margaret for a moment. We are going to give her a signed plaque in recognition of ten years of devoted and professional service and of her generous gift of guidance to the NSF. We, former chairs of the committee, give her our deepest appreciation and respect and affection. It is signed by the former CEOSE Chairs.*

*During my six years, there have been quite a few accomplishments by the committee including recommendations to the National Science Foundation. Many of them have been implemented, not all. We are keeping track of them now. We also have influenced legislation. For example the American Reauthorization Act of 2010 contained exact words from our Report. We are influential. We have held several mini-symposia and brought people from outside the Committee and NSF to talk about various issues and broadening participation of Native Americans and women of color in STEM. I hope you continue doing the mini-symposia. Because of the former chair, Wes Harris, I think there's a strong impetuosity to bring in other agencies as liaisons so that they can contribute to broadening participation.*

*As the liaison to the CISE Advisory Committee, I really admired the work that they have done in broadening participation and creating programs and allocating money to make sure that people of disabilities, women and minorities are included in computer science and related fields. I want to give a special note in CISE to the program director, Jan Cuny, who was the first program director for the Broadening Participation program that started almost six years ago.*

*A new Broader Impacts criteria was just announced by the National Science Board. Our committee sent the letter to the National Science Board asking that broadening participation be a priority in broader impacts. Unfortunately, that didn't happen. So, I think the challenge is the implementation of the new criteria. Hopefully, CEOSE will continue to look at the criteria and help NSF make sure that broadening participation is a priority. Another challenge I think that's come up especially in the last couple of years is the concept of human resource development and what that means at NSF, and I feel that there is becoming an imbalance between implementation and innovation. Some of the programs that we talk about like the RDE program and now the Research on Gender in Science and Engineering Program are being moved to a research division when they should be, or at least part of them should be, in Human Resource Development. Moving these programs out of HRD will mean losing the people who are the implementers that are going to make things into institutional change or direct interventions. Another challenge for this Committee is that we don't just promote the study of things, but we actually make things happen.*

*The nice thing about CEOSE, it's a little bit different than other advisory committees at NSF because we have to report to Congress, directly. I want to make sure that we maintain that independence that I think is expected of us and advise the Director and Congress. It does make us and forces us to be more active and less passive, so those are the challenges that I see for the next two years. Thank you.*

There was a response to Dr. Ladner's Farewell Statement. Dr. Ward noted the following:

- The role of CEOSE, which has resided in NSF almost 30 years now, continues to be a valued

independent source of advice to the Foundation and to the science and engineering community at large, including Congress who authorized the establishment of the Committee.

- The shift in operations of CEOSE was due to Dr. Tolbert's retirement at the end of December, 2011. The Director has responded to the request of the Committee to have someone at a senior management level, for purposes of lifting even higher this NSF wide advisory committee that reports to Congress through the biannual report.
- Not only for CEOSE, but for every advisory committee, NSF feels carrying out its function with independence of thought is essential.

Dr. Ladner provided a report to the Committee on the Executive CEOSE Committee Meeting with the Director. Dr. Ladner noted the following:

In attendance were: Dr. Subra Suresh, Dr. Cora Marrett, Dr. Wanda Ward, Dr. Kelly Mack. Dr. Ceci Conrad was unable to attend because of scheduling conflicts.

There were five items of discussion.

1. **Broader Impacts.** The first concern was the weighting of the two merit review criteria. The second concern was that there is nothing in Broader Impacts that suggests the importance of implementation or the use of best practices or proven practices. The third concern was that broadening participation is not highlighted as part of Broader Impacts and not stressed enough.

**The Director's response** to these concerns included noting that the broader impacts and broadening participation will be dealt with in the implementation of the new criteria.

2. **NSF Budget.** Per Summary Table II and the amount of money going into broadening participation, there was concern raised regarding the 6.7% drop in funding from 2011 to 2013.

**The Director's response** included the Deputy Director mentioning that some programs have been moved, therefore, the reduction does not reflect NSF commitment to broadening participation. The Director also mentioned that there are new programs, like the Career Life program that don't show up yet in the budget. The Director mentioned that funding a targeted program for Hispanic Serving Institutions, as mandated by the America Competes Act of 2007, is being discussed internally.

3. **Research on Disabilities in Education.** The Committee previously expressed concern about the move of the RDE program from the Human Resource Development Division to the REESE program. The Research on Gender in Science and Engineering Program has some implementation aspects as well that are moving.

**The Director's response included** the Deputy Director assuring that the program directors from HRD will still be involved with those programs.

4. **Communication of Programmatic Changes.** There is a need for CEOSE to learn about ideas ahead of time and contribute to them.
5. **Mini Symposia.** The minisymposium on the science and broaden participation and the minisymposium on Hispanic Serving Institutions was discussed.

**The Director's response** noted that funds may not be available for as many mini-symposia as the Committee would like.

In addition to the description of the Executive Committee meeting items of discussion, Dr. Ward added clarification and additional details regarding the operational structure of CEOSE. Dr. Ward noted the following:

- The structure established for CEOSE is the traditional structure that has been used throughout NSF: executive liaison and an executive secretary.
- Most advisory committees have two meetings a year and even that schedule is being revisited because of government-wide financial constraints. CEOSE meets three times a year and that requires at least one third additional work in terms of quality preparation. Finally, the titles of Executive Secretary and Executive Liaison are parallel to the structure of the National Science Board.

**ACTION ITEM:** Dr. Conrad requested having regular conversation between the Chair and Co-Chair and Dr. Ward. Dr. Ward responded that regular conversation is welcomed, should also include the Executive Secretary and recommended a monthly teleconference. Further, the website has been refined and strengthened so members can stay fully abreast of all matters. It was agreed that NSF will initiate a monthly teleconference with the Chair and the Vice Chair of the CEOSE.

### **Committee Reports by CEOSE Liaisons to NSF Advisory Committees**

Committee reports were provided by CEOSE Liaisons. A list of Liaisons is available on the CEOSE website. Highlights of the reports are listed below:

BIO Advisory Committee. The advisory committee was held in December, 2011.

B&O Advisory Committee. The B&O advisory committee met last November. The main topics focused on the NSF strategic plan, merit review criteria and the use of technology for virtual panels.

ACCI Advisory Committee. The advisory committee met in November following a culmination of reports regarding the cyberinfrastructure framework for the 21st century. The reports are being used to develop other ideas on how to implement CIF 21. In the current budget, about \$106 million is budgeted for CIF 21. The intent is to create a new program to integrate the notion of cyber infrastructure throughout NSF.

ACRE Advisory Committee. The Committee will meet on March 15, 2012. The report will be

forthcoming.

CISE Advisory Committee. Broadening participation was a major talking point in this meeting, which was held November 2 and 3, 2011. A brief presentation about CEOSE was delivered, as well as a presentation that focused on broadening participation alliances: one for women and information technology and another for people with disabilities. Another effort is the Computing Education 21 program, computing education for the 21st century.

GEO Advisory Committee. The main issues included a focus on developing more interagency collaborations, diversity and outreach. The GEO Directorate is focused on putting major facilities on major campuses, particularly HBCUs, in order to get broader participation. The next meeting is in April, 2012.

OISE Advisory Committee. OISE is undergoing change and spreading out across the NSF. There is concern that the international focus may get a little diffuse when moving across a variety of directorates.

MPS Advisory Committee. The MPS committee met in November. Presentations by the EHR advisory committee included data and a showcase on inquiry based learning and education using data. A report on CEOSE was presented where members were informed about the upcoming mini-symposium on the science of broadening participation.

OPP Advisory Committee. The Directorate is concerned about diversity. One of the major activities that occurred during this meeting was the rewriting of the OPP vision statement and the fine tuning of an important section on diversity and broadening participation.

SBE Advisory Committee. The next meeting will be held in May 2012.

## **CEOSE 2011-2012 Biennial Report to Congress**

Wendy Raymond, chair of the Biennial Report Subcommittee, provided details on initial activity related to the biennial report. Dr. Raymond noted that a contractor is usually hired to prepare this Report. A handout was distributed detailing the congressional mandate of CEOSE and what Congress wants in the Biennial Report to include. It is expected that the draft would be completed this November, and the document would go to press in January or February of 2013.

Dr. Raymond asked for input and/or questions from the attendees. The following major issues were noted:

- The tables were confusing; a lot of them did not include people with disabilities.
- It is important to have recommendations in there as well, particularly from the mini-symposium.
- The report could include a section for the Chair's remarks.
- The recommendations could be prioritized based on budget constraints.
- It would be good to have some type of summary on the tracking of CEOSE recommendations in the report.

- A major issue for the report is the non-inclusion of minority serving institutions; focus needed on the opportunities that these institutions present to training minority students for future STEM careers.
- CEOSE could do its own queries as a way to explore the kind of tables that can be included in the report and to prioritize data collection. Then, a narrative can be developed around the tables.

**ACTION ITEM:** Dr. Ward indicated that a high priority will be placed on setting the CEOSE contract in place. Dr. Ward can report on the status of prior CEOSE recommendations at the next CEOSE meeting.

**ACTION ITEM:** Dr. Raymond invited volunteers for the Subcommittee on the CEOSE Biennial Report. Dr. Whittaker agreed to volunteer.

### **Diversity and Inclusion in Science and Engineering by Federal Liaisons to CEOSE**

Dr. Ladner began the discussion with a reminder of the two major topics to be discussed: 1) How does the 2013 budget request that your agency made impact broadening participation with your agency? 2) Now that agency budgets have been established, are there ways to work together with the NSF?

Federal Liaison Responses:

- **Smithsonian Institute:** The Smithsonian, in its 2010-2015 plan, signaled a deliberate move toward interdisciplinarity, cross institutional collaborations and core grant challenges in science and engineering. Current efforts are to work with Historically Black Colleges, Hispanic Serving Institutions and Tribal Colleges to promote diversity and inclusion throughout the Institute. There is a partnership with NSF, along with 1100 other external partnerships; the majority of the partnerships have been active only four years or less.

**ACTION ITEM:** CEOSE has never had a presentation about informal science; this might be something to consider for the future, especially in terms of broadening participation of diverse children.

- **Department of Agriculture:** Programs target minority serving institutions, with a focus on capacity building. With regard to interagency coordination, USDA works with the Department of Education on developing the next generation of Food and Agriculture scientists. Another program being developed with NASA for informal education prepares students who cannot get into schools for certain reasons, so they can get skills either on-line or through informal ways. The USDA also works with the Department of Education in developing the soft skills needed for students so they are more employable or marketable. There is work ongoing to try to develop, with the National Science Foundation, a program for middle schools, particularly in rural areas, to develop informal learning activities.
- **National Institute of Standards and Technology:** The budget has slightly increased.

However, that masks the fact that two small programs that were run are either being closed or reduced: the Technology Innovation Program and the Performance Excellence Program. There has been an expansion of the program for research experiences for teachers.

- **White House Initiative for Historically Black Colleges and Universities:** The increases to HBCUs over the last two or three years are almost entirely the result of ARRA additions to agency budgets; those funding streams stopped in July of this year. In fiscal year 2011 there was a drastic drop across the board particularly in DHHS and DOD. With the exception of NSF, we will expect to see drops in commitments to research programs across the board. The President of the United States and President of Brazil entered into an arrangement under which Brazil has asked for closer relationship with HBCUs. HBCUs working with the Department of Energy are proposing an international conference on energy storage to highlight the capacity of some of these institutions and their interest in applying technology and research in the area of energy storage within the Caribbean. There is also an opportunity to cooperate around the issue of indigenous peoples.

**ACTION ITEM:** The White House Initiative on HBCUs will seek advice from NSF about how best to provide support for the Brazil-US program, as a government to government project.

- **Department of Education:** There are Institutional Services Programs (HSIs, HBCUs, TCUs), which is where most of the STEM initiatives are and are geared toward promoting opportunities for underserved populations. Other programs under the higher education program include TRIO: over the last five years, TRIO accounts for 32 to 51% of the funding distribution. There is a veterans program, but not very robust. The FIPSI program is undergoing changes. Funding has been flat since 2011. Leveraging opportunities exist in some of the programs, especially the HBCU STEM program and the MSEIP program, which is entirely STEM. Additionally, there will be a major initiative in the area of teacher training with significant requests to expand the Department of Education's teacher training program. Within that program there is the understanding that a sharply focused program ought to be stronger and provide better training of teachers of science and technology.
- **US Department of Commerce:** The Office of Education budget in FY11 is \$31 million, in FY 13 it is \$11.2 million (\$10 million of that is the education program). The education partnership program in minority serving institutions has been \$14.5 to \$15 million within NOAA since 2001. There has been collaboration with NSF in the area of climate education, and NSF and NOAA co-chair the ocean education literacy program. There is a federal graduate fellowship agency workgroup led by NSF and EPA, and NOAA is engaged.
- **Department of Interior:** The Department of Interior has two particular focuses in education: 1) Bureau for Indian Education which supports 41, 000 students across the United States in K through 16, and 2) Youth in the Great Outdoors, which brings together youth education, youth employment and youth engagement activities across all the bureaus. As a result of recent cuts, some priority goals have been reduced. However, there is a youth high priority performance goal. Also, a new memorandum of understanding to use parks and public lands as 21st century education centers for improving environmental literacy and supporting experiential learning

was announced.

### **General Discussion**

The Committee and meeting guests were asked to provide thoughts on the kind of topics that would be appropriate for the next CEOSE meeting. Those topics are summarized below:

- Implementation of the merit review criteria.
- Presentation from Dr. Ward, or from someone who is thinking about implementation, to the committee and how broadening participation is going to play into that.
- Update on recommendations that have been made and their current status.
- Informal science education.
- Partnerships that NSF has with other agencies and if any of them have to do with broadening participation.
- A half hour presentation by one of the federal liaisons about their specific program.
- Include the Director of the NSF Office of Diversity and Inclusion to discuss the status of the NSF strategic plan in a collaborative fashion with liaisons from the other agencies.

CEOSE members also commented on upcoming CEOSE vacancies:

- Two vacancies will be available immediately.
- There is need to add an American Indian.
- Consideration of a second or third person from the Midwest and west coast is important.
- A practice of having an open call can be established to accommodate vacancies for the next year.

### **NSTC Inventory of Federal STEM Education and the Federal STEM Education Strategic Plan**

Michael Feder, Policy Analyst in the Office of Science and Technology Policy, was welcomed to the meeting. Highlights from Dr. Feder's presentation are summarized below:

- The NSTC initiative is designed to determine how to connect with all of the stakeholders and ensure a more collaborative and coordinated process.
- Dr. Feder provided an overview of the STEM initiative and the process for developing the 5-year strategic plan.
  - The NSTC Committee was brought together because of the America Competes Reauthorization Act in 2010 that encourages collaboration among all federal agencies working on STEM education. The Committee was chaired by Drs. Suresh and Weiman (of OSTP).
- In the inventory, the investments that agencies made within STEM education are highlighted. General findings of the inventory include:
  - The federal investment in STEM education is the small part of the overall education expenditures; \$1.1 trillion of \$3.4 billion, for which more coordination and targeting are needed.
  - Of the education programs, it was found that there are 252 investments with no duplication. One program is similar to at least one other, but the populations that they serve might be totally different.
  - A significant portion of funding involves supporting the next generation workforce.

- 1/3 of the overall funding is targeted specifically for programs for underrepresented groups.
- Four strategies are proposed to create a coordinated system: 1) Align everything with best practices; 2) Develop a system to promote robust evaluation systems within each agency; 3) Create resources as well as mechanisms to improve efficiency within and across agencies; 4) Identify areas where we can make a significant improvement or impact and where that impact is actually needed.

### **Update on Mini-Symposium on Hispanic Serving Institutions**

- Alex Ramirez discussed CEOSE plans for the mini symposium on Hispanic Serving Institutions. CEOSE recommended identifying two or three people within NSF to help with the symposium as well as outside people.

Highlights of Dr. Ramirez's presentation are summarized below:

- The goal of the mini symposium is to impact the under representation of Hispanics while informing CEOSE and general the STEM community on the role and issues of HSIs for the recruitment, retention and the advancement of Latino students.
- The outcome will be a set of findings, comments, suggestions and/or recommendations about enhancing the recruitment and retention.
- Federal liaisons will be important participants as speakers and/or panelists.

### **Update on Mini-Symposium on the Science of Broadening Participation**

Dr. Cecelia Conrad provided an update on the status of the mini symposium on the Science of Broadening Participation. Highlights of her presentation are provided below:

- The focus is on the need to make recommendations and bring practitioners into conversation with people doing research on the science of broadening participation.
- The symposium will bring together people from across disciplines who are going to address:
  - what creates an environment in which broadening participation can occur.
  - what creates an environment in which people can succeed and thrive.
- Mechanisms for the majority population to change their behaviors in order to be more welcoming
- Savings and Loan Foundation is a potential interested funder.
- The tentative dates are November 1 and 2.

### **Preparation for Meeting with Dr. Suresh**

The Committee decided upon several items for discussion with the Director:

- Broader impacts.
- The financial commitment of broader participation.
- Communication and ensuring that communication lines are open between the Director and CEOSE.

- The Director's impressions of the PCAST Report.
- The Director's opinion on the balance between innovation and implementation.

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**Opening Remarks**

Dr. Richard Ladner apprised the members of a visit to former CEOSE Designated Federal Officer, Dr. Margaret Tolbert, where she was presented with a plaque on behalf of former and current CEOSE chairs and members.

**NSF Director Presentation and Discussion**

Dr. Subra Suresh and Dr. Cora Marrett joined the meeting. Dr. Suresh began the Discussion with several opening remarks focused on the current status of broadening participation efforts across the NSF:

- NSF is not in a continuing resolution at this point in the fiscal year.
- NSF budget ended with a 2.5% increase with bipartisan support
- The Director expressed a personal commitment for NSF continuing to show significant commitment to broadening participation, making it as impactful as possible to the community for the long term.
- The Director indicated that NSF desires CEOSE’s assistance with articulating the importance of broadening participation to Congress. Several questions were raised to CEOSE in this regard:
  - 1) How does NSF provide investments that will have the greatest impact?;
  - 2) How does NSF identify impact so we can invest in it wisely?;

- 3) Hypothetically, if NSF wants to invest \$100 million to broadening participation, what will be the measurable outcome yielded, compared to what is seen today?;
- 4) How should NSF identify activities for the future based on existing best practices?
- 5) If we want to make targeted investments in broadening participation what are the few areas that can be prioritized such that programs can collectively move the needle in a significant way?
- 6) How should NSF continue to engage in two-way communication with all advisory groups to NSF, including CEOSE?
  - It was noted that sometimes smaller programs that are conceived and implemented very well can have a greater impact, such as the Career Life Balance initiative, which got immediate national attention and is in the spirit of one NSF.
  - Dr. Suresh indicated that NSF has significantly intensified its conversations with other agencies: Department of Labor with respect to community colleges and to better leverage NSF activities in community college investment with other agencies; the Department of Education, per Secretary Arne Duncan, to broaden the range of topics in broadening participation areas and coordinate investments more effectively.
  - Dr. Marrett focused on the need for long term commitments if NSF is to promote innovation and the talent required to develop that innovation.

Following opening remarks by Drs. Suresh and Marrett, CEOSE members posed several questions. The responses are as follows:

CEOSE Question: Would NSF administration engage CEOSE early on well before decisions are finalized?

The Director responded by noting that anything that's not budget sensitive that NSF is free to discuss, all advisory committees will know about. The senior leadership team is asked to communicate those that are not confidential as early as they can to get the input from the community and reactions in a very productive way. The Director expressed his appreciation for the offer by CEOSE to provide input between meetings.

CEOSE Question: What is the status on the HSI program initiative?

The Director explained that \$100 million was added to title three and the Department of Education for these institutions; the funds were expended in 2011 for several hundred awards. That represents a funding increase of over 200%. The Director also indicated that NSF needs to go much farther than that given the low numbers still exist in the STEM disciplines. It was further noted that it is important, however, to question and understand what has worked so that NSF can significantly accelerate it.

Dr. Marrett noted that the community of HSI's is not identical. Therefore, one of the big issues is how do to target the populations NSF is most interested in because if by just targeting the 25%, it is quite possible to have an activity at an institution and never reach that 25%.

CEOSE Question: Is there any update on the HRD programs that were proposed to be merged and/or shifted from that division?

The Director indicated that he is in conversation with leadership on the broad unit on what the next step should be; follow up will be forthcoming.

CEOSE Question: What is the value that NSF places on innovation, long term sustainability.

The Director noted that there are repeated requests for additional programs and activities. NSF has isolated programs that have shown very good promise, but there is need to elevate them to an agency level

The end of this session focused on several NSF Director Presentations:

- Certificate of Service for Dr. Margaret Tolbert
- Certificate of Appreciation to Dr. Teresa Maldonado
- Certificate of Appreciation for Dr. Joseph Francisco

### **Expanding Underrepresented Minority Participation in STEM**

Dr. Freeman Hrabowski, President of the University of Maryland Baltimore County and Chair of the National Academies report on Expanding Underrepresented Minority Participation, was welcomed to the meeting.

Dr. Suresh framed the discussion with several opening remarks that highlighted the need for broadening participation in light of tight fiscal constraints. It was noted that NSF has spent \$750 million over the past years and is primed to determine how to spend additional monies over the next few years.

Dr. Hrabowski presented several comments related to results of the Expanding URM Participation Report in an effort to address the issues raised by Dr. Suresh. They included:

- The Report shows more thought is needed about different levels from pre-K through eighth.
- More work is needed on increasing substantially the number of math and science teachers who are able to and interested in working in challenging schools.
- Middle school grades seem to be the most critical because there are large numbers of people teaching algebra who don't have a background in Math.
- At the college level, the most critical point is that most students of all races don't succeed in science and engineering; particularly, Blacks and Hispanics who don't do well in first year courses.
- The idea of strengthening teaching and learning in the first year of science and engineering is a critical factor; not simply a matter of academic background.
- At the graduate student level more financial support is needed.
- More thought and effort is needed to get more people of color in the sciences; the quality of advising and mentoring is very uneven.
- Stronger coordination across the agencies is needed.
- Better access to disaggregated national data and analysis of data is needed, particularly at the institutional level.
- Good faculty are required to produce researchers.
- More data and information is need for students with disabilities.

## Presentation on Broadening Participation Programs and Initiatives in SBE

Dr. Myron Gutmann, Assistant Director of the Social, Behavioral and Economic Sciences delivered the Broadening Participation presentation for this Directorate.

The major points of this presentation are summarized below:

- SBE is one of 7 directorates at the national science foundation. There are two research divisions: one for cognitive behavior and one for social economic sciences. The National Center for Science and Engineering Statistics, which produces science and engineering indicators, is also housed in this Directorate. The budget is approximately \$250 million. The Directorate receives approximately five thousand proposals a year, and makes roughly one thousand awards.
- Proposal by race and ethnicity are overwhelmingly white; only about 2 ½ % of proposals are from African Americans; about 4% are from Hispanic or Latinos. Proposals by sex are about the same.
- There is good representation on the SBE Committee of Visitors by race and ethnicity. The SBE Advisory Committee is slightly more male than female.
- The staff is comprised of a roughly 50-50 distribution between men and women; they are 4% black, 4% Hispanic and 15% Asian.
- There are several Broadening Participation activities in the SBE Directorate:
  - A Dear Colleague Letter emphasizing the study of the science to actually see how various interventions might work through;
  - Activities that are designed to increase in enrollment and retention of students;
  - Outreach activities to increase diverse participation in the research and grants process;
  - NCSSES activities highlight the national status of underrepresented groups;
  - Outreach to Historically Black, Hispanic and Native American serving institutions;
  - A minority post doctoral research program; soon to be converted to an institutional fellowship;
  - SBE Alliance for Graduate Education and the Professoriate;
  - REU site awards

Dr. Gutmann noted specific SBE Broadening Participation activities for the FY11 fiscal year.

- In August of 2010, the SBE communities wrote white papers about what they thought would be the future of the SBE sciences. They indicated, among other things: 1) Future research would be collaborative, multidisciplinary and data intensive and 2) There was a very important interest in addressing societal problems as well as fundamental scientific questions. SBE issued this report in FY11: Rebuilding the Mosaic.
- SBE has noted several areas important for future research: 1) family change; 2) migration and population change; 3) social health economic disparities; 4) communication language in the brain; 5) new technology from social media, GIS, network studies.

## Presentation on NSF Veterans' Science and Engineering Initiative

Dr. Sue Kemnitzer of the Engineering Directorate was introduced to present initiatives from the Engineering Directorate related to veterans and STEM education. The major points of this presentation are summarized as follows:

- The goal of this initiative is to engage more veterans with disabilities into computing.
- Veterans have been added to program announcements; making veterans part of all of the Engineering Directorate programs.
- The Directorate is evaluating and collecting longer term data on veterans.

Dr. Kemnitzer indicated that the Engineering Directorate is open to the advice and recommendations of CEOSE. In response to her invitation, CEOSE recommended the following:

- CEOSE could use its biennial report to Congress to include a section about the veterans' initiative to draw attention and further explain its importance.
- The Department of Defense has significant interest in pursuing this issue along with NSF and the Veterans Administration.
- It is important to make available data on the numbers of disabled veterans.

## **Establishment of Ad Hoc Subcommittees, Development of Charges**

### **Biennial Report Subcommittee**

The Biennial Report Subcommittee is led by Dr. Wendy Raymond. Other volunteer members include: Drs. Joe Whittaker, Mia Ong. The Committee expressed a need to hire a new contractor. Dr. Ladner offered his volunteer services unpaid; in exchange for his submission of an article which will focus on implementation versus innovation.

### **Mini Symposium on Science and Broadening Participation Subcommittee**

The Mini Symposium Subcommittee is led by Dr. Cecelia Conrad. Dr. Conrad indicated that invitations will be sent to members and other stakeholders who may be interested in participating.

### **Hispanic Serving Institutions Subcommittee**

The Hispanic Serving Institutions Subcommittee is led by Dr. Alex Ramirez. Discussion has begun between Drs. Ramirez and Conrad to determine order of next two mini symposia. This discussion will proceed off line. Members indicated that it is important to identify someone within the HSI or within the Hispanic community to bring another perspective to the mini symposium.

## **Announcements and Final Remarks**

Dr. Richard Ladner announced that he is leaving the Committee and his service as the CISE liaison is ending; Dr. Mia Ong has expressed interest in filling this role, which will result in a liaison opening for the SBE Directorate.

Dr. Ladner expressed appreciation to the Committee for its diversity of thought and backgrounds. Dr. Ladner also thanked and acknowledged NSF staff.

The next CEOSE meeting is scheduled for June 19-20, 2012.

The Committee acknowledged and thanked Dr. Ladner for his service.