

# COMMITTEE ON EQUAL OPPORTUNITIES IN SCIENCE AND ENGINEERING

## MEETING MINUTES

October 26-27, 2009

### Meeting Site

National Science Foundation (NSF), Room 1235 S; 4201 Wilson Boulevard; Arlington, Virginia 22230

### Meeting Participants

#### Members Present:

Ms. Sandra Begay-Campbell, Sandia National Laboratories, Albuquerque, NM  
Dr. Evelyn Hammonds, Harvard University, Cambridge, MA  
Dr. Wesley L. Harris, Massachusetts Institute of Technology, Cambridge, MA  
Dr. Marigold Linton, University of Kansas, Lawrence, KS  
Dr. Theresa A. Maldonado, CEOSE Chair, Texas A & M University, College Station, TX  
Dr. Maria Ong, TERC, Cambridge, MA  
Dr. Muriel Poston, CEOSE Vice Chair Skidmore College, Saratoga Springs, NY  
Dr. Alex Ramirez, HACU National Headquarters, San Antonio, TX

#### Members Absent:

Dr. Joseph S. Francisco, Purdue University, West Lafayette, IN  
Dr. Richard E. Ladner, University of Washington, Seattle, WA

#### CEOSE Executive Liaison/CEOSE Executive Secretary:

Dr. Margaret E. M. Tolbert, Senior Advisor, Office of Integrative Activities, NSF

#### OIA/NSF Primary Support Staff Members

Ms. Geraldine (Geri) Farvés, IT Specialist, Office of Integrative Activities/NSF  
Ms. Patricia A. Ferguson, Sr. Program Assistant, EPSCoR, Office of Integrative Activities/NSF  
Ms. Denita Y. Norris, Program and Technology Specialist, Office of Integrative Activities/NSF

#### Non-Members Who Attended/Participated in Discussions/Made Presentations at the Meeting:

<p>Dr. Arden L. Bement, Jr., NSF Director Dr. Katie E. Blanding, U.S. Army (Federal Liaison to CEOSE) Dr. Henry Blount, EPSCoR/OIA/OD/NDF Dr. Joan Burrelli, SRS/SBE/NSF Ms. Christine Cataldo, HRM/ORIM/NSF Dr. Walter V. Collier,* Beyond The Bottom Line, Inc. Dr. Robert Crangle, NSF Academy Ms. Corinda Davis, Beyond The Bottom Line, Inc. Dr. Jessie DeAro, HRD/EHR/NSF Dr. Beverly Early, Captioner, Metro Reporters, Inc. Dr. Omina El-Hakim, ENG/NSF Dr. Jaqui Falkenheim, SRS/SBE/NSF Ms. Tracy Gorman, OD/NSF</p>	<p>Dr. Mark Leddy, RDE/HRM/EHR/NSF Ms. Ronnie Lowenstein, Guest - OSTP Dr. Cora B. Marrett, OD/NSF Dr. J.V. Martinez, Office of Science/DOE (Federal Liaison to CEOSE) Dr. Thomas W. Peterson, ENG/NSF Dr. Thomas Petiasm, ENG/NSF Ms. Carolyn Piper, OEOP/OD/NSF Ms. Claudia Postell, OEOP/OD/NSF Dr. Irelene Ricks, NOAA (Representing the NOAA CEOSE Liaison) Dr. Nancy Roddy, IRM/HRM/NSF Dr. Victor Santiago, HRD/EHR/NSF Mr. Allison Schmauch, US Commission on Civil</p>
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<p><b>Ms. Linda Hallman</b>, AAUW  <b>Dr. Susan Hue</b>, SRS/SBE/NSF  <b>Ms. Christyl C. Jonson</b>, The White House/OSTP  <b>Dr. Fae Kosmo</b>, OD/NSF</p>	<p>Rights  <b>Dr. Carmen Sidbury</b>, DGE/EHR/NSF  <b>Dr. Linda Thurston</b>, HRM/EHR/NSF  <b>Mr. Adam Zimmerman</b>, AAUW</p> <hr/> <p><i>*Virtual Participant</i></p>
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## Meeting Notes

### Monday, October 26, 2009

#### OPENING STATEMENT AND GENERAL DISCUSSION:

The meeting was begun at 9 a.m. with opening remarks by **Dr. Theresa A. Maldonado**, CEOSE Chair. Members concurred with the approved minutes of the June 29-30, 2009 meeting with a request for a change in one word.

In speaking of the work of CEOSE members, **Dr. Maldonado** congratulated **Ms. Sandra Begay-Campbell** who is to receive the American Indian Science and Engineering Award for Lifetime Achievement. **Dr. Maldonado** gave remarks on **Dr. William McCarthy's** contributions to CEOSE. **Dr. McCarthy** had just begun his second term as a member of CEOSE when he died on July 28, 2009, while in the hospital in New Mexico. CEOSE members sent a sympathy message to his family and included a tribute to him in the "2007-2008 CEOSE Biennial Report to Congress." New Mexico State University, where **Dr. McCarthy** served as a member of the Civil Engineering faculty, has established a scholarship fund in his name.

**Dr. Maldonado** reported that she met with a working group of NSF officials focused on the broadening participation of Native Americans in STEM. The group was called together by **Dr. Fae Korsmo** on Oct. 23, 2009. The group apprised of NSF activities and programs that focus on Native Americans in science and engineering. Examples included Tribal Colleges and Universities Program, the new Engineering Tribal College Initiative, Internships, building relationships with Tribal Colleges and Universities, Partnerships with NSF-sponsored science and technology centers, and tribal colleges and universities linkages with Research One universities for infrastructure strengthening. **Dr. Maldonado** reminded the committee that a CEOSE memorandum was sent to **Dr. Arden L. Bement, Jr.** in March 2009 and that this group meeting was one step in the development of a formal response to that memorandum. The memorandum contained recommendations, which were based on those from a prior mini-symposium, to enhance and strengthen the work of NSF pertinent to Native Americans. **ACTION ITEM: Dr. Maldonado** requested a written response from NSF to the recommendations on Native Americans. **ACTION ITEM: Dr. Margaret E. M. Tolbert** is to send a copy of the publication, "Tribal College and University Profiles: New Directions in Math and Science" by **Dr. Paul Boyer**, to each CEOSE member.

In reporting on her meeting with **Drs. Arden L. Bement, Jr.** and **Cora B. Marrett**, the Director and Acting Deputy Director of the National Science Foundation, respectively, **Dr. Maldonado** reported that **Drs. Muriel Poston, Tolbert,** and **Korsmo** attended that meeting too. The discussion covered the following topics: the meeting with the group of NSF officials to discuss NSF activities and programs for Native Americans, the "2007-2008 CEOSE Biennial Report to Congress," the mini-symposium as a vehicle to highlight important issues in broadening participation, strengthening the CEOSE relationship with OSTP, strategies to optimize the engagement of NSF senior managers with CEOSE members (Suggestion: On a rotating basis, have one or two NSF senior managers discuss their collaborative activities with CEOSE members), evaluation metrics to assess broadening participation efforts, stimulus

funding, and the agenda for the October 26-27 CEOSE meeting. One issue in broadening participation that led to extensive discussion is the high dropout rate of high school students, particularly from underrepresented groups. Dr. Bement expressed especial concern about this matter.

**ACTION ITEM:** *At a future meeting, CEOSE members are to discuss the planning and implementation of mini-symposia to address the issue of the high dropout rate of high school students and topics in undergraduate education.*

**PRESENTATION: *Women and Girls in the STEM Fields: A Comprehensive Approach to Achieving Equity* by Ms. Linda D. Hallman, CAE, Executive Director of the American Association of University Women (AAUW)**

**Ms. Linda D. Hallman** began her presentation by showing a video on AAUW, which is viewed as the community that breaks through educational and economic barriers such that all women have a fair chance in life. This organization reaches out to people of all ages in a variety of ways, keeping them informed on issues important to women and their families. Although progress has been made on equity for women and girls, there is still work to be done. **Ms. Hallman** discussed ways in which AAUW supports the promotion and strengthening of science, technology, engineering, and mathematics (STEM) education, especially for women, minorities, and other underrepresented populations. The low number of women and girls in STEM fields has significant implications for the economic security of women, as well as the overall economy and America's global competitiveness. The inclusion of these groups in the workforce would eliminate the shortage of STEM professionals.

AAUW's STEM-related work approach is comprehensive, and it involves the distribution of fellowships and grants, publication of research findings, and the pursuit of new public policy, reported **Ms. Hallman**. In fact, AAUW provided **Dr. Marie Curie** with \$156,000 in 1920 to purchase one gram of radium for her research. AAUW has become one of the largest sources of funding for graduate education for women, providing nearly \$80 million from its donor-restricted endowment fund to 11,000 recipients since 1888. AAUW provides millions of dollars in support to women such that they can break through the glass ceiling. AAUW supports women of color, as well, in fields in which they have traditionally been underrepresented. The financial support to women around the world enables them to gain access to academic training and contribute to the economic and social development of their countries. Finally, AAUW supports nonprofits and individuals in their efforts focused on the educational and economic development of women and girls, with a preference for STEM-related programming.

Before concluding her presentation, **Ms. Hallman** presented data on degrees earned by women, additional program details, the campus action projects, various grants offered by AAUW, barriers to women in the STEM fields, AAUW California's Tech Trek Summer STEM Camps for Girls, publications, informal collaborations, the National Girls Collaborative Project, Title IX, women's wages, recent reports, and the goals of AAUW.

In her conclusion, **Ms. Hallman** stated the following: "Over the last 50 years, more than half of America's sustained economic growth was created by the 5% of the workforce who drive, manage, and maintain the processes and products of innovation. Women make up half of the population but are a largely untapped resource that could prove essential to maintaining the technological competitiveness of the United States. AAUW believes this is an issue that deserves a national response, and AAUW is devoted to seeing this vision become a reality." She then responded to questions and comments.

**PRESENTATION: *Education in the National Science and Technology Council* by Ms. Christyl C. Johnson, Executive Director of the National Science and Technology Council of the White House Office of Science and Technology Policy (OSTP)**

In her opening remarks, **Ms. Christyl C. Johnson** expressed appreciation for being among those whose objectives encourage the full participation in science and engineering of women, minorities, and other groups that are underrepresented in those fields. She acknowledged that she has been working for the advancement of these groups for many years.

Also, she expressed interest in CEOSE becoming more engaged with OSTP and the current Administration. She then cited data from an NSF-funded report by the National Center of Women and Information Technology Data. She noted that experts are predicting that there will be over 1.5 million computer specialist jobs by 2016. The concern is if we keep going down the current path, we aren't going to be able to fill half of the jobs that will be available by 2016, and this (computer specialist jobs) is just one example of the situation. There aren't enough people graduating from universities with degrees in this area, and the number of women graduates in this area is declining. Therefore, the richness of diversity will be significantly impacted. Many studies have shown that when this happens, there is a reduction in innovation and competitiveness.

**Ms. Johnson** advised that in order to reach our goal of higher gender diversity, the government, private industry, academia, and all other sectors have to make a concerted effort to encourage greater participation by women. This will enable this Nation to realize its full potential. The good news, she stated, is that we now have a President who agrees that cultivating the pipeline for STEM fields is very important. This truly is a priority for this administration. This administration is focused like no other administration on STEM education. Already, over \$4 billion has been tapped for the top STEM academic programs. For example, there is a goal of tripling the NSF research fellowships in science and engineering. Also, everyone should be aware of the Recovery Act funding that can be used to attract better teachers and to modernize school science laboratories. A number of informal programs (e.g., Astronomy Night Program) have been launched to reach out to our youth. This administration understands the importance of learning that takes place in, as well as outside of the classroom.

**Ms. Johnson** noted that **President Obama** is personally committed to and is leading the way in terms of gender diversity. For example, the Lilly Ledbetter Fair Pay Act was the first piece of legislation signed by the President. Additionally, he established the Council on Women and Girls. His senior advisor, **Ms. Valerie Jarrett**, has been with the First Lady and President for a long time; now she is the Chair of this Council, which will address a number of issues, including Title IX. This administration is going to address the building of stronger pathways to engage the K-12 community.

Further, **Ms. Johnson** advised that OSTP is supporting the President in his objectives with all of these initiatives. For example, under this administration, there are four deputies in OSTP—one for each of the division areas. Also, there is the President's Council of Advisors on Science and Technology, PCAST. The "sister" Council to PCAST is the National Science and Technology Council (NSTC), which consists of federal government agency leaders. The Executive Order that established NSTC has the President as the Council Chair. The Co-Chair is **Dr. Holdren**, the President's Science Advisor. Other members of the NSTC include the Vice President and other cabinet level members, in addition to selected representatives of technical agencies that are not at the cabinet level (e.g., NASA, NOAA, and NSF). **Dr. Bement**, the NSF Director, was in attendance at the first NSTC meeting. During this inaugural meeting of the NSTC, the OSTP began a dialogue with agency leadership on establishing science and technology priorities in alignment with administration priorities.

In the past, NSTC, for which **Ms. Johnson** serves as Executive Director on loan from NASA, has published numerous reports. It is **Ms. Johnson's** goal to enhance the value of the NSTC by reconstituting the council, establishing an expert network in science and technology, and developing a vision to improve STEM education. Additionally, the Education and Workforce Development Subcommittee under the

NSTC plans to identify and recommend national research to ensure the growth and development of a highly skilled STEM workforce. This subcommittee also plans to strengthen informal education, enhance public understanding of science, and develop consistent policies on the capacity of the evaluation of STEM education, programs and programmatic activities to promote underrepresented minorities, women, and people with disabilities. Not only will priorities be set for what is to happen, but the NSTC will be on a fast track to establish plans, appropriately align the budgets, and accomplish its goals. At the end of her presentation, **Ms. Johnson** responded to questions and comments from the audience. **ACTION ITEM:** *CEOSE members are to provide insights on how collaboration between CEOSE and OSTP can be enhanced.*

### **A CONVERSATION with Dr. Arden L. Bement, Jr., Director, and Dr. Cora B. Marrett, Acting Deputy Director of the National Science Foundation**

**Dr. Bement** congratulated CEOSE members on completing the report, “2007-2008 CEOSE Biennial Report to Congress” and noted that the report’s recommendations will be addressed by NSF in the months to come. He then offered condolences on the passing of **Dr. William C. McCarthy**, a valuable member of CEOSE and pioneer in helping students with disabilities pursue STEM education. In 1990, he received NSF funding for the award, “Model Programs in Education: Education and the Disabled,” one of the first of its kind funded by NSF. In subsequent years, **Dr. McCarthy** continued to receive NSF funding for projects to increase the quantity and quality of students with disabilities completing STEM degrees.

**Dr. Bement** then provided a few updates on NSF activities since the last CEOSE meeting: 1) The Engineering Directorate is partnering with EHR’s Tribal Colleges and Universities Program to support pre-engineering curricula and provide pathways from two- to four-year institutions, 2) EHR is sponsoring workshops for faculty from Hispanic Serving Institutions to gather their input for NSF on STEM program development, 3) NSF has a Congressional Hispanic Caucus Institute Fellow working on broadening Hispanic participation in STEM, 4) NSF participated with seven other federal agencies in a capacity building workshop held in Dallas, Texas, for Minority Serving Institutions, and 5) NSF welcomes the new Director of the Office of Equal Opportunity Programs (OEOP), **Ms. Claudia Postell**. Ms. Postell will be working with other NSF staff on developing a system to track NSF outreach efforts and evaluate their effectiveness. He then responded to questions from CEOSE members.

In response to **Dr. Ramirez’s** question about programs and activities for Hispanic Serving Institutions and looking forward to 2011, **Dr. Bement** advised that no definitive comments about 2011 plans could be made at this point, but NSF will keep CEOSE informed. **Dr. Marrett**, NSF Acting Deputy Director, advised that the agency is also looking at what can be done in 2010. **Dr. Bement** added that there is a need to position NSF programs to address barriers and issues that young people face to keep youth motivated and in the STEM pipeline.

**Dr. Ong** spoke about the mini-symposium on women of color to begin on October 27<sup>th</sup> and end on the 28<sup>th</sup>. She spoke of her hope that the suggestions that result from this mini-symposium would be taken into account in the context that there are issues that need to be addressed for women and minorities. These suggestions will be developed into recommendations by CEOSE members for submission to NSF for action. Currently, the experiences and needs of women of color are largely marginalized by both women's and minority organizations in STEM. Specific issues for women of color will be discussed at the mini-symposium and will be delineated in the report to be prepared. **Dr. Bement** noted that the results of the mini-symposium would be of direct interest to NSF.

**Dr. Marrett** raised the questions of effective strategies for positive impact on persistence through and after high school and successful mechanisms to ensure that those who enter college in STEM fields have

the support needed to continue. She said there is more research to be done in order to understand the conditions that are supportive of students completing their high school education and continuing through college and into the workforce. In response to a comment from **Dr. Maldonado, Dr. Bement** noted that there is interest in the lessons to be learned that extend beyond any particular type of institution.

**Dr. J.V. Martinez** asked about how the National Science Board (NSB) deals with the topic of broadening participation. **Dr. Bement** advised that the NSB has a very active interest in the topic. In response to NSB requests, NSF briefings on broadening participation are provided from time to time. Therefore, the NSB is aware of the level of priority being given and details of NSF programs that address broadening participation. **ACTION ITEM:** *CEOSE should assist the Director on the topic of “Broadening Participation” as it arises in the NSB.*

**Dr. Marigold Linton** thanked **Dr. Bement** for actions that have been taken by NSF since the completion of the mini-symposium on Native Americans in Science and Engineering and the submission of the corresponding recommendations to him by the CEOSE Chair. **Dr. Linton** reported on a SACNAS award-winning program, SYNAPSE, which has had positive impact on American Indians in various science fields. **Dr. Bement** spoke of the importance of programs like this one and the needs of Tribal Colleges and Universities, which are often lacking connectivity to larger universities and the associated infrastructure (e.g., digital libraries, networking, curriculum enhancements, and collaborations).

**Dr. Poston** reminded everyone that CEOSE held a mini-symposium on institutional transformation a few years ago. Also, she applauded NSF for its work in addressing barriers that negatively impact underrepresented groups, and she suggested that the educational and workforce best practices that resulted from the ADVANCE Program be linked and extrapolated to minority serving institutions, including Tribal Colleges and Universities.

**Dr. Poston** joined with **Dr. Martinez, Dr. Blanding**, and others in suggesting that the focus on broadening participation be linked across federal agencies through OSTP. **Dr. Marrett** spoke of NSF programs that are pertinent to the above comments, and she addressed the larger question of how the best practices from professional societies can be incorporated into what NSF and CEOSE are trying to do. **ACTION ITEM:** *Dr. Linton is to summarize the SYNAPSE Program for broad dissemination at NSF.*

**Ms. Begay-Campbell** mentioned the support that NSF has at the ground level on which it can build. The specific example given is the connectivity through the EPSCoR Program, which has an important presence in Tribal and rural areas. Connecting some of these communities to the outside world in terms of innovation, economic and business development, and technology (e.g., internet connectivity) would be worthwhile.

In response to questions by **Dr. Ramirez** about NSF and broadening participation, the need for evaluation studies on the national gender shift in the life sciences, and how women are becoming the majority, **Dr. Marrett** responded that one of the reasons for broadening participation is that different perspectives might be brought to bear. If we see demographic shifts in disciplines, what are the consequences? Clearly, there is a justice argument, but also content and substance arguments.

**DISCUSSION: Plans for the “2009-2010 CEOSE Biennial Report to Congress,” Discussion Leader –**

**Dr. Muriel Poston, CEOSE Vice Chair**

**Dr. Poston** opened the discussion session and called on **Ms. Corinda Davis** and **Dr. Walter Collier** for comments. Suggested themes for the report, “2009-2010 CEOSE Biennial Report to Congress,” were: 1) Impact evaluation of NSF broadening participation programs, 2) A review of broadening participation

initiatives and outcomes of the NSF directorates and major offices for 2009-2010, 3) CEOSE mini-symposia held in 2009-2010, 4) Follow-up on CEOSE recommendations to NSF between 2005 and 2008, and 5) A description of what CEOSE plans to do in reference to the 2009-2010 biennial report.

A Summary of the comments follows: There needs to be continuity between contents of the report and Chapter 1, which is data focused. CEOSE needs to review trends in and aspects of broadening participation over time, both internal and external to NSF. As this is being done, one needs to review aspects of broadening participation relative to funding level and impact on undergraduate and graduate education, STEM faculty, demographics, awardees, review panels, etc. The information needs to be presented in a format that is clear and meaningful.

CEOSE members agreed that SRS should be asked to develop Chapter 1 of the “2009-2010 CEOSE Biennial Report to Congress.” **Dr. Tolbert** advised that currently SRS/SBE/NSF is waiting for CEOSE to finalize the statement of work for Chapter 1 for inclusion in the “2009-2010 CEOSE Biennial Report to Congress.” **ACTION ITEM:** *Drs. Maldonado and Poston agreed to send the final version of the statement of work to Dr. Tolbert for submission to SRS. ACTION ITEM: CEOSE members are to advise Dr. Collier through Dr. Tolbert of the desired theme for the next biennial report and provide explicit directions on what is desired in this report.*

**Dr. Poston** suggested that mini-symposium ideas that have been refined and accepted by CEOSE be included in the next report. The committee then discussed benchmarks, program effectiveness, and the next mini-symposium.

**ACTION ITEM:** *CEOSE members would like to have a report on what is known about broadening participation evaluation in the NSF research directorates. Therefore, such a report will be requested of NSF.*

**ACTION ITEM:** *When the draft biennial report is made available for review, it is to be in Microsoft Word, instead of restrictive typesetting, and an editor is to make the overall changes needed in the final version of the document. Ms. Begay-Campbell suggested that the biennial report be reflective of the issues that are being covered and should contain adequate photographs and data with captions and references to clearly make the necessary points.*

**ACTION ITEM:** *Ms. Davis of Beyond the Bottom Line, Inc. is to submit to Dr. Tolbert an outline of the next biennial report for review by the CEOSE Chair and Vice Chair.*

**PRESENTATION: *The Role of the Office of Equal Opportunity Programs in Fostering a Work Environment of Diversity and Inclusion* by Ms. Claudia Postell, Esq., Director of the Office of Equal Opportunity Programs/Office of the Director/National Science Foundation**

**Ms. Claudia Postell**, who had only been in the position of Director of the Office of Equal Opportunity Programs (OEOP)/OD/NSF for less than two months, advised that her presentation would focus on her office’s role in fostering an environment of diversity and inclusion. She noted the primary focus of OEOP is to ensure that NSF is in compliance with the laws, regulations, and executive orders governing federal sector equal employment opportunity and civil rights. The office covers EEO, as well as civil rights as they relate to recipients of federal funds.

OEOP has begun to take a broad approach for managing diversity in the workplace. She advised that when diversity is spoken of, it is in the broadest context of all that make us uniquely different, in addition to the legally protected classes of race, color, gender, religion, national origin, age, disability, and sexual

orientation. It also includes diversity of thought and perspective, culture, educational background, socioeconomic status, and organizational level.

When one speaks of protected classes, these are the ones that are protected under the Civil Rights Acts, Age Discrimination and Employment Act, and Rehabilitation Act. “Inclusion” is used to stress that all, not just those in legally protected classes, are a vital part of the workforce. We must make efforts to recruit and retain a diverse workforce said **Ms. Postell**.

In response to **Dr. Marigold Linton’s** questions, **Ms. Postell** reviewed some of the history of civil rights and inclusive environments that celebrate people’s differences. She focused attention on a GAO report in which useful information on diversity and inclusion is provided. She noted that in that report high performance organizations are those that are inclusive (drawing on the strengths of employees of all backgrounds and at all levels) and that foster a work environment that enables employees to buy into the mission. It provides accountability and fairness for all employees. She spoke of diversity as part of an organization’s strategic plan and the linkage to performance. Measurement, accountability, succession planning, recruitment, employment involvement, and diversity training were covered in **Ms. Postell’s** presentation.

**Ms. Postell** noted that OEOP serves a critical role at NSF. Her staff members have begun developing a diversity and strategic plan, and it has already developed its mission statement and goals. The office is linked with other parts of NSF through liaisons from the various directorates and offices and with the broadening participation group and the Human Resource Management Division. In addition to its role as noted above, her office facilitates a number of EEO complaints. In some instances, her office staff members address those complaints through facilitations among the parties involved.

**Ms. Postell** spoke of the diversity training and the dialogue series that is hosted by OEOP. She also discussed the outreach efforts, Special Emphasis Programs, the OEOP website, and the planned collaboration among her office, the union, and the Human Resources Office. The effort is to assure that steps are being taken by NSF to meet elements of a model EEO program. After completing her presentation, **Ms. Postell** responded to questions from CEOSE members (e.g., **Dr. Maldonado, Ms. Begay-Campbell, Dr. Poston, and Dr. Linton**).

#### **DISCUSSION SESSION: CEOSE Membership**

As CEOSE members discussed strategies to fill the five membership vacancies, they covered the needs of the Committee in terms of race/ethnicity, gender, geographical location, sector (e.g., industry, academia, federal, and philanthropic) of society, academic fields, institution types, the prioritization of the list of nominees, etc. **ACTION ITEM: The CEOSE Chair (Dr. Maldonado) is to submit to Dr. Arden L. Bement, Jr., NSF Director, a prioritized list of names of at least ten persons recommended for membership.** Steps for the appointment of new members are outlined in “The Process for CEOSE Membership Appointment” that was put in place in 2008.

#### **PRESENTATION: Enhancing Engineering through Broadening Experiences by Dr. Thomas W. Peterson, Assistant Director, Engineering Directorate/National Science Foundation**

**Dr. Thomas W. Peterson** began his tenure as Assistant Director for Engineering at NSF a week before **Mr. Obama** took office as President of the United States of America. This makes **Dr. Peterson’s** appointment date easy to remember. After introducing **Dr. Omnia El-Hakim**, Program Director for Diversity and Outreach in the Engineering Directorate, **Dr. Peterson** described the structure of his directorate—Office of the Assistant Director with three support units (Emerging Frontiers in Research and Innovation, Nanotechnology, and Diversity & Outreach) plus five divisions (Engineering Education

and Centers; Chemical, Bioengineering, Environmental, and Transport Systems; Civil, Mechanical, and Manufacturing Innovation; Electrical, Communications, and Cyber Systems; and Industrial Innovation and Partnerships).

**Dr. Peterson** then he discussed U.S. demographic data for engineers who received their B.S. degrees between 1997 and 2007, noting that there has not been much of an increase in that period for any of the minority groups—Native Americans, African Americans, and Hispanic Americans. He noted the mildly encouraging increase for the same period for females and Asian Americans; however, the numbers began to level off in the latter years.

In discussing underrepresented minorities in engineering, **Dr. Peterson** noted that there is a need for more diversity in this field. After discussing the academic degree receipts in reference to gender and race/ethnicity, he pointed out the issues involved in the low numbers of underrepresented minorities and women in the field of engineering. He advised of the broadening participation programs and activities that are in progress in his directorate and strategies used to form partnerships and to integrate research and education. He outlined a number of opportunities for broadening participation in engineering with the aid of NSF programs, such as CAREER, ADVANCE, BRIDGE, GRF, GRS, REU, RAPD, and ERC, as well as workshops and grant supplements.

**Dr. Peterson** discussed the collaboration with professional organizations and engineering societies to help expand the reach into different conferences to identify additional underrepresented minorities and to encourage the selection of engineering as a career. He advised that global collaborations that involve women and minorities are excellent ways to increase their numbers in engineering. In the future, there may be workshops that address sustainable energy in Turkey and wind engineering in Egypt. These will facilitate the advancement of information dissemination to women and minorities, as well as the global engineering community in general.

Although there are a number of programs and activities that address the underrepresentation of minorities in engineering, more needs to be done. To address the challenge of increasing the number of Native American students in engineering, more recruitment and retention efforts are needed. The Engineering Directorate has chosen to form partnerships with community and Tribal colleges and universities to facilitate the transition to higher education levels. Currently, the Engineering Directorate has initiated a program, Pre-Engineering Education Collaboratives, which is a subset of the NSF Tribal Colleges and Universities Program. This collaborative program will help the transition from community and Tribal colleges and universities to higher level universities. This program provides pathways, internships, and research experiences for students. No awards have been made at this point.

Furthermore, efforts are being made to reach out to veterans to return to universities and major in engineering. In 2010, there will be an engineering education program announced to focus on students supported by the GI Bill. Hopefully, these programs and a broad spectrum of activities will help address some of the challenges identified in reference to attracting underrepresented minorities into the field of engineering.

In concluding his presentation, **Dr. Peterson** spoke of the importance of diversity in the composition of advisory committees, proposal review panels, and other groups that conduct reviews and provide other services for the Engineering Directorate. He responded to questions from CEOSE members (e.g., **Dr. Maldonado, Ms. Begay-Campbell, Dr. Ramirez, Dr. Linton, and Dr. Poston**).

**DISCUSSION: Future Mini-Symposia (Drs. Ramirez, Ong, Linton, Poston, Maldonado, and Ms. Begay-Campbell)**

CEOSE members discussed preliminary planning for future mini-symposia. Among the proposed topics are: 1) The Assessment of NSF Programs and Their Impact, 2) Strategic Directions in the Evaluation of Programs, 3) K-12 Questions and Issues, 4) High School Dropout Issues, 5) An Internal Mini-Symposium: Metrics Measured and Program Impacts, and 6) The Most Important Challenges and Opportunities That Have the Biggest Impact on Broadening Participation. It was suggested that depending on the topic chosen, CEOSE should engage other federal agencies in the deliberations.

Following the discussion of topics for future mini-symposia, the Committee discussed data needs and the need to revisit CEOSE past recommendations. These should be reviewed in relationship to the responses received from NSF. Then a decision can be made on the next steps. To facilitate the discussion, **Dr. Tolbert** provided CEOSE members with copies of the past four CEOSE biennial reports, all of which contain recommendations. As the members began to discuss the distribution of its biennial report, **Dr. Tolbert** provided each with a copy of an extensive list of scientific and engineering organizations to which copies of the most recent CEOSE report are to be sent. CEOSE members added more organizations to the list. **ACTION ITEM:** *Copies of the “2007-2008 CEOSE Biennial Report to Congress” are to be mailed to representatives of selected scientific, engineering, and education organizations, persons who request copies, and individuals identified by CEOSE members and NSF officials, as well as individuals as required by law (42 U.S.C., 1885d).*

In reference to the status of the Broader Impacts Criterion recommendation that CEOSE submitted to **Dr. Bement** for his submission to the National Science Board, it was learned that action was taken by him as requested. The NSB is setting its priorities, and at this point, the recommendation is in the NSB portfolio.

**ADJOURNMENT:** 4:55 P.M.

## **Tuesday, October 27, 2009**

### **Opening Statement and Discussion**

**Dr. Maldonado** opened the meeting at 8:30 a.m. and outlined steps to be taken. She discussed vehicles (e.g., mini-symposia and presentations by selected persons from NSF and external organizations and institutions) that CEOSE uses to obtain information needed to address its mandate. She advised members that this meeting would adjourn earlier than usual due to the need for them to participate in the Mini-Symposium on Women of Color in STEM.

CEOSE members discussed 1) NSF program evaluation and the interest in finding out the outcomes of those evaluations, 2) the need to have more underrepresented minorities serve as proposal reviewers and as members of advisory committees, and 3) the responsibility of NSF to address recommendations in the Broadening Participation Report and the CEOSE biennial reports.

**ACTION ITEM:** *Dr. Tolbert is to find out if there is an official NSF Broadening Participation Committee or Working Group that is currently functioning. It was noted that at an earlier time, a working group produced a report that contained a number of recommendations. CEOSE members would like to know if any of the recommendations were adopted by NSF, and if so, what are the outcomes?*

**PRESENTATION:** *Plans for the Mini-Symposium on Women of Color in STEM: Perspectives on Experiences, Research, Evaluation, and Policy in Higher Education and Careers* by **Dr. Maria (Mia) Ong**, CEOSE Member

**Dr. Ong** gave a briefing on plans for the Mini-Symposium on Women of Color in STEM and told CEOSE members what to expect when the mini-symposium is implemented, beginning at noon today,

October 27<sup>th</sup>, and continuing through the afternoon of the 28<sup>th</sup>. The purpose of the mini-symposium is two-fold: 1) to share experiential knowledge and current evidence-based findings about women of color in STEM; and 2) to provide comments and suggestions about how the recruitment, retention, and understanding about the experiences of this group of women may be improved through research, practice, and policies. The focus is limited to higher education and careers. In providing details on the design of the mini-symposium, **Dr. Ong** advised that four panels will be used to focus on personal perspectives, qualitative findings, quantitative research, and policy and action. The concluding session will be implemented in a roundtable format for more effective interactions. Further, she advised that the agenda includes presentations and comments by keynote speakers (**Ms. Christina “Tina” M. Tchen**, Director of Public Engagement and Executive Director of the Council on Women and Girls, The White House; **Dr. Joan Burrelli**, Senior Analyst, SRS/SBE/NSF) and other notable attendees (**Dr. Cora B. Marrett**, Acting Deputy Director of NSF; **Dr. Shirley Malcom**, Head of the Directorate, Education and Human Resources Programs, American Association for the Advancement of Science). **Dr. Ong** mentioned that the mini-symposium will take place in the Hilton Hotel Arlington. A reception will be held in the NSF atrium after the mini-symposium ends on the first day. This mini-symposium was made possible by an award from NSF to TERC. Other sponsors were the American Chemical Society and **Dr. Phoebe LeBoy** on behalf of AWIS. Along with **Dr. Ong**, **Dr. Evelyn Hammonds** serves as co-chair of the organizing committee for this mini-symposium, and **Dr. Patricia Campbell** and **Dr. Muriel Poston** are the other members of the organizing committee. **Dr. Tolbert’s** involvement in the planning and implementation of the mini-symposium was multi-faceted. **Ms. Lily Ko** of TERC served as **Dr. Ong’s** “right-hand person” relative to the mini-symposium, and **Ms. Denita Norris** of NSF and several persons from the American Chemical Society provided assistance too. The list of potential attendees was generated by CEOSE members in the Summer of 2009, and many others learned about the event by word of mouth or email. Everyone who expressed interest in attending was registered for the event, with the final registration count at 117. Upon completion of her report, **Dr. Ong** responded to questions from CEOSE members and advised that a full report on the mini-symposium will be given at the March meeting of CEOSE. **ACTION ITEM: Dr. Ong received an official verbal request from CEOSE to present a detailed report on the mini-symposium, including the suggestions received from attendees, during the March 2010 CEOSE meeting.**

#### **REPORTS: CEOSE Liaisons to NSF Advisory Committees**

- In her report on the meeting of the Advisory Committee on Environmental Research and Education (AC-ERE), **Ms. Begay-Campbell** spoke of the “Green Report” that covers the transition and tipping points in the complex environmental system. **ACTION ITEM: Ms. Begay-Campbell will send the web address for the “Green Report” to CEOSE members.** This report is intended to inform the public of environmental issues, identify the challenges, call attention to the urgency of action, and to motivate them to become more action oriented. This report illustrates the impacts of what is happening in terms of changes within our environment; these impacts affect our animals, flora, and people. **Ms. Begay-Campbell** advised that the AC-ERE continues to be supportive of broadening participation.
- **Dr. Poston** reported that the September 10-11, 2009 meeting of the Biological Sciences Advisory Committee was the last one in which **Dr. James Collins** participated while serving as Assistant Director of the NSF Biological Sciences Directorate. His term in that position will end in October. **Dr. Collins** gave a report on his directorate, including the budget and the impact of stimulus funding on activities in the biological sciences. Also, his report covered the transition of biology from the 20<sup>th</sup> to the 21<sup>st</sup> century as the central science of the 21<sup>st</sup> century. This was followed by a series of discussions that focused on four broad themes, two of which were broadening participation and undergraduate education. In the broadening participation component, progress included the goal of increasing the participation of minority scientists in the biological sciences, the number of minority

NSF staff scientists, the number of panelists and reviewers, and the number of principal investigators from underrepresented groups, particularly in the core programs and the special programs (e.g., Research Initiation Program, Undergraduate Mentoring Program, Postdoctoral Fellowships Program, Research Experiences for Teachers, and Research Assistantships). This directorate has a Broadening Participation Plan. The Broadening Participation Report for 2008 was distributed at the meeting, and several additional topics were covered.

Additional reports will be given at the March meeting, since some advisory committees will meet between November and March.

A discussion was held on Advisory Committee Liaison assignments. **Dr. Hammonds** agreed to serve as the CEOSE Liaison to the Education and Human Resources Directorate Advisory Committee.

## DISCUSSION

In preparation for the discussion on CEOSE biennial reports to Congress, CEOSE members were given copies of biennial reports that covered the period from 1999 to 2008. The purpose of these copies was to enable CEOSE members to have an informed discussion on the status of their recommendations to NSF and to determine how to follow-up on them. The discussion was lengthy, and it involved all of the CEOSE members who were present, as well as the Federal Liaisons to CEOSE (e.g., **Dr. Blanding** and **Dr. Martinez**). **Dr. Walter Collier** participated by telephone while **Ms. Corinda Davis**, President of Beyond The Bottom Line, Inc., participated in the meeting room. Open discussions with NSF Senior Managers might be needed in reference to those recommendations for which responses have not been addressed and closed. It was noted that the next biennial report is to cover 2009 and 2010. **ACTION ITEM:** *In reference to the "2009-2010 CEOSE Report to Congress," it was decided that a request will be made to the Science Resource Statistics Division/SBE/NSF to have Chapter 1 drafted by one of its contractors.* **ACTION ITEM:** *In consideration of the results of the discussion held on October 27<sup>th</sup>, the CEOSE Chair and Vice Chair will edit the statement of work that is to be submitted to the Science Resource Statistics Division/SBE/NSF for consideration in reference to the drafting of Chapter 1 of the "2009-2010 CEOSE Report to Congress" and send the final version to Dr. Tolbert for processing.* **ACTION ITEM:** *Dr. Harris accepted the responsibility of leading the subcommittee that will review CEOSE recommendations and NSF responses to them. He will be joined by Dr. Maldonado, Dr. Hammonds, Dr. Poston, and Ms. Begay-Campbell. The date and place for the first meeting of this subcommittee will be decided later.* **ACTION ITEM:** *CEOSE members will provide Ms. Davis, the lead person on the contract for the provision of assistance in the preparation of the biennial report, through Dr. Tolbert with details needed to complete the overall preparation of the "2009-2010 CEOSE Report to Congress."*

**ADJOURNMENT:** 11:55 A.M.

**NOTE:** The next CEOSE meeting is scheduled for March 8-9, 2010, at the National Science Foundation.

## CERTIFICATION OF THE ACCURACY OF THE CEOSE MEETING MINUTES

**Dr. Theresa A. Maldonado**, Chair of the Committee on Equal Opportunities in Science and Engineering, approved the meeting minutes on January 25, 2010, and **Dr. Muriel Poston** concurred with this approval via an e-mail message to **Dr. Margaret E.M. Tolbert**, CEOSE Executive Liaison.