

**COMMITTEE ON EQUAL OPPORTUNITIES IN
SCIENCE AND ENGINEERING (CEOSE)
National Science Foundation**

**CEOSE 2016 June Meeting
June 8-9, 2016**

MEETING MINUTES

MEETING PARTICIPANTS

CEOSE Members Present

Dr. Ira Harkavy, CEOSE Chair, University of Pennsylvania, Philadelphia, PA
Dr. Louis Martin-Vega, CEOSE Vice Chair, North Carolina State University
Dr. Mary M Atwater, The University of Georgia
Dr. Jose Fuentes, Pennsylvania State University
Dr. C. Michael Gooden, Integrated Systems Analysts, Inc.
Dr. Charles Isbell, Georgia Institute of Technology, GA
Dr. Alicia Knoedler, University of Oklahoma
Dr. Daniela Marghitu, Auburn University
Dr. Loretta Moore, Jackson State University
Dr. Lydia Villa-Komaroff, Cytonome/ST
Dr. Nai-Chang Yeh, California Institute of Technology
Dr. Garikai Campbell, Morehouse College (Virtual Participant)
Dr. Peter Eden, Landmark College (Virtual Participant)
Dr. Robert Eugene Megginson, University of Michigan (Virtual Participant)

CEOSE Members Absent

Dr. Robert Jones, University at Albany, NY
Dr. Nancy Cantor, Rutgers University – Newark

Federal Agency Liaisons Present

Dr. Katie Blanding, Department of Education (Virtual Participant)
Ms. Lisa Evans, National Institute of Health (NIH) (Virtual Participant)
Ms. Sedika Franklin, The White House (HBCUs)
Dr. Shahin Nemazee, Smithsonian Institution
Dr. Susan Heller-Zeisler, National Institute of Standards & Technology (NIST) – PPT Provided

Speakers/Panelists

Dr. Suzanne Iacono, CEOSE Executive Liaison and Head of Office of Integrative Activities (OIA)/
Office of Director (OD)/NSF

Dr. Erwin Gianchandani, Acting Assistant Director, Directorate for Computer & Information Science &
Engineering (CISE)/NSF

Dr. Joan Ferrini-Mundy, Assistant Director/Directorate of Education and Human Resources (EHR)/NSF

Dr. Pramod Khargonekar, Assistant Director, ENG/NSF

Dr. F. Fleming Crim, Assistant Director, Directorate for Mathematics & Physical Sciences (MPS)/NSF

Dr. Fay Cook, Assistant Director, Directorate for Social, Behavioral & Economic Sciences (SBE)/NSF

Dr. Cassandra Dudka, Office of International Science and Engineering (OISE)/OD/NSF

Dr. Ira Harkavy, CEOSE Chair, University of Pennsylvania

Dr. Kellina Craig-Henderson, Deputy Assistant Director, Directorate for Social, Behavioral &
Economic Sciences (SBE)

Ms. Marcie Parkhurst, Associate Director/Foundation Strategy Group (FSG)

Dr. Jan Middendorf, Program Director/DGE(Division of Graduate Education)/EHR

Dr. Melvin Hall, Professor of Educational Psychology/Northern Arizona University

Dr. Clemencia Cosentino de Cohen, Mathematica Policy Research (MPR)

Dr. Anand Desai, Section Head, Evaluation and Assessment Capability (EAC)/OIA/OD/NSF

Dr. Cynthia Phillips, Evaluator, EAC/OIA/OD/NSF

Dr. Richard Buckius, Chief Operating Officer/OD/NSF

Dr. France A. Córdoba, Director/OD/NSF

CEOSE Designated Federal Officer – Executive Liaison

Dr. Suzanne Iacono, Office Head, OIA/OD/NSF

CEOSE Executive Secretary

Dr. Bernice Anderson, Senior Advisor, OIA/OD/NSF

CEOSE Scientific/Technical/Administrative Staff

Mr. Steven Buhneing, IT Specialist , OIA/OD/NSF

Dr. Joan Burrelli, Science Resources Analyst, OIA/OD/NSF

Ms. Victoria Fung, Program Analyst, OIA/OD/NSF

1st Day, February 25, 2016**Welcome/Introduction**

Dr. Ira Harkavy, CEOSE Chair, welcomed members and guests and asked CEOSE members to introduce themselves. Drs. Garikai Campbell, Peter Eden and Robert Megginson participated in the meeting remotely. Dr. Lisa Evans, liaison from NIH, was also present remotely the first day. Dr. Harkavy announced that the agenda for the meeting focused on two things—the CEOSE report to Congress and the fall workshop on accountability which will feed into the report. Transcending both are issues of metrics, accountability, and effective performance assessment.

CEOSE Chair Report

Dr. Louis Martin Vega, CEOSE Vice-Chair, reported on the recent executive teleconference with NSF leadership. One of the topics discussed was CEOSE's commitment to outreach and members' recent presentations on the NSF INCLUDES initiative to a variety of groups. Other topics included the next CEOSE report to Congress, the upcoming accountability workshop, the upcoming Office of Science and Technology Policy Implicit Bias Report, and NSF's 10 "Big Ideas" for future NSF investments that were presented to the National Science Board.

NSF Executive Liaison Report

Dr. Suzi Iacono, CEOSE Executive Liaison, presented information on the NSF 2017 budget request to Congress (\$8 billion, 93% of which goes to grants programs) and information about the 10 "Big Ideas" for future NSF investments. Six of the big idea are research ideas (Harnessing Data for 21st Century Science and Engineering; Shaping the New Human/Technology Frontier; Understanding the Rules of Life: Predicting Phenotype; The Quantum Leap: Leading the Next Quantum Revolution; Navigating the New Arctic; and Windows on the Universe: Multi-Messenger Astrophysics). Four of the big ideas are process ideas (Growing Convergent Research at NSF; Mid-scale Research Infrastructure; NSF 2050: The Integrative Foundational Fund, and NSF INCLUDES (Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science)).

The focus of her report, though, was to present some context for the issue of accountability. She presented data on NSF proposals and awards showing that although women PIs have a higher success rate than men and despite a long term increase in the percentage of proposals and awards to women, women remain a relatively small percentage of awardees (20-25%). She noted several ways in which NSF is addressing bias, including experiments in merit review and the implicit bias forum and pointed out that the key analytical questions for NSF Strategic Review on Broader Impacts are: 'How do directorates differ in their understanding of BI?' and 'To what extent do awardees report the BI activities they propose?'

Presentation: NSF INCLUDES (Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science): Update

Dr. Iacono and Assistant Directors, Dr. Joan Ferrini-Mundy, and Dr. Pramod Khargonekar updated the committee on the NSF INCLUDES initiative. They noted that INCLUDES is one of NSF's 10 "Big Ideas" and that it arose out of CEOSE's 2012 report calling for a bold new initiative for broadening participation. The call for INCLUDES Design and Development Launch Pilots yielded 574 preproposals in April of this year and 120 of these were invited to submit full proposals by June 24. Conference proposals to guide the development of backbone organizations are due on July 11, 2016, and the call for alliances will occur in FY 2017. Five alliances will be funded for 5 years at roughly \$2.5 million per year. The alliances will be using collective impact approaches to scale up

successful projects. Some questions that will need to be addressed include: how to scale up, how best to implement, how the backbone organizations will support the alliances, what are the “on ramps” (i.e., accelerators), and how do we know if INCLUDES is a success.

CEOSE discussion centered on issues of what are the long-term measurable goals, what it means to scale up beyond just replication, how to get from social innovation to actual implementation, and how much time will be needed to determine if there was an impact. One question involved the issue of alliances being limited to the pilot awards which may not include some of the best practices. Members were assured that although the alliances will be limited to those who won pilot awards, alliance partners can come from other organizations and there will be another round of launch pilots. Another question involved the size of the investment and the low success rate for the proposals. Members were assured that, despite budgeting realities, NSF is committed to this effort and that evidence of success can result in expansion.

Leadership Panel: Broadening Participation in STEM: Disciplinary Highlights

The NSF Assistant Directors’ panel on broadening participation highlighted successful exemplars from the Directorates:

- CISE highlighted its BP Computing Alliances which are regional/national collaborative to increase the number and diversity of college graduates in computing and computationally-intensive disciplines. One such alliance, the Computing Research Association’s Sustainable Diversity in the Computing Research Pipeline alliance, focuses on distributed research experiences and collaborative research experiences. The alliance established a center for evaluation that collaborates with 100 departments to evaluate programs. Evaluation of the program found that students who participated in the alliance’s Research Experiences for Undergraduates programs were more likely to go on to graduate school and PhD programs than those who had not participated in those programs.
- BIO highlighted an award “Lighting the Pathway to Faculty Careers for Natives in STEM” that aims to increase the number of American Indian/Alaska Native STEM students and faculty. The project assesses the impact of various interventions strategies, including mentoring, training, and graduate school preparation. Almost all of the undergraduate students involved in the project are participating in some form of summer research programs this year. Among the 16 graduate students participating, six have publications, eight have presented at conferences, and most apply for research funding. Six months into the project, the assessment identified a growing intention of the students to pursue a STEM career.
- EHR has invested in evaluation for many years, but one of the challenges is understanding the interventions and how they work. Two programs, the Louis Stokes Alliances for Minority Participation (LSAMP), whose goal is to produce more minority graduates with baccalaureate degrees, and Tribal Colleges and Universities Program (TCUP) were highlighted as exemplars. The California State University LSAMP program, which has been in existence since 1993, documented a 277% increase in STEM baccalaureates to students from

underrepresented groups from 1994-2013 vs. a 28% increase for other CSU students. The focus of TCUP is to build capacity. Tribal colleges have historically been mainly 2-year institutions, but now one-third of tribal colleges offer bachelor's degrees. The Navajo Technical College has worked on developing curriculum, faculty capacity, acquiring additional equipment, and choosing areas of focus that could make them unique. During the project's lifetime, STEM enrollment at the college increased by 52.6%, with retention rates at over 70% every academic year. Graduation rates were as high as 85%. This project contributed to the college's accreditation and to the university's ability to install a world-class wireless grid on its campus which gave students' access to the Internet, enabled training for Internet-based jobs, and helped lure employers to the area.

- The Office of International Science and Engineering's goal is to be inclusive and to build relationships. An example of one of their funded projects is one in which a visually impaired Hispanic graduate student designed a prototype system and developed collaborations with top international researchers in the field of accessibility while on a summer internship in Japan through the East Asia and Pacific Summer Institutes for U.S. Graduate Students (EAPSI) program. A 2012 evaluation of the program documents that EAPSI PhD fellows were more likely than a comparison group to hold positions academic institutions (75% vs 45%) and collaborate with international researchers (80% vs 30%).
- SBE funds disciplinary associations to run their own programs to broaden participation. In economics, political science, and physical anthropology, professional societies instituted summer programs to train undergraduates from underrepresented groups in, for example, statistics, research methodology, and economics, and prepare them to take graduate exams and go on to graduate school.
- In GEO, the GEO Opportunities for Leadership in Diversity (GOLD) program's goal is to nurture and cultivate an ideas lab for social scientists and geoscientists to cultivate a new generation of diversity champions. Proposals for test pilots were due June 2 and GEO is in the process of reviewing them.
- The MPS directorate, like SBE, is funding disciplinary societies' efforts to broaden participation. MPS also promotes broadening participation through a number of NSF programs, including:
 - targeted supplements to MPS Alliances for Graduate Education and the Professoriate (AGEP) awards to bring underrepresented minorities into research projects,
 - partnerships for research and education through the Partnership for Research in Materials and Education (PREM) program, for example the University of Pennsylvania and University of Puerto Rico partnership which is focused on broadening participation of Hispanic students engaged in materials research; and
 - the Partnerships in Astronomy & Astrophysics Research and Education (PAARE) program which partners an astronomy program with a minority institution.

- The Engineering Directorate offered three exemplars.
 - The award “Transforming Engineering Culture to Advance Inclusion and Diversity (TECAID)” has as its goal to create a more inclusive mechanical engineering department culture. Pre- and post-implementation surveys showed a reduction in the perception of implicit bias and increases in confidence about how to create organizational change, marshal resources, and build alliances, and an increase in feeling that their knowledge of diversity and inclusive culture informs how they interact with others in their department. Over time, more individuals took actions to increase diversity of faculty, staff, and students, improve interactions in their departments; and evaluate current departmental events and activities; and more individuals reported their departments took actions such as creating plans to address student diversity and actually evaluating departmental activities.
 - The award “Beyond the Basic: Race and Gender Conscious Mentoring for Black Faculty Candidates in Engineering” is examining the degree to which intersectionality (i.e., the interplay of racial stereotypes, gender biases, and other issues) within the profession have been addressed in minority mentoring initiatives for engineering graduate students and postdocs. Findings suggest that engineering doctoral students overwhelmingly lack the institutional support structure providing them with information related to academic faculty positions (e.g. drawbacks and benefits) as well as information that may help guide them through the process of pursuing a faculty position. Such participants indicated that these kinds of resources would be especially useful for underrepresented minorities as they navigate racialized and gendered experiences in spaces where there are few race and gender counterparts; findings also indicated that participants had to expend extra energy to prove themselves to their advisors, professors, peers, and even to their mentors; and while many participants knew of one or more Black engineering faculty members at their university, they still expressed a desire to have more frequent interactions with these faculty on a personal as well as professional level.
 - “Access Engineering” focuses on the retention of student with disabilities. Students went to labs to assess whether the lab was accessible and to assist with the development of three Access Engineering project publications (Equal Access: Universal Design of Engineering Labs, Checklist for Making Engineering Labs Accessible to Students with Disabilities, and Equal Access: Universal Design of Engineering Departments). The three publications can be used by faculty and staff to aid them in applying universal design (UD), keeping in mind that students, faculty, and staff in their departments may have learning disabilities or visual, speech, hearing, and mobility impairments.

CEOSE appreciated the ADs’ presentations and praised the excellent activities being done. Questions centered on the issues of why some projects are successful (e.g., diversity coordinators, best practices manuals), how an accountability framework can be developed, what are the features of things that don’t work (e.g., efforts that rely on heroic individuals, feel good activities that are not measurable),

and how can successful programs be sustainable. ADs noted that long-term persistent strategies at the institutional level are important for success. CEOSE acknowledged the need for further discussion on what we can learn from successes and what makes them successful.

Science of Broadening Participation: Implications for Evaluation

Dr. Kelli Craig-Henderson briefed the committee on NSF's Science of Broadening Participation activity. She noted that awards under this program can provide answers to questions about:

- Issues of access, inclusion and retention;
- Information at all levels of analysis—group, individual, societal;
- Collaboration between SBE and natural and physical sciences
- What works and what doesn't

She mentioned implicit bias as one example of SBP research and noted that INCLUDES projects are likely to be informed by SBP including measurement/metrics, data analytics, and evaluation. SBP can also be informed by INCLUDES activities.

CEOSE discussion centered on the relationship between SBP research and non-social scientists, including remarks that non-social scientists should not be doing SBP research, and that some SBP research is not easily accessible or known to non-social scientists, and that there is a need to have “translators” who can bridge the gap between SBP research and non-social scientists and practitioners. CEOSE members also expressed the need to study the lack of broadening participation and how to apply the science of broadening participation in real settings.

2nd Day, February 26, 2016

Opening Remarks

The CEOSE Chair opened the second day with a welcome and brief announcements and asked if there were any comments regarding the previous day's conversation. Comments included the wealth of information presented the previous day, but the lack of synthesis or summarization of what produces the best results. Committee members also expressed their desire to include some discussion of accountability and NSF's role in accountability in the discussion with the NSF director.

Presentation: Evaluating Collective Impact

Marcie Parkhurst of the Foundation Strategy Group outlined the three main topics involved in evaluating collective impact of social change: complexity; collective input; and learning and evaluation. She emphasized using an adaptive approach to social problems, recognizing that social problems are complex, that they exist within complex systems, and that complexity requires emergent solutions that arise out of continuous learning and adaptation. She also spelled out the five conditions of collective impact: a common agenda; shared measurement; mutually reinforcing strategies,

continuous communication; and a backbone infrastructure. One of the main points of her presentation was that learning and evaluation involve more than just program evaluation, which measures the impact of specific interventions. Rather, an evolving, continuous assessment of multiple parts is needed, and at several levels—context, design and implementation and expansion. Different evaluation activities may be useful at different times, e.g., what progress, for whom, how and why?

CEOSE members appreciated the presentation and wondered what happens in situations in which common vision is not shared or in which the backbone organization fails to acknowledge the expertise of others. They agreed that there needs to be a focus on the common good rather than individual self-interest.

Panel Discussion: Evaluation of NSF BP Programs in EHR (Directorate for Education and Human Resources)

Jan Middendorf (EHR) gave CEOSE an overview of EHR programs, divisions and program focus and Melvin Hall (Northern Arizona University), who been working with NSF for the past 15 years on evaluation, discussed the top 5 evaluation challenges in EHR. These challenges include:

- The pipeline metaphor (which needs to be enriched with ideas of the ability of the individual to make decisions, the cultural context which drives those decision, and grit);
- Limited principal investigator understanding of the broadening participation literature which results in intentions to fix the student rather than to reduce barriers and build peer and community support;
- Identifying evaluators with expertise. A lot of evaluation is done by STEM professionals or graduate students who lack evaluation expertise;
- Program focus ambiguity. Many principal investigators use old and inappropriate models for given group and many attempt to promote development of a STEM identify without a theory that enables that outcome; and
- Evaluation is not fully integrated into the project plan.

He offered several solutions including more attention to what works, support for projects that add to the theory base, HBCU-UP centers that will identify and codify key success factors, prompting principal investigators to use more contemporary theoretical work; insisting on evaluation designs that are tailored to the project; finding out what prerequisites, test formats, course structure, and classroom expectations are promoting learning, and being mindful of the performance paradox where more measurement of quality leads to everything but more quality.

Dr. Clemencia Cosentino of Mathematica Policy Research, who has worked with NSF as an external evaluator, spoke to three main considerations for an effective accountability system:

- Alignment of program and evaluation strategies. NSF has an integrated strategy which required an integrated evaluation—across programs, aligned with expected outcomes, detailed

in a theory of change, and measured through indicators useful for explicit purposes (such as monitoring progress or estimating impacts). This needs to happen at 4 levels—monitoring progress; evaluating programs and strategies; taking stock at the directorate or agency level; and assessing the influence in terms of broader goals.

- Establishment of clear definitions, i.e., what is broadening participation, what is STEM, what is the STEM workforce, what does success look like, what is evidence of a causal result?
- Leveraging expertise. NSF needs an active program of monitoring and evaluation. The growing capacity at the Office of Integrative Activities can be leveraged at EHR. An effective evaluation needs clarity about what the expectations are at the project level, the program level, and the NSF level.

CEOSE members expressed their appreciation for these presentations and brought up several issues related to broadening participation in their discussion. They noted the need for an expanded definition of broadening participation so that ultimately, success would involve all STEM professionals, not just certain groups. They noted the need to start efforts in broadening participation at the elementary school level to ensure successful pathways. They noted the need for community input to reinforce interest in education and particularly in STEM. They emphasized the need for broadening participation resources for principal investigators, for example recommendations for external evaluators and easily available information on recent literature, and the stressed the need to foster creativity and innovation while emphasizing evaluation and institutional input.

Working Session with EAC (Evaluation and Assessment Capability): Framework for a Broadening Participation Accountability System

Drs. Anand Desai and Cynthia Phillips of the EAC unit of the NSF Office of Integrative Activities briefed the committee on issues and considerations in developing an accountability framework for broadening participation. Several next steps in developing such a framework include:

- developing an accountability definition—who accepts responsibility and is accountable for what;
- determining at what level change needs to occur (system (network of networks), institution (NSF and academic institution), individual (principal investigator, participant); and
- developing a social innovation strategy involving capacity to address the needs, empowerment of institutions, groups and individuals, a willingness to change social relationships, and a cross-sectoral approach, launched by a variety of actors including universities, non-profits, government and industry.

A variety of social innovation models, including collective impact, constellations, communities of practice, networked-based approaches can be used for social change and many have common elements, such as shared goals, measurement, and evidence based decision making. To move beyond incremental change, an accountability system needs to move into accountability for catalyzing and sustaining change. CEOSE needs to think about how and for what will individuals, institutions, and

the system be held accountable and are CEOSE's 5 main strategies and 4 main performance goals complete?

CEOSE response to these presentations centered around the need for more resources, a greater emphasis on broadening participation, a desire for real substantive change, and the question of how to hold institutions accountable and how to catalyze change.

Discussion with the NSF Director and Chief Operating Officer

Following welcoming remarks and introductions, Dr. Cordova spoke to 3 main topics: NSF's "Big Ideas"; INCLUDES; and the current work of CEOSE. NSF's "Big Ideas" came out of a senior officer retreat looking at NSF's goals through 2020. Each of the 10 ideas (which include INCLUDES and which Dr. Iacono outlined in her Executive Liaison Report above) is assigned to a directorate and has a working group. She noted that about 600 proposals were submitted for the INCLUDES launch pilots, of which about 120 were invited to submit full proposals. NSF expects to fund 40 of those. All of the funded projects are expected to focus on and excel in vision, partnerships, goals and metrics, a strong leadership plan including institution commitment, and the potential for scaling. Dr. Cordova appreciates the current work of CEOSE and stressed the need for CEOSE to continue its important role in championing the INCLUDES initiative and in sustaining the momentum of inclusivity. She mentioned several instances of countries around the world who are looking for leadership in inclusive integration and applauded CEOSE leadership in planning the accountability workshop.

CEOSE members expressed gratitude for NSF's efforts in broadening participation, and particularly for the exemplars provided by the ADs, and wondered how to utilize INCLUDES' new efforts while not forgetting the older programs such as HBCU-UP and LSAMP that work and that could be scaled. Further, they asked about a potential tiered approach to scaling, such as scaling projects division wide, to other institutions, and to other agencies. Dr. Cordova thought those were good questions and promised to consider them as NSF INCLUDES evolves.

In response to CEOSE questions about how she expects INCLUDES to evolve, how INCLUDES will change how NSF operates, and how might INCLUDES affect other agencies, Dr. Cordova and Dr. Buckius noted that the backbone aspect of the alliances will engage communities, that NSF has evolved to have more interaction among the directors, and that dissemination of information and reliance on the National Science and Technology Council and the Office of Science and Technology Policy is a potential way to influence other agencies.

CEOSE also suggested the inclusion of INCLUDES in the 9 other "Big Ideas" as a way to ensure continuity, to leverage support through existing activities, and to make diversity a part of the culture of STEM.

In response to a CEOSE question about budget challenges, Dr. Cordova emphasized the need to publicize the benefits of basic research and of broadening participation to the public, who can then influence Congress. She is also talking with private organization who may be interested in providing

some funding. She also suggested that CEOSE could have influence beyond the report to Congress by writing about and publicizing the values of inclusivity.

Discussion of the Committee Reports by CEOSE Liaisons to NSF Advisory Committees/ Discussion of Federal Liaisons Reports by CEOSE Federal Liaisons

The working lunch session began with reports from the Federal Liaisons.

- Dr. Katie Blanding, Department of Education, reported on several targeted STEM programs— HSI STEM & Articulation Program (109 currently funded grants), the Ronald E. McNair Post-baccalaureate Achievement Program (151 currently funded grants), the Minority S&E Improvement Program (which targets middle schools; 39 currently funded grants), and the Upward Bound Math & Science program (163 currently funded grants).
- Dr. Shahin Nemazee, Smithsonian Institution, reported on their LASER i3 program, a 5 year effort to evaluate the effectiveness of the Smithsonian Science Education Center’s Leadership and Assistance for Science Education Reform (LASER) model in systemically transforming science education. An evaluation effort conducted by the Center for Research in Educational Policy at the University of Memphis followed students in grades 1-8 at schools implementing the LASER model and found that those students in the LASER program had greater gains in science achievement, that the effects were particularly high for subgroups of students who are most in need (i.e., English language learners, students with individualized education plans, and students participating in free or reduced price lunch) relative to the comparison group, and a higher proportion of teachers felt “well prepared” or “very well prepared” to teach inquiry-based science relative to the comparison group of teachers.
- Dr. Lisa Evans of NIH reported on several broadening participation activities in their Office of Women’s Health: the NIH Committee on Advancing Women in Independent Positions will host a workshop to identify opportunities for external collaborations on July 25, 2016; a conference on Evidence-Based Innovations to Support Women in Biomedical Research Careers, was held on June 6, 2016, NIH reissued Research Supplements to Promote Re-Entry into Biomedical and Behavioral Research Careers; and NIH Women of Color Research Network received the 2015 NIH Office of the Director Honor Award.
- Sedika Franklin of the White House Initiative on HBCUs reported on the initiative’s 7 strategies to broaden participation in STEM: strengthening capacity for HBCUs to get funding; strengthening partnerships; improving relationships; looking at HBCU centers of research and excellence to elevate the research institutions; sharing (e.g., success stories); bringing in students to national conferences; and convening a group to look at best practices.

In addition to these presentations, representatives from EPA and NIST, who did not attend the meeting, submitted reports.

- EPA’s 2016 broadening participation activities include: selecting a “Champion” for leadership in D&I efforts, collaborating with HQ and Regions to expand funding opportunities with MSIs, ensuring Post Docs projects are open to a wide audience of students including students

at MSIs, identifying "red flags" and potential barriers to broadening hiring participation, evaluating workforce pipeline and hiring data, conducting focus groups with current minority employees from Howard U, expanding relationships with K-12 and MSIs, MOUs, and speaking visits (History Makers, Nifty Fifty), science shows, etc.

- NIST's efforts include: an emphasis on engagement through scientific collaborations and mentorship, publicizing NIST's STEM Education pipeline programs (e.g. UG, Grad, Postdoc) to increase applications/participation (e.g., NIST booths and conference sessions at SACNAS, NOBCCChE, AISES and other meetings/events emphasizing specific underrepresented groups in STEM, Webinars to support STEM Ed program application process, MSI university visits by NIST staff) and outreach activities such as a June 2016 Workshop presentations at STEMiversity in Milledgeville, GA (Forensic-related topics), an upcoming Fall 2016 Symposium for HS students from underrepresented populations –highlight the work at NIST, and how they can move to this career, and an upcoming January 2017: co-host Undergraduate Women in Physics conference (with UMCP.)

Following the federal liaison reports, CEOSE liaisons to NSF Advisory Committees presented their reports:

- Dr. Charles Isbell reported that the CISE Advisory Committee discussed some institution's capping enrollment which has a disproportionate impact on underrepresented minorities. He also reported that the ERE Advisory committee is interdisciplinary and is emphasizing citizen science which promotes diverse involvement.
- Dr. Alicia Knoedler reported on the Business and Operations Advisory Committee meeting at which she gave some names to help diversify one of the subcommittees and suggested that the new AAAS fellow, whose job it will be to recruit diverse IPAs, be invited to attend CEOSE meetings.
- Dr. Louis Martin Vega reported that INCLUDES was a big part of the Engineering Advisory Committee meeting in April and that numbers of underrepresented groups are increasing in engineering, but the percentages are fairly flat.
- Dr. Robert Megginson reported on the material he presented at the MPS Advisory Committee—the history of CEOSE, the content of the 3 reports to Congress, and INCLUDES.
- Dr. Jose Fuentes reported on the GEO Advisory Committee meeting discussion of an experiment with deadlines for proposals. With deadlines, they got more proposals but a lower success rate. Without deadlines, they got fewer proposals and a greater success rate.
- Dr. Lydia Villa Komaroff reported on the SBE Advisory Committee's focus on NSF's "Big Ideas" and how SBE can contribute, and how to communicate the importance of social science research.
- Dr. Loretta Moore reported on the Advisory Committee for CyberInfrastructure's meeting in May, which focused on big data, and on the National Academy's recently released report

“Future Directions for NSF Advanced Computing Infrastructure to Support U.S. Science and Engineering in 2017-2020”.

2015-2016 Biennial Report Update

CEOSE members agreed that the workshop on accountability is crucial before more writing takes place. Report chairs focused on several key issues: the scope of the report; where the report fits in with previous and future reports; scalability; and the need to be very clear on the meaning of accountability. In response to a question, Dr. Isbell stated that the purpose of the report is to make a statement that accountability matters and that CEOSE will be holding NSF accountable. The report is due February 17 and a final draft should be ready by the end of December.

Proposal for a BP Workshop on Assessing Performance and Developing an Accountability System

Dr. Harkavy outlined plans for the October 13-14 workshop which will 1) develop and inventory of metrics, 2) methods for increased broadening participation; and 3) create an accountability framework. He anticipates 46 people will attend including participants from CEOSE, NSF, federal agencies, professional societies and academic institutions. CEOSE members volunteered to nominate potential moderators and speakers for the 3 panels:

- Measurement and metrics: Nai Change, Mary Atwater and Jose Fuentes);
- Exemplary Programs: Lydia Villa Komaroff and Loretta Moore; and
- Accountability System: Michael Gooden, Bob Megginson, and Ira Harkavy.

Members agreed to provide lists by June 23 so that invitations could be mailed by the end of June or early July. Mary Atwater provided a recommendation for a technical writer for the workshop report.

ADJOURNMENT

The meeting adjourned at 4:00 pm.