

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

**CEOSE 2016 February Meeting
February 25-26, 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. Nancy Cantor, Rutgers University – Newark

Dr. Garikai Campbell, Morehouse College

Dr. Peter Eden, Landmark College

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. Robert Eugene Megginson, University of Michigan

Dr. Loretta Moore, Jackson State University

Dr. Lydia Villa-Komaroff, Cytonome/ST

Dr. Nai-Chang Yeh, California Institute of Technology

CEOSE Members Absent

Dr. Mary M Atwater, The University of Georgia

Dr. Robert Jones, University at Albany, NY

Federal Agency Liaison Present

Dr. Shalin Nemazee, Smithsonian Institution

Speakers/Panelists

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

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

Dr. Sylvia James, Division Director, Directorate for Education & Human Resources (EHR)/NSF

Dr. Mario Rotea, Division Director, Directorate for Engineering (ENG)/NSF

Dr. Jane Silverthorne, Deputy Assistant Director, Directorate for Biological Sciences (BIO)/NSF

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

Dr. William Lewis, Deputy Assistant Director, EHR/NSF

Speakers/Panelists (cont'd)

Dr. Pramod Khargonekar, Assistant Director, ENG/NSF

Dr. Margaret Cavanaugh, Deputy Assistant Director, Directorate for Geosciences (GEO)/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. Suzanne Iacono, Office Head, Office of Integrative Activities (OIA)/Office of Director (OD)/NSF

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

Dr. Brian Zuckerman, Science and Technology Policy Institute (STPI/IDA)

Dr. Asha Balakrishnan, STPI/IDA

Dr. Ira Harkavy, CEOSE Chair, University of Pennsylvania

Dr. Janice Cuny, Program Director for Computing Education, CISE/NSF

Dr. Leslie Goodyear, Principal Research Scientist, Education Development Center, Inc. (EDC)

Dr. Tom McKlin, Director, SageFox Consulting Group

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

Dr. Cynthia Phillips, Evaluator, EAC/OIA/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, opened the meeting and welcomed the five new members (Dr. Garikai Campbell, Morehouse College; Dr. Peter Eden, Landmark College; Dr. Jose Fuentes, Pennsylvania State University; Dr. Loretta Moore, Jackson State University, and Dr. Nai-chang Yeh, California Institute of Technology). Current and new members then introduced themselves around the table, mentioning their work related to broadening participation.

CEOSE Chair Report

Dr. Harkavy thanked all the members for coming, mentioned the orientation for the new members held that morning, and then turned to the recent teleconference with Dr. France Cordova, NSF Director and Dr. Richard Buckius, NSF Chief Operating Officer. Dr. Harkavy reported that the teleconference focused on the upcoming CEOSE report to Congress, the INCLUDES announcement and letter to university presidents, and the planned workshop on accountability.

NSF Executive Liaison Report

Dr. Suzanne Iacono, CEOSE Executive Liaison and Head of the Office of Integrative Activities, welcomed the new members, thanked Dr. Harkavy for agreeing to serve as the new CEOSE Chair, and Dr. Louis Martin-Vega for agreeing to serve as the new CEOSE Vice-chair, and commended Dr. Wendy Raymond for her outstanding service as previous CEOSE chair.

Highlights of her report included:

- The orientation for new members;
- The recent INCLUDES Dear Colleague Letter sent to university presidents, chancellors, and others and the INCLUDES solicitation for Design and Development Launch Pilots to catalyze the formation of NSF INCLUDES Alliances;
- Dr. Cordova's talk on the INCLUDES Initiative at the Louis Stokes Alliances for Minority Participation symposium in Washington; and
- The CEOSE meeting agenda which is organized around the next CEOSE report's focus on accountability and metrics.

Working Group Presentation: NSF INCLUDES (Inclusion across the Nation of Communities of Learners that have been Underrepresented for Diversity in Engineering and Science)

The two co-chairs of the NSF INCLUDES Working Group, Dr. Sylvia James, Division Director, Division of Human Resources Development, and Dr. Mario Rotea, Division Director, Division of Engineering Education and Centers, updated CEOSE on what has happened with the INCLUDES initiative over the past year, including:

- Internal and external stakeholder input;
- The Director's Workshop to propose ideas, strategies and approaches to transform the landscape for diversity and inclusion;
- Science and Technology Policy Institute's (STPI's) work on the broadening participation portfolio across NSF;
- Plans for workshops to inform future funding; and
- A Dear Colleague Letter notifying universities and other interested parties about the solicitation for pilots.

They stated that the long term goal of INCLUDES is to fund new research, models, networks and

partnerships that lead to measurable progress at the national level and the ability to scale up the concepts of diversity and inclusion. In FY 2016, launch pilots will be funded and a Dear Colleague Letter will be issued for conferences and workshops to develop backbone organizations. Plans for FY 2017 include funding national alliances which will be built from the launch pilots, linking existing broadening participation programs to the national alliances, and conducting assessment and evaluation.

In response to the presentation, CEOSE members expressed the importance of social, behavioral, and economic sciences input beyond just the SBE budget and stressed that project teams should include social and behavioral sciences expertise. They also expressed the importance of accountability and assessment and their desire to have CEOSE input prior to NSF funding of the backbone organizations.

Leadership Panel Lessons Learned Discussion: Progress and Success in Broadening Participation in STEM Disciplines

Representatives from the NSF directorates discussed broadening participation efforts within their directorates/offices. Following introductions, Dr. Harkavy asked that they address lessons learned in broadening participation efforts, hopeful directions, obstacles and how to move forward to further broaden participation. Some of the highlights were:

- The Directorate for Biological Sciences is conducting an external evaluation of its postdoc programs (which have an explicit broadening participation focus) using social media to find people formerly supported by these programs. They also have a statement in their solicitations for workshops and symposia that encourages diversity in speakers.
- The Directorate for Geosciences' GEO Opportunities for Leadership in Diversity (GOLD) program is holding an ideas lab around opportunities for leadership and diversity. The focus is to create a network of diversity champions who can help to catalyze widespread adoption of proven broadening participation strategies.
- The Broadening Participation in Engineering (BPE) program in the Engineering Directorate has been successful, but the scale of the problem is large. They have been taking lessons learned from the BPE program to inform programming in the Engineering Research Centers.
- The Directorate for Computer and Information Sciences and Engineering has been funding Broadening Participation in Computing Alliances for the last 10 years or so. The new Computer Science for All initiative aims to get computer science instruction in all high schools across the country.

CEOSE members appreciated the work underway on in the directorates and NSF's commitment to broadening participation and asked how evaluation is conducted.

Strength of the Broadening Participation Literature and Inventory of NSF Broadening

Participation Portfolio

Dr. Brian Zuckerman and Dr. Asha Balakrishnan of the Science and Technology Policy Institute (STPI) informed CEOSE of STPI's ongoing work for NSF in evaluating broadening participation programs and INCLUDES. They developed a definition of broadening participation research, an inventory of NSF broadening participation programs, and they also are looking at the broadening participation literature for identifying a set of best practices for broadening participation in STEM.

Discussion with CEOSE revolved around how to measure the value and/or impact of the programs, whether there are patterns of success, how to measure impact through sustained collaboration, and whether there are pathways or connections between or among programs.

2nd Day, February 26, 2016

Opening Remarks

The second day of the meeting began with a discussion of the topics to be addressed and the organization of the planned discussion with the NSF Director.

Implementation Research

Dr. Harkavy gave a presentation on implementation research focusing on what implementation research is and key aspects of effective implementation. Several key aspects include the need to incorporate a range of methods and processes to be made towards a solution and the need for participatory action research to promote the inclusive involvement of individuals affected in all stages of the research process.

Panel Discussion: Evaluation of NSF BP Programs in CISE (Directorate for Computer and Information Science and Engineering)

Panelists for this session included Dr. Janice Cuny, Program Director for Computing Education in CISE, Dr. Leslie Goodyear of the Education Development Center, and Dr. Tom McKlin of SageFox Consulting Group. Dr. Cuny informed the committee of broadening participation programs and efforts in CISE--CISE has a broadening participation strategic plan and they have a number of broadening participation programs including Broadening Participation in Computing – Alliances, Computer Science 10K, and the Computer Science for All initiative. She noted that computer scientists do not always have good evaluation skills and expertise and that despite efforts, women have lost ground in computing.

Dr. Goodyear is currently involved in the evaluation of the Broadening Participation Computing Alliances program. Every alliance has an evaluator and they are bringing them together to try to leverage what information they are collecting. Challenges include different goals, methods, approaches, scales (national, local, etc.) of the projects funded, documenting at the institution level, variations in aggregation of alliance data at the program level, and measuring institutional change and infrastructure development outcomes as well as individual level outcomes.

Dr. McKlin is currently involved in the evaluation of the CS10K program. They brought together

evaluators of the projects to find out what is common among the projects. They plan to continue collecting outputs, determine the best outcomes and collaborate with other CS professional learning providers, among other activities.

Discussion with CEOSE members centered around why program experiences are not more widely distributed, how the computer science community benefits as a whole, and how to include a systems approach within the evaluation.

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

Dr. Anand Desai and Dr. Cynthia Phillips of NSF's Evaluation and Assessment Capability unit presented several concepts and issues in evaluation and assessment in an effort to stimulate conversation about how to develop an accountability framework. Some of the broad ideas presented included what criteria we want to use, how to define the opportunities we need to address, and how to design the evaluation. Some of the more specific aspects include how to couple the strategies with the results, how to define the parameters, what are the information needs, what are the common concepts or "big ideas" that get us to our goal (e.g., reach, adoption, implementation, effectiveness sustainability), the need for common data, and how to have impact on various levels (i.e., individuals, institutions, and NSF). CEOSE members appreciated the valuable discussion and expressed a desire to work closely with EAC.

Discussion with the NSF Director and Chief Operating Officer

NSF Director, Dr. France Córdova, welcomed the opportunity to work with the new CEOSE leadership, acknowledged the contributions of Dr. Wendy Raymond, former Chair, and Dr. George Middendorf, and welcomed the new CEOSE members. She began with an overview of the FY17 budget request which is \$8 billion, an increase of 6.7% over FY16. The two areas of major emphasis in the FY17 budget request are Clean Energy R&D and strengthening support for core activities, with a special focus on support for early career investigators. The FY17 broadening participation budget is \$763 million, a 1.6% increase (or \$11.8 million) over FY16. Dr. Córdova mentioned a number of recent broadening participation activities—the posting of the NSF INCLUDES Dear Colleague Letter and solicitation, and her keynote speech at the Louis Stokes Alliance for Minority Participation in STEM Research Symposium.

CEOSE members' discussion with the Director focused on their next report, which will focus on accountability—what it means for NSF to hold individual investigators accountable, what it means to hold institutions accountable, and what it means for NSF to hold itself accountable. They asked Dr. Córdova how CEOSE's vision fits in with NSF's global vision and welcomed her thoughts on how to address accountability on all three levels and how she envisions organizational changes or cultural changes to promote accountability. They also stated that while they are interested in the INCLUDES initiative, they do not want to focus only on that initiative.

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

Dr. Louis Martin-Vega made a presentation at the ENG Advisory Committee meeting, giving much attention to the three-report series. In addition to discussing the BPE program/portfolio, the Committee has many questions about the NSF INCLUDES initiative. He emphasized that the leadership of ENG is a champion for broadening participation.

Dr. Charles Isbell shared the topics of interests at the ERE Advisory Committee meeting and the CISE Advisory Committee meeting. The focus of the ERE AC was on its new report, [*America's Future Environmental Research and Education for a Thriving Century*](#). CISE AC focused on how to manage the huge increase in enrollment and diversity implications.

Dr. Alicia Knoedler reported that the B&O Advisory Committee focused on the NSF relocation; the move is scheduled for September 2017. Additionally, she shared a few new policies/rules in the grant proposal guide.

Dr. Lydia Villa-Komaroff informed the committee about major broadening participation issues discussed at the December 2015 SBE Advisory Committee meeting, including discussion of two COV reports. One of the major issues in the Behavioral & Cognitive Sciences COV report was the implementation and use of the Broader Impacts review criterion and the feeling that the criterion needed further elaboration. One of the main issues in the Social and Economic Sciences COV report was the lack of demographic information for use in assessment. The COV recommended that every effort be made to obtain complete demographic information for PIs and Co-PIs, especially for programs that target diversity, that disciplinary and demographic data be collected and reported by project to allow assessment of disciplinary diversity as well as standard demographic composition of teams and that the data be anonymized. The COV also recommended that outreach efforts to minority-serving institutions be expanded to include training and encouraging partnerships to improve the competitiveness of proposals submitted.

Discussion of Federal Liaisons Reports by CEOSE Federal Liaisons

Dr. Lisa Evans of NIH provided the committee with information in NIH's recent Request for Information (RIF): Strategies to Enhance Diversity in the Physician-Scientist Workforce, <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-16-027.html>. The purpose is to gather information on unique trajectories, potential systematic or structural barriers, and successful strategies to enhance the diversity of the physician-scientist workforce. Additionally, NIH is seeking comments on whether programs exist that provide clinicians with the necessary skill sets to perform high quality, high impact independent biomedical research, whether it is obtaining a dual degree or by an alternative pathway. The RIF is in response to a 2014 NIH Physician-Scientist Workforce Working Group report, which included among its recommendations that "NIH should intensify its efforts to increase diversity in the physician-scientist workforce."

Dr. Shalin Nemazee of the Smithsonian Institution briefed the committee on the FY 2015 Smithsonian Diversity and Inclusion Initiatives Report which was recently released. The report is a clearinghouse of information on activities engaged in by units of the Smithsonian to reach under-resourced and underrepresented communities.

2015-2016 Biennial Report Update / Proposal for a BP Workshop on Assessing Performance

and Developing an Accountability System

CEOSE members agreed that in the next report, they should set high, positive, ongoing, aspirational goals for accountability and that cultural and organizational changes will be needed to make substantial improvements in broadening participation. They focused on the need for metrics and the need to determine what needs to happen, what is the “scaffold” needed, to achieve success. Part of this is the need to look at previous evaluations to determine what worked and what didn’t. CEOSE efforts in developing an accountability framework could be piloted in INCLUDES. Part of the accountability framework could involve guidance, e.g., links to helpful information, programs that have been successful, where you find evaluators, etc.

Announcements and Final Remarks

The next CEOSE meeting will be held June 8-9, 2016 and the following meeting October 13-14 will be an on-site rather than virtual meeting and will precede and follow the accountability workshop. The committee would like to have EAC at the next meeting, another presentation on new activities in the INCLUDES initiative, and perhaps presentations from EHR and/or GEO on evaluation activities.

ADJOURNMENT

The meeting adjourned at 2:50pm.