

Committee on Equal Opportunities in Science and Engineering (CEOSE)
Meeting Minutes
February 19 - 20, 2020
National Science Foundation
Alexandria, VA 22314

MEETING PARTICIPANTS

CEOSE Members Present

Dr. Jose D. Fuentes, CEOSE Chair, Pennsylvania State University
Dr. Alicia Knoedler, CEOSE Vice Chair, Exaptive, Inc.
Dr. Gilda Barabino, CCUNY
Dr. Suzanne Barbour, University of North Carolina at Chapel Hill
Dr. Kaye Husbands-Fealing, Georgia Institute of Technology
Dr. Daniela Marghitu, Auburn University
Dr. Robert Eugene Megginson, University of Michigan
Dr. Lydia Villa-Komaroff, Intersections SBD
Dr. Nai-Chang Yeh, California Institute of Technology

CEOSE Members Absent

Dr. Juan Gilbert, University of Florida
Dr. Charles Isbell, Georgia Institute of Technology

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

Ms. Una Alford, Program Analyst, OIA/OD/NSF
Mr. Steven Buhneing, Communications Specialist, OIA/OD/NSF
Mr. John P. White, IT Specialist, OIA/OD/NSF

Day One

Welcome, Introductions & Opening Remarks

The Chair, Dr. Jose Fuentes, opened the meeting and Committee members introduced themselves. Dr. Fuentes provided an overview of the agenda and an update on his CEOSE-related speaking engagements. He encouraged the Committee to make use of the slide deck, Investing in Diverse

Community Voices. The PowerPoint presentation about CEOSE and its 2017-2018 Biennial Report to Congress will be updated and placed on the CEOSE website.

NSF Executive Liaison Report

Dr. Suzanne Iacono, Head of the Office of Integrative Activities and the NSF CEOSE Executive Liaison, presented the Executive Liaison Report. She covered the following areas: appreciation of the services of outgoing CEOSE member Dr. Peter Eden; selected highlights of the celebration of the 70th anniversary of NSF, which included a panel of the current and former NSF Directors, and a panel focused on present-day discoveries and breakthroughs; the NSB's visioning exercise for 2030; the submission of the FY 2021 Budget Request; the forthcoming NASEM report focused on the underrepresentation of women in STEM; the success of the NSF 2026 Idea Machine; and the FY 2019 funding results for HBCU-EiR (33 projects) and HSI (23 projects) programs. Members were strongly encouraged to visit the NSF 2026 Idea Machine website (<https://www.nsf.gov/news/special-reports/nsf2026ideamachine/index.jsp>) to view the video clips of the seven winning entries.

NSF INCLUDES Update

Dr. Don Millard, Deputy Division Director in ENG and Co-Lead of the NSF INCLUDES Design Team, highlighted the vision and the infrastructure features of NSF INCLUDES. He pointed out that this broadening participation investment is building a community of practice and looking closely at how to develop leaders who can bring to scale inclusive change, resulting in a STEM workforce that reflects the population of the Nation. NSF INCLUDES has a presence in nearly every state and approximately 1200 different partnering organizations have been active in NSF INCLUDES activities. He described the work of the first two cohorts of eight large-scale efforts called alliances and the three new alliances recently funded. NSF INCLUDES alliances are being funded at approximately \$2 million per year for five years. The 50K Coalition was pointed out as being exemplary for engaging a variety of different professional organizations to provide the needed leadership to reach the objective of producing 50,000 engineering graduates from underrepresented groups by 2025. Going forward, NSF INCLUDES will be funding planning grants and partnering with eight different government agencies (e.g., US Patent and Trade Office, the Department of Defense, and NASA). Additionally, the NSF INCLUDES Coordination Hub is promoting a national network of partnerships (www.includesnetwork.org).

Roundtable: Responding to the 2017-2019 CEOSE Recommendation

The following Assistant Directors used data to provide an overview of the broadening participation challenges in various disciplines of the STEM enterprises: Dr. Margaret Martonosi/Computer Information Science Engineering (CISE), Dr. William Easterling/Geosciences (GEO), Dr. Karen Marrongelle/Education and Human Resources (EHR) and Dr. Dawn Tilbury/Engineering (ENG). They also provided information about relevant activities underway in their organizations. For example, CISE has a goal of making broadening participation a central part of merit review. The number of projects that have included BPC plans has increased from 75% to 89%. CISE has conducted four MSI convenings in listening sessions, participants from HSIs and TCUs have given suggestions for increasing their engagement in the CISE portfolio. Community engagement is the underlying principle of several GEO diversity-oriented investments: Coastlines and People, GEO GOLD, IUSE GEOPaths, and Pan African pedagogy of geosciences at HBCUs. In EHR, the community informed the recently established HSI program. The ADVANCE program has engaged the higher education community in operationalizing intersectionality and the organizational change strategies to promote gender equity. Other community-led EHR projects discussed were the implementation of a multi-generational model of a tribal community to promote

environmental knowledge and sustainability; the engagement of high school students in after-school clubs that used data to identify compelling local community challenges and to design potential solutions to address the problems; the engagement of community members in science activities/events in museums; the development of a Braille textbook for math education; and support for a library serving rural communities to increase accessibility and engagement in science activities. The Engineering Research Centers are expected to create a culture of inclusion as well as an innovation ecosystem. For example, the Nanotechnology Treatment Center is building collaborative relationships with the local communities, including hosting graduate and undergraduate students to perform fieldwork for the community and to promote community-wide learning about new technology and its use for water treatment. Additionally, ENG has sponsored over two dozen workshops focused on sustainable urban systems.

Panel: Investing in Community-Based Research

Dr. Roland Roberts, Senior Advisor in BIO, provided an overview of the National Ecological Observatory Network (NEON), which is in its first full year of operation. He pointed out that the 5-year strategic engagement plan emphasizes broadening participation with a focus on building an inclusive user community to advance science. Of the 104 engagement activities reported in the first quarter of FY 2020, 17% were for groups underrepresented in STEM; three staff engagement activities were hosted at MSIs. The result of the NEON-led NSF INCLUDES conference was the Environmental Data Science Inclusion Network (EDSIN) whose membership includes faculty from 13 MSIs, five community colleges, and other programs serving underrepresented groups in STEM. Dr. Roberts also highlighted the NEON partnership with AccessINCLUDES that is assessing work climate for individuals with disabilities and exploring internship opportunities.

Dr. Douglas Levey, Program Director in BIO, provided an overview of the question-driven research of the Long-Term Ecological Research Network (LTER) that is supported by BIO, GEO, and SBE. He highlighted two urban sites, Phoenix and Baltimore, describing their various activities designed to increase awareness of the importance of urban ecology. Two other examples of community engagement were the Schoolyard Ecology Program (with socio-ecological and place-based lessons) and the Schoolyard Ecology Book Series (which are theme-based books on the local ecological system and conveys ecology through the eyes of diverse children). These outreach efforts promote environmental literacy and engagement in underserved communities and bring user perspectives into the LTER community, assuring that society helps to shape LTER research. Dr. Levy also discussed the partnership with the Ecological Society of America, engaging small groups of 10-15 underrepresented students with field trips to LTER sites where the students meet scientists, learn about ecological research through hands-on field experiences, and hear career panels discuss their work and encourage students to think about becoming a scientist. Other projects highlighted were Bonanza Creek's partnership with rural communities and Kellogg Biological Station's partnership with agricultural professionals.

Topics for Discussion with NSF Leadership

The Committee focused on ways to express their gratitude for NSF Director, France Córdova's leadership in broadening participation in the scientific enterprise. They agreed that the session with Dr. Córdova would celebrate her commitment to and support of STEM diversity and inclusion. Within this context, their comments/reflections would highlight her international influence/impact, the development and advancement of the 10 Big Ideas, and her compassion and insight as captain of NSF INCLUDES.

The Committee also focused on the future work of CEOSE—the need to define “invisibility” and how it can connect with other topics like intersectionality, leadership, and data challenges.

Day Two

Opening Remarks

The Chair opened the meeting with a review of the previous day’s discussions, followed by organizing the session with the NSF Director, and outlining the events for the day. He stated that the meeting would continue to address the BP impacts of NSF research investments and identify the theme for the next CEOSE report.

Panel: Impacts of OIA’s Investments in Broadening Participation

Dr. Randy Phelps, Staff Associate in OIA, presented an overview of the Major Research Instrumentation (MRI) program. MRI supports the acquisition and the development of research instrumentation. A FY 2019 demographic snapshot of the Lead PIs for 182 awards revealed 32 awards with unspecified demographic information 38 awards with female-led PIs, two awards led by persons with disabilities, and nine awards led by underrepresented racial/ethnic minorities (2 for American Indian/Alaska Native PIs and 7 for Hispanic PIs). In addition to current outreach efforts to MSI, recent activities have included special attention to scientists and engineers with disabilities and the HBCU-UP/CREST PIs. Future efforts include leveraging existing funding opportunities in the NSF broadening participation portfolio, such as the Facilitation Awards for Scientists and Engineers with Disabilities (FASSED) program.

Dr. Timothy VanReken, Program Director in the Established Program to Stimulate Competitive Research (EPSCoR), discussed strategies to integrate broadening participation activities across the EPSCoR portfolio, engaging diverse groups and institutions in STEM efforts at the national and international levels. The program was established in 1978 to strengthen research and education in science and engineering to avoid undue concentration of research activity, making the investment definitionally about BP geographically. Dr. VanReken described the major EPSCoR investment strategies and highlighted notable efforts like: EPSCoR co-funding to awards with female and other underrepresented groups as PIs, as well as, co-funding collaborations with NSF INCLUDES; the Track 3-Building Diverse Communities that preceded NSF INCLUDES; Louisiana EPSCoR’s robotics mentoring program in low performing schools in Shreveport; the Indigenous Research Program in the Montana EPSCoR; and the engagement of HBCUs in the Alabama EPSCoR and Tribal Colleges in the North Dakota EPSCoR.

Dr. Dragana Brzakovic, Senior Staff Associate in OIA, provided an overview of NSF investments in Science and Technology Centers that support large-scale, long-term research that focus on creating new scientific paradigms, establishing entirely new scientific disciplines or developing transformative technologies which have the potential for broad scientific or societal impact. Since 1989, NSF has funded 25 centers and there are currently 12 active awards. At all levels, each center is expected to develop strategies for broadening participation (e.g., outreach to students in grades 8-12, summer research opportunities for underrepresented groups, partnerships with MSIs, networks involving institutions serving students with disabilities, mentorship and professional development workshops). As exemplars, Dr. Brzakovic highlighted the engagement of Howard University in the STC for Integrated Quantum Materials and the STC for Brain, Minds and Machines as well as the learning resources to encourage deaf and hard of hearing students to study science in the STC for Integrated Quantum Materials.

Discussion: Issues of Invisibility in STEM

Dr. John Finamore, Director of the Human Resources Statistics Program, and Dr. Karen Hamrick, Senior Analyst in the National Center for Science and Engineering Statistics provided an update on the *Women, Minorities, and Persons with Disabilities in Science and Engineering: 2021* report. This report is submitted to Congress and serves as an accounting and comparison, by sex, race, and ethnic group and by discipline, of the participation of women and men in scientific and engineering positions and those studying scientific and engineering fields. The presenters asked CEOSE members to share their concerns and ideas about this NSCES statistical report. CEOSE members expressed the need to exclude temporary VISA holders in the race/ethnicity analyses and the need for additional groupings to advance discussions about intersectionality of demographic factors. Members also suggested the expansion of the report to have visuals of state-level or regional level analyses and disaggregated data for persons with disabilities by career levels. A critical issue discussed was the suppression of small cell analysis. New content for the upcoming 2021 will include a focus on early career scientists and engineers with disabilities and underrepresentation in the skilled technical workforce. Regular briefings by NCSES will be scheduled for future CEOSE meetings.

CEOSE Liaison Reports

CEOSE Liaisons provided reports for the following advisory committee meetings: B&O, EHR, OISE, and SBE. Two of the several meeting highlights shared by the CEOSE Liaisons were that a CEOSE briefing was given at the EHR AC meeting and BOAC received recommendations for new members to help increase the diversity of its membership. CEOSE members were encouraged to visit the SBE website to view “Your Life, Our Work” and the OISE website site for more information about the collaboration with Africa.

Discussion with NSF Leadership

The Chair welcomed and updated NSF Leadership about CEOSE’s activities and invited other members to elaborate on his opening comment about Dr. Córdoba’s leadership and active engagement with CEOSE during her tenure as the Director of NSF.

The Director graciously accepted CEOSE members’ reflections about her various contributions in advancing broadening participation in STEM, including the establishment of NSF INCLUDES as a Big Idea in response to CEOSE’s call for a bold new initiative, a new grant “term and condition” to require institutional reporting to NSF about sexual harassment cases of PIs, and current support of and dissemination of the work in the 2017-2018 Biennial CEOSE Report to Congress. In addition to sharing the NSF Big Ideas video, she reminded CEOSE that collective efforts make us successful and that as the number of people willing to check single-choice boxes to identify their race, gender or ethnicity in surveys is declining, we must think of diversity in very different ways. She expressed her appreciation for all members of CEOSE and presented the members with signed copies of the 75th anniversary edition of *Science—The Endless Frontier* in which she has written a new forward celebrating the 70th anniversary of NSF.

Plans/Assignments/Final Remarks

Ideas for future meetings included: continue the NSF INCLUDES Updates, NCSES briefings, and discussions about invisible diversity; schedule time to plan for the next trilogy of reports, allowing for deeper dives into complex concepts and more time for NSF to repond; plan a leadership workshop in Fall 2020; have a discussion about how to manage risk of change and loss of talent; and focus on new strategies for measuring and rewarding experience in broadening participation.

The writing team for the next report agreed to promote broadening participation as a solution and not a problem. A report framework will be created by the Vice Chair for CEOSE members to insert content.

The meeting was adjourned after announcing that the next meeting will be scheduled for June 2020.