

**Committee on Equal Opportunities in Science and Engineering (CEOSE)**  
**Meeting Minutes**  
**February 25 – 26, 2021**  
**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**, Miami University  
**Dr. Gilda Barabino**, Oberlin College of Engineering  
**Dr. Suzanne, Barbour**, University of North Carolina at Chapel Hill  
**Dr. Ryan Emanuel**, North Carolina State University  
**Dr. Juan Gilbert**, University of Florida  
**Dr. Kaye Husbands-Fealing**, Georgia Institute of Technology  
**Dr. Charles Isbell**, Georgia Institute of Technology  
**Dr. Gabriel Lopez**, University of New Mexico  
**Dr. Daniela Marghitu**, Auburn University  
**Dr. Robert Eugene Megginson**, University of Michigan  
**Dr. Vernon Morris**, Arizona State University  
**Dr. Lydia Villa-Komaroff**, Intersections SBD  
**Dr. Nai-Chang Yeh**, California Institute of Technology

**CEOSE Members Absent**

**None**

**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

**Ms. Stephanie Hill**, Program Analyst, OIA/OD/NSF

**CEOSE Advisory Committee Virtual Meeting  
National Science Foundation (NSF)  
February 25 – 26, 2021  
Meeting Minutes**

***Day 1: February 25, 2021***

**Welcome, Opening Remarks - CEOSE Chair, Dr. Jose D. Fuentes; Report of the CEOSE Executive Liaison – OIA Office Head and CEOSE Executive Liaison, Dr. Suzanne Iacono**

Dr. Jose D. Fuentes, CEOSE Chair, opened the meeting and members introduced themselves. After he provided an overview of the agenda, Dr. Suzanne Iacono, Office Head/OIA – NSF Executive Liaison, reported on the NSB’s discussion of broader impacts and the two resolutions passed by the Board—the members of the Committee of Visitors will include a broader impacts specialist or expert and mandatory training for panelists will cover the broader impacts criterion. She also highlighted the work of Dr. Greg Tananbaum in the context of achieving more societal impacts via open access of data/research information. Prior to Dr. Tananbaum’s presentation, the Chair reminded the members to think about potential ideas to discuss with the National Science Board (NSB) members and asked Dr. Ryan Emanuel to comment on the letter submitted to the NSB Chair about the absence of American Indians, and Native Alaskans and Hawaiians from the Vision 2030 report; they were not covered in the statistics or discussion.

**Presentation: Open Science and NSF Broader Impacts – Director, Open Research Funders Group, Greg Tananbaum**

Dr. Greg Tananbaum is also Secretary for the National Academies Roundtable on aligning incentives for Open Science, which informed much of the work shared during the presentation to CEOSE, underscoring that open science is better for philanthropy, science, and society. His presentation covered incentives for adopting open science; a prototype toolkit of the “whys” and “hows” of Open Science, types of open resources, such as articles, software, digital scholarship, presentations, analyses, non-peer reviewed reports, theses, and dissertations, etc.; and the benefits of research transparency and replicability. Key points included: 1) Open Science practices encourage replicability, stimulate debate, reduce information-sharing gaps, democratize science, and encourage innovation. 2) Research funded has the greatest impact in the world when it can be accessed, tested, discussed, built upon—an important implication for NSF Broader Impacts. 3) If we make data, articles, science materials accessible to all to read, replicate, question, and build upon, this contributes to leveling the field and widening the circle of science. 4) The net effect of making science more transparent, efficient, inclusive is that we engender more public confidence in science. Solving the world’s most pressing problems requires a vast ecosystem of sources and knowledge, built on equal access to information that is vital to the public good. CEOSE members raised concerns like: What do the mutually reinforcing vectors look like at an under-resourced institution? How do you leverage students to be engaged in

faculty research and be part of the research conversation before publication? How does Open Science provide an opportunity to prepare students from underrepresented communities to tell their research stories in a way that they will be meaningful to the community and ultimately engender more support for the student from their community?

**Joint Session with National Science Board (NSB) Leadership  
NSB Chair, Dr. Ellen Ochoa; NSB Vice Chair, Dr. Victor R. McCrary; Chair of the NSB  
Committee on Oversight, Dr. Anneila I. Sargent**

Dr. Ellen Ochoa acknowledged the CEOSE presentation at the NSB meeting in December 2020 as it related to the NSB discussions of “missing millions” and the STEM workforce and the ongoing discussions that focus on the part of one of the NSF Director’s pillars which talks about ensuring accessibility and inclusivity in STEM. She also highlighted two other relevant presentations at recent NSB meetings: a panel focused on researchers impacted by COVID-19, especially the impact on women in STEM, and a panel on roadblocks to STEM graduate student retention. Dr. Victor McCrary pointed out that the Board has been discussing the NSF harassment policy. He emphasized that NSB members have been charged to return to their respective institutions and make sure people know the full scope of the policy—that it extends beyond sexual harassment to include racial and ethnic harassment.

Dr. Anneila Sargent reported that one of the important roles on the NSB Committee of Oversight is to ensure the integrity and transparency of one of NSF’s most important functions, which is to award funding for projects’ research facilities and research in general. The Committee of Oversight is now focusing on broader impacts, particularly in response to the Vision 2030 role that implicitly includes broader participation. As mentioned previously, two resolutions were approved by the Board regarding the improvement of the review process—the inclusion of a Broader Impacts expert on each Committee of Visitors (COV) and the requirement of merit review training to make sure that reviewers completely understand the full impact of broader impacts.

The open discussion focused on best practices that are promising for encouraging and reinforcing responsive implementation of diversity, equity, and inclusion programs at institutions that receive NSF funding. A member of CEOSE pointed out that in the research community, the most important commodity is the funds that support institutional advancement and transformation, sharing, for example, the best practices and success of the ADVANCE program. Another member discussed the importance of outstanding, committed leaders to attract diverse students and researchers to STEM and to create the next generation of leaders via a positive perpetual model. Other areas discussed included mentoring, early engagement in undergraduate research, and the need to be more innovative in addressing systemic barriers and having stronger approaches that hold people accountable.

NSB members also commented on the challenges of tracking, identifying appropriate metrics, and getting real-time feedback. Other issues that CEOSE members discussed included: concerns regarding graduate student funding; the dearth of African American STEM faculty; the need for more thinking about retention of faculty of color and their promotion into leadership positions

where they have power and influence; how to have a compelling message about the value of broadening participation; paying attention to opportunities of inclusion for leaders without authority; how to be disruptive to be effective in broadening participation (e.g., from an analysis of the barriers in STEM to a “barrier aware” plan with a rubric for evaluation). Another example of being bold was shared by the NSB Vice Chair: What if institutions had to bring in a domestic student for every student from abroad in developing the STEM workforce? CEOSE member Dr. Lydia Villa-Komaroff commented that where there is an opportunity to consider funding of long-term grants—center grants, for example – NSF could consider that a critical part of the research agenda of these grants is to help the institutions describe and reach the vision of representation using domestic underrepresented/native talent.

### **Briefings: CEOSE Liaison Reports – CEOSE Liaisons to NSF Advisory Committees (AC)**

Since the last CEOSE meeting, most of the NSF Advisory Committees (AC) had not met. CEOSE Liaisons did report the dates for the upcoming AC meetings. The ENG CEOSE Liaison is engaged with the ENG AD search committee and commented that ENG is giving substantive attention to broadening participation (e.g., panel of Blacks in STEM and discussion about the data regarding the “small N problem”). The OPP CEOSE Liaison provided an update to the PPAC about CEOSE activities and reported that he is part of a recently formed subcommittee designed to report on the state of Polar in terms of diversity and inclusion. The SBE CEOSE Liaison reported that SBE is focusing on the empowerment aspects of diversity, addressing data quality and data sharing challenges, promoting greater partnerships within the Foundation to support interdisciplinarity, and engaging in outreach related to a new BP funding opportunity, Build and Broaden 2.0. The CEOSE Liaison to the CISE AC reported on two BP-related concerns that were discussed: the future vision for 2030 in the context of diversifying the field of computing and the need to increase graduate school enrollment with more people from underrepresented groups.

### **Discussion: Recommendation(s) of the 2019 – 2020 CEOSE Report – CEOSE Vice Chair, Dr. Alicia Knoedler; Planning for the Next Day – CEOSE Chair, Dr. Jose D. Fuentes**

CEOSE Vice Chair Alicia Knoedler led the discussion about the CEOSE biennial report to Congress, pointing out that the focus on *making visible the invisible* is an umbrella theme to multiple reports to be issued over time. Three focus areas were recapped (inclusive excellence and leadership, intersectionality, and under-underrepresented groups), followed by a rich dialogue about framing a leadership recommendation for the 2019-2020 report. Points discussed included: advancing the discussion beyond leadership with authority/positions of authority; calling for bold leadership actions; incentivizing and rewarding leaders for being substantial, visible, and meaningful in effecting substantive changes in the makeup of the scientific research workforce.

The Chair reviewed the plans for the second day of the meeting. Members were in full agreement with their assigned work groups.

## ***Day 2: February 26, 2021***

### **Welcome, Opening Remarks and Plans for Day Two – CEOSE Chair, Dr. Jose D. Fuentes**

Dr. Jose D. Fuentes opened the meeting, stressing that the focus of the day was the forthcoming CEOSE report, and shared highlights of the Executive Teleconference with NSF Leadership. He pointed out that the NSF Director is very enthusiastic about CEOSE's work, applauding the CEOSE efforts regarding "making visible the invisible" and the synergy with NSB. The Chair also noted that Dr. Crim mentioned that the ACs throughout NSF are providing timely advice as it pertains to increasing attention on diversity and inclusion in STEM fields. There is agency support for sharing the forthcoming 2019-2020 CEOSE report and responding to the leadership recommendation(s). The Committee made plans to discuss the following with NSF leadership: the value-add of Open Science in broadening participation; the problem set of unevenly distributed science across racial, gender, economic, geographic lines; deeper examination of the systemic risks of broadening participation approach of connecting efforts/activities; and leveraging technology for advancing BP, such as the role of virtual working environments for broader representation on review panels and greater opportunity for diversifying the STEM workforce within NSF.

### **Assignments for the Review of the Draft 2019 – 2020 CEOSE Report – CEOSE Vice Chair, Dr. Alicia Knoedler**

The Vice Chair Alicia Knoedler shared the group assignments. Members were encouraged to read, discuss, and comment on their assigned sections, including identifying gaps in a section. The CEOSE Chair pointed out the need to identify the data to be included in the report. The members briefly commented on a cover concept of a few BP pictures with part visible and part not too visible. After being reminded to streamline content, the membership accepted their work group assignments.

### **Discussion: Planning of Special Sessions with NCSSES and EHR Advisory Committee in Spring 2021 – CEOSE Vice Chair, Dr. Alicia Knoedler; CEOSE Liaison to the EHR AC, Dr. Kaye Husbands Fealing**

Vice Chair Alicia Knoedler stressed the importance of the collaborative relationship that CEOSE has with NCSSES. One of the ideas moved forward was a "hackathon" -- a workshop that has the sense of hacking data or looking at data in different ways. In the future, CEOSE Liaison Kaye Husbands Fealing will coordinate a joint session with the advisory committee for EHR. She pointed out that a lot of what is funded in EHR relates to the core work of CEOSE (e.g., TCUP, HBCU-UP, ADVANCE, etc.). Rather than trying to coordinate with EHR's upcoming meeting in May 2021, CEOSE favored a two- or three-hour joint session in Fall 2021.

## **Group Work – Reading the Draft 2019 – 2020 CEOSE Report**

Four breakout groups reviewed the draft 2019-2020 CEOSE report: Section I: Kaye, Juan, and Gabriel; Section II: Jose, Daniela, Ryan, and Vernon; Section III: Lydia, Gilda, and Nai-Chang; and Section IV: Alicia, Charles, Robert, and Suzanne.

## **Reports of the Federal Liaisons – White House Initiative on Historically Black Colleges and Universities, Dr. Tammi Fergusson; National Institutes of Health, Dr. Lisa Evans; Smithsonian Institution, Dr. Shahn Nemazee**

Dr. Tammi Fergusson provided an update about the WHI-HBCUs, highlighting the “Federal HBCU Competitiveness Strategy.” This activity collected efforts across the Federal government and creates a cohesive and comprehensive government-wide plan that will improve HBCUs’ ability to compete for federal investments. A report of the plans of 35 agencies can be found at <https://sites.ed.gov/whhbcu>. The report describes the following HBCU competitiveness priorities: education, academic research enterprise, 21<sup>st</sup>-century infrastructure, economic development and competitiveness, and supplemental opportunities. She also shared and applauded NSF HBCU goals: 1) leverage the diverse perspectives of HBCU researchers, educators, and community partners in pursuit of discovery and innovation; 2) provide resources to junior and early career faculty to establish their research agenda and improve the knowledge transfer within the HBCU network; and 3) enhance technical support to HBCUs.

Dr. Lisa Evans reported that NIH launched a prize to enhance faculty gender diversity in biomedical and behavioral science. The purpose is to recognize institutions whose biomedical and behavioral science departments have sustained improvement in gender diversity and at faculty levels. She also discussed the successful mentoring activities of the Women of Color Committee, a subcommittee of the NIH Working Group on Women in Biomedical Careers. She encouraged CEOSE to learn about NIH’s new initiative that would soon be announced, designed to promote diversity, equity, and inclusion in biomedical research and to continue to discuss the diversity constraints in the decision-making process due to legal guidance.

Dr. Shahn Nemazee of the Smithsonian Institute (SI) highlighted four initiatives. The Smithsonian Science and Education Center in collaboration with the World Health created a guide called “COVID-19: How Can I Protect Myself?” This effort provided simple activities for children ages 8-17 to discover, understand and act upon science-based protective behaviors of the pandemic and webinars to help educators and caregivers better understand how to use this resource. When schools shut down, the SI Science Education Center hosted a virtual event for Action Planning Institutes, designed for educators, caregivers, and community members of industry (e.g., Johnson & Johnson, Shell Oil company and other entities) to ensure the continuity of work around equity and inclusion in K-12 STEM education, attracting more than 750 educators from 22 countries, 46 US states, DC, and Puerto Rico. Smithsonian Science Education Center worked with DC public schools K-8 STEM teachers with a new lifeline called zero barriers in STEM education accessibility and inclusion workbook, providing strategies to integrate inclusive universal design for practices in the K-12 STEM classroom. This effort is allowing persons with disabilities and neuro-diverse individuals to have equal opportunities to broaden their participation in STEM. Supporting distance learning for girls and women in

STEM, the Smithsonian Science Education Center continued its work with Johnson & Johnson and other entities, such as Girl Scouts; Girls, Inc.; and the American Women's History initiative to provide digital STEM resources for today's girls (e.g., Ignite activities in multiple languages that can be done at home with simple materials helping students learn about density and diffusion and the American women history e-book, "Stories of Women in STEM at the Smithsonian").

### **Discussion with NSF Leadership – Director, Dr. Sethuraman Panchanathan; Chief Operating Officer, Dr. Fleming Crim**

CEOSE leadership welcomed and thanked the Director for leadership in broadening participation in STEM. Members shared highlights of the two-day meetings and the forthcoming biennial report and commented on other BP concerns: the importance of changing the culture so data are more widely available to the community at large; more equitable distribution of resources to help ensure that the benefits of science and technology are fully shared across America and among all Americans; the leveraging of technology/digital platforms for increased accessibility and diversity opportunities; and the tendency to overinterpret or misinterpret the laws on the books and hide behind them when it comes to addressing broadening participation, injustices and equity.

Dr. Panchanathan made the following key points during the discussion and exchange of ideas. NSF is strongly supportive of open science; if it is not available, we are not democratizing access to the information. The "center" pillar of the NSF vision is accessibility and inclusivity, ensuring that STEM talent across the social, economic, and geographic spectrum of coordination is fully brought to life. This visionary pillar aligns with the expectations of the new administration. Technology is an equalizer in many ways, such as increased opportunities to engage a more diverse group of reviewers, advisory board members, etc. NSF is capitalizing on this moment to see how technology and the future of work can be defined in a way to help the agency be an exemplar. This is also a moment in time that requires an innovative mindset that challenges everything but still follows the rules and regulations. For example, because of the impact of COVID-19 and feedback from CEOSE last fall, NSF has focused on how to help disproportionately affected individuals and institutions to be able to continue to accelerate their education and research progress and not have progress impeded by the pandemic. He agreed that the Foundation needs to focus on transition points to understand and address points in the pathways where undergraduate and graduate STEM students get left behind. Dr. Crim expressed his support for the careful analysis of critical points in STEM talent development and advancement. He also commented on policy changes made to address the impacts of COVID-19 pandemic on the scientific community.

### **2:00 – 3:30 PM: Discussion: Group Review of the 2019 – 2020 CEOSE Report to Congress and Plans for the 2021 – 2022 CEOSE Report**

Each work group reported to the full committee their review and suggestions for 2019-2020 CEOSE report:

Section I: Move some of the text from Section IV to Section I to provide more context for the main message of the report. Bold the point that BP leads to better science. Connect to past

reports and forecast future reports. Place more emphasis on BP success than BP issues.  
Section II: Indicate the data needed to complete this section. Include more longitudinal analyses.  
Section III: Clarify or define terms like high impact, intellect, and multiplying effects, etc.  
Section IV: Set up why leadership matters and briefly discuss three areas of leadership, namely, leadership within an organization, the development of leaders, and systemic barriers to diversity, equity, inclusion in the context of leadership. Acknowledge that cultural models of leadership differ to show respect for how the cultural aspects of leadership can vary from group to group. Emphasize that leaders make decisions, clear barriers, and enable things to happen. DEI values and actions must be part of responsible leadership and celebrated.

#### **Announcements, Closing Remarks, and Adjournment – CEOSE Chair, Dr. Jose D. Fuentes**

The membership applauded the members who have accepted the invitation for a second term of three years on CEOSE (i.e., Kaye Husbands Fealing, Gilda Barabino, Suzanne Barbour) The Chair announced that four or five new CEOSE members will be joining the committee in June 2021 and thanked the members for their hard work on the various report sections. Dr. Lydia Villa-Komaroff volunteered to develop a virtual or hybrid leadership workshop proposal, and several other members agreed to help (i.e., Drs. Daniela Marghitu, Suzanne Barbour, Nai-Chang Yeh, Vernon Ross, and Jose D. Fuentes). After reminding everyone about the target dates for revising and conducting the internal review of the draft 2019-2020 CEOSE report to ensure submission to the NSF Director no later than August 2021, the meeting was adjourned.