

**CEOSE Advisory Committee
Hybrid Meeting
National Science Foundation (NSF)
February 12 - 13, 2024
Meeting Minutes**

[Day 1: February 12, 2024](#)

Welcome, Introductions, Opening Remarks – Dr. Kaye Husbands Fealing, CEOSE Chair and Dean and Ivan Allen Jr. Chair, Ivan Allen College of Liberal Arts, Georgia Institute of Technology

The Chair, Dr. Kaye Husbands Fealing, opened the meeting and said she was honored to serve as Chair of CEOSE with Dr. Suzanne Barbour, Vice Chair. She welcomed five new members to the committee: President Sean Chandler from Montana, Dr. Peter Hauser and Dr. Okhee Lee from New York, Dr. Rupa Iyer from Texas, and Dr. Manuel Rodrigues Martinez from Puerto Rico. She highlighted the importance of their diverse perspectives to bring greater depth to CEOSE's work.

Discussion: 2023 CEOSE Report on Rural STEM – Dr. Tabbetha Dobbins, Dean, School of Graduate Studies Professor, Department of Physics & Astronomy, Rowan University

The CHIPS and Science Act of 2022 mandated CEOSE to create a report on rural STEM education. Dr. Tabbetha Dobbins led a team to develop the report, which includes a description of Foundation policies, trends in funding portfolios, and new investments in rural STEM education.

Four trend areas were discussed: different types of and new partnering relationships, more focus on remote STEM education, cutting-edge learning opportunities, and career development via multiple pathways. The review of NSF's policies/practices and activities revealed the following:

- genuine commitment to agency policies and practices to be inclusive of rural communities,
- a long-standing history of varied informal and formal K-12 activities for K-12 students and K-12 teachers in rural schools,
- a directorate leading effort to ensure that NSF has a significant rural STEM education portfolio, and

- a need for increased funding to address inequities and disparities among rural communities to continue and replicate successful practices as well as support innovative efforts that transform challenges into promising and innovative opportunities to help rural K-12 students excel in STEM education.

Unanimously, the full Committee accepted the report and approved its submission to NSF for transmittal to Congress.

Presentation: Report of the CEOSE Executive Liaison – Dr. Alicia J. Knoedler, NSF CEOSE Executive Liaison and Office Head NSF/Office of the Director (OD)/Office of Integrative Activities (OIA)

Dr. Alicia J. Knoedler welcomed new members, as well as paid tribute to the recently deceased Former NSF Director Dr. John Slaughter. Updates for NSF staffing changes were:

- NSF appointed Renée V. Ferranti as the new Special Assistant to the NSF Director for Sexual Assault and Harassment Prevention and Response Implementation
- Dr. Diane Elder, the former Division Director for Equity for Excellence in STEM, returned to Northern Arizona University; the Acting Division Director is Dr. Jesse Dearo, and the Acting Deputy Division Director is Dr. Luis Cubano.
- In the near term, NSF hopes to have new leaders in place as Assistant Directors for the CISE, SBE, and MPS directorates.

Programmatic updates focused on an OIA section renamed Research, Capacity, and Competitiveness (RCC) and recent TIP investments via the NSF Regional Innovation Engines Program, the Accelerating Research Translation Program, and the Convergence Accelerator Program. Dr. Knoedler noted three themes emerging from the inaugural GRANTED awardees with convening awards: 1) enhancing practices within the research enterprise, 2) developing and strengthening capital, and 3) translating effective practices into diverse institutional and organizational context through partnerships with professional societies and organizations. During the open discussion, CEOSE members commented on the 2024 budget in the context of the CHIPS legislation regarding funding for TIP, EPSCoR, Postdocs and graduate students, and rural broadband.

Presentation: NSF Response to the 2022 Envisioning the Future of NSF EPSCoR Report Recommendations and the CHIPS and Science Act Requirements – Dr. Sandra Richardson, Section Head, Research Capacity and Competitiveness (RCC) Section (formerly Established Program to Stimulate Competitive Research (EPSCoR) Section) NSF/OD/OIA

Dr. Sandra Richardson provided an overview of the EPSCoR guidance in the CHIPS legislation and an update of NSF’s response to the 2022 Envisioning the Future of the EPSCoR report recommendations. She pointed out that there are 28 EPSCoR states and territories—over half the nation—that receive significantly small portions of NSF’s overall budget. Therefore, EPSCoR is designed to: build research capacity, focus on broadening participation, examine STEM

professional development pathways, and view the whole research system including economic development within the state/territory. EPSCoR eligibility is frozen via CHIPS and Science Act until 2027.

NSF exceeded FY23 budget target of 15.5% to EPSCoR jurisdictions, with FY24's target at 16%. FY29 target is 20%. EPSCoR is increasing support for scholarships, fellowships, traineeships, and postdoc awards, prioritizing infrastructure investments, partnerships, competitiveness, and sustainable innovation ecosystems.

The National Science Foundation (NSF) is responding to the CHIPS and Science Act of 2022 and recommendations in the Future of NSF EPSCoR report by launching new programs. EPSCoR Collaborations for Optimizing Research Ecosystem supports opportunities to develop and grow new jurisdictional networks or leverage existing networks to help promote partnerships with other federal agencies and other entities in the research ecosystem. This opportunity allows jurisdictions to build research capacity based on their identified needs such as workforce development, academic infrastructure, emerging technologies, diversifying the STEM talent in graduated education, etc. The EPSCoR Research Fellows investment track expanded its support opportunities to include early-career and mid-career faculty. EPSCoR RISE or EPSCoR Research Incubators for STEM Excellence Research Infrastructure program supports the incubation of research teams and products in a scientific topical area that links to the research priorities identified in the submitting jurisdiction's approved science and technology plan.

EPSCoR has established an EPSCoR Strategy, Engagement, and Consultation Steering Committee to ensure equitable support for jurisdictions and develop outreach strategies. Dr. Richardson emphasized the connection to other agency-wide initiatives and improving scientific enterprise representation.

During the open discussion period, CEOSE members were interested in the reasoning for the growth strategy metric, potential plans for HSI or MSI ideas lab, hiring of more faculty from underrepresented groups in STEM, priorities around training programs, systematic work in rural underserved communities, diversifying review panels, funding for physical infrastructure projects, how many engineering research centers are located in EPSCoR regions, and how to engage with the Chamber of Commerce driven ecosystem in STEM.

Discussion: Reports of the CEOSE AC Liaisons

The following updates about liaison appointments were shared. Dr. Rupa Iyer will be the CEOSE Liaison to the Environmental Education and Research Advisory Committee. Dr. Susan Renoe agreed to serve as the CEOSE Liaison to the International Science and Education Advisory Committee. Dr. Suzanne Barbour will no longer serve as the CEOSE Liaison to BIO AC; OIA is working with BIO to identify a new member for a joint appointment to the BIO AC and CEOSE.

CEOSE Liaison Dr. Tabbetha Dobbins shared highlights from the MPS AC meeting held November 8-9, 2023. Relevant information included the status of the search committee for the

next Assistant Director, the effective work of the Waterman canvassing committee to ensure that outstanding candidates from a diverse population are included in the set of applicants, the TIP fireside chat that focused on the geography of innovation, and recent activities of Dr. Charles Barber, the Chief Diversity and Inclusion Officer (e.g., tracking of DEI and anti-DEI legislation and engagement with Chief Research Officers of APLU (Association of Public and Land-grant Universities)).

The CEOSE Liaison to the CISE AC, Dr. Timothy Pinkston, reported on his presentation at the CISE AC meeting in December 2023. His presentation focused on CEOSE's 2021-2022 report: *Making Visible the Invisible: Understanding Intersectionality*. [NOTE: Intersectionality is a framework used to analyze how systems of power and oppression impact individual's lived experiences based on their various social identities, diversity of thought, and diversity of field.] CISE discussed the need to establish the CISE BP in Computing Working Group to revisit the strategic plan for broadening participation in computing that was put in place in 2012. The meeting also included an overview of the CISE Minority-Serving Institutions Research Expansion Program.

Dr. James Martin, the CEOSE Liaison to the Engineering Advisory Committee, highlighted four relevant discussions at the ENG AdCom meeting held in November 2023. First, since 1985, 75 Engineering Research Centers have been funded; these centers are place-based with strong industry components that connect across disciplines and connect to the community. Second, the Engineering Plus Alliance is one of the 17 NSF EBJ INCLUDES Alliances; the PI of this alliance emphasized the importance of retention and graduation rates as well as the significant role of committed leadership at institutions of higher education. The third discussion area focused on culture and the Revolutionizing Engineering Departments (RED) program, influencing persistence overall through changes in the culture that included revamping the engineering curriculum and being more student-centric. The fourth area highlighted the importance of community colleges in serving minority populations. Additionally, Dr. Martin pointed out the NSF Director charged the advisory committee to think about how the Engineering Directorate can have more impact outside of the engineering discipline.

Highlights from Dr. Kaye Husbands Fealing, the CEOSE Liaison to the STEM Education Advisory Committee, covered the following: the report of the US Department of Education on digital equity; a presentation on community colleges; a Centers for Research Excellence in Science and Technology (CREST) presentation that emphasized a collaboration with the economic sciences; the CHIPS allowance for an increase from \$10k - \$15k for undergrads and from \$20k - \$25k for graduate students in the Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM) program, partnering activities with the TIP Directorate, a presentation by the National Center for Science and Engineering Statistics (NCSES) about the American Community Survey and the *Diversity in STEM: Women, Minorities, and Persons with Disabilities* report. She also gave a presentation to EDU AC about the 2021-2022 CEOSE report, pointing to the meaning of invisibility:

- Unaware the group exists,
- Undercount of the group that is known to exist, and

- You're in front of me and I don't see you, or you're not in the room, and I don't notice your absence.

In closing, Dr. Pinkston pointed out that what we are trying to accomplish is to make visible the barriers that are causing people not to be seen and/or not to be heard. Another suggestion was to include the links in the chat with the meeting minutes.

Day 2: February 13, 2024

Opening Remarks – Dr. Kaye Husbands Fealing, CEOSE Chair

The Chair opened the meeting and provided an overview of the agenda for Day 2. The Vice Chair provided a recap of Day 1.

Presentation: Bridging Institutions of Higher Education and Underserved Communities – Dr. James Martin, II, Vice Chancellor for STEM Research and Innovation, University of Pittsburgh

Dr. James Martin discussed several historical shifts in STEM education, highlighting the importance of embracing diversity and eliminating artificial scarcity. After identifying challenges confronting higher education (e.g., skills gaps, cost of attendance, closures, and mergers), four innovative programs and projects were highlighted to show how DEI/BP efforts are being re-framed and accelerated. The exemplars reflected innovation in leadership and organizational structure to be intentional in integrating culture, mission, outreach and engagement, governance, and effectiveness in understanding “lifting” vs. “leveling” strategies and to view DEI as dynamic and evolving time and space. CEOSE was challenged to identify a set of BP grand challenges regarding BP ROI, braided career paths, root causes of remedy work, and the diversity-meritocracy paradox. The STEM higher education communities need to stretch their imaginations to go beyond just connections and bridging learning experiences to envisioning “learning as a lifestyle, not an event.” The critical work of IHEs is to make visible America’s stranded brilliance in and from underserved communities.

Advancing Antiracism, Diversity, Equity, and Inclusion in STEM – President Gilda Barabino, Olin College of Engineering; Dr. Emily Vargas, National Academies of Sciences, Engineering, and Medicine (NASEM)

Drs Gilda Barabino and Emily Vargas provided an overview of the consensus study report, Advancing Antiracism, Diversity, Equity, and Inclusion in STEMM Organizations: Beyond Broadening Participation. (Note: The second M is for medicine.) The full report is free at: <https://nap.nationalacademies.org/resource/26803/interactive/>

The presentation discussed the impact of racism on STEMM careers for historically minoritized groups, highlighting the need for sustainable organizational culture change and policies to promote diversity, equity, and inclusion. Key messages included the ongoing legacies of structural racism, the underfunding of MSIs, and the need for continued exploration of the lived experiences of scholars from historically and systemically minoritized groups in STEMM. The

presentation also highlighted the adverse impacts of racism on individuals, the ambivalence of racial bias, and the influence of culture and climate on STEM organizations' performance, persistence, and well-being.

Recommendations that were highlighted included:

- Federal funding agencies should provide increased opportunities for grants and other forms of support to increase understanding of how HBCUs and TCUs support students and faculty.
- Predominantly white institutions should seek sustainable partnerships with MSIs.
- To understand the relative persistence of students in STEM collect and share information on the demographics of students entering college to study STEM and their subsequent educational outcomes.
- Connect minoritized individuals to peers, resources, and networks (e.g., summer bridge programs; learning communities; peer, and near-peer mentorship programs; and formal relationships with national societies).
- Emphasize the importance of communal values in STEM work and actively recognize minoritized individuals' contributions in STEM across multiple mediums, such as portraits, media stories, and awards.
- Create organizational level or unit level information systems to collect data on the decisions of gatekeepers who are defined as any individual who possesses power in a given STEM context or situation, where power includes control over valued outcomes and resources.
- Develop interdependent teams in which everyone is cooperating and working toward an established common goal; ensure that team members feel psychologically safe on the team, and if not, identify the specific factors that are preventing psychological safety and work to address them. Additionally, work to promote equal status among team members and remove asymmetric power differentials among team members.
- Leaders should, as appropriate, implement proactive outreach and recruitment to increase applications from people from minoritized racial and ethnic groups, support training and resources to eliminate bias in the hiring process for managers, and employ updated policies to reduce bias and discrimination in setting wages.

Working Lunch: Topics/Advice to Share with NSF Leadership

CEOSE is interested in how to best help NSF's leadership in furthering internal and external BP efforts, especially in the areas of institutional transformation, innovation, and partnerships. Other suggested items to discuss included the importance of lived experiences, oral histories, and narratives as credible evidence; ensuring an organizational culture that is necessary for individuals to succeed; an update about the rural STEM special report; and partnership efforts with Tribal Colleges that are impactful.

Discussion with NSF Leadership – Dr. Karen Marrongelle, Chief Operating Officer; Director Sethuraman Panchanathan, NSF Office of the Director

NSF leaders were given an overview of the two-day CEOSE meeting with special emphasis on the rural STEM education report and a future report on institutional transformation, partnerships with other Federal agencies and industry, and the importance of collecting and using qualitative data. Director Panchanathan shared highlights of his recent outreach activities and encouraged the use of student videos to capture stories of their educational experiences, research work, and/or career accomplishments. He pointed out that more activism and advocacy will be crucial for scaling BP pilots. He challenged CEOSE members to increase their efforts in messaging. More specifically, each member was asked to take on three states for conducting outreach efforts. Additionally, the challenge from the Director to each CEOSE member was to reach 25 people to inspire and mentor them to be successful.

Panel: NSF Supporting Native Communities, Part 1 – Dr. Jermelina Tupas, Deputy Division Director, Division of Equity for Excellence in STEM, NSF Directorate for STEM Education; Ms. Caroline Blanco, Assistant General Counsel, NSF/Office of General Counsel

Presenters Dr. Jermelina Tupas and Ms. Caroline Blanco shared how many Tribal Nations are not aware of NSF and how its mission is relevant to them. The Tribal Consultation and Engagement Working Group was established in 2021 to create and implement an action plan for the Foundation, responding to two Executive Orders. The plan is designed to ensure that Indigenous voices have a meaningful role in Federal decision-making. Additionally, the Foundation has also organized the NSF Interest Group for Indigenous Communities (NSF-IGIC). NSF-IGIC has monthly meetings and has hosted seminars with invited Indigenous (American Indian, Alaska Native, and Native Hawaiian) speakers, covering topics like research with Tribal Nations, policies that impact Indigenous Communities, and working with Indigenous Communities. This employee organization provides a space for NSF staff to share experiences and knowledge on Indigenous communities and promotes the sharing of resources and expertise among various NSF programs.

The National Science Foundation (NSF) needs to collaborate with 574 federally recognized Tribal nations to protect their interests and resources. An NSF Indigenous Affairs unit is needed to create and implement NSF Tribal Policy, create Tribal 101 training modules, respond to conflicts, and provide guidance on Indigenous data sovereignty. Full-time dedicated employees are needed to develop and implement Tribal-related activities. More Indigenous researchers should be included as reviewers, and program solicitations should acknowledge Indigenous knowledge in oral traditions expressions.

CEOSE member Dr. Cynthia Lindquist commented on the complexity of Native American status and the critical role of history and context of being recognized. She noted that there are tribes that are not federally recognized. The discussion highlighted the perspective that “partnerships come down to relationships.”

Discussion: 2023-24 CEOSE Report to Congress – Dr. Susan Renoe, Associate Vice Chancellor, Division of Research, Innovation and Impact and Assistant Professor, School of Journalism, University of Missouri; Dr. Barbara Walker, Director, Strategic Research Initiatives, Special Assistant to the Executive Vice Chancellor for Diversity Initiatives UC Santa Barbara

The Chair, Dr. Kaye Husbands Fealing, introduced this session with background information on the thematic focus of the trilogy and highlighted how NSF has responded to the recommendations in previous CEOSE reports. The Co-Leads for the 2023-2024 CEOSE report, Drs. Susan Renoe and Barbara Walker discussed the direction for the report with the expectation of the following writing teams drafting three to five pages by the June 2024 CEOSE meeting. Members were reminded that the tone of the report is that BP is not a problem, but a solution and that sections should be organized with provocative, eye-catching statements.

- Making Visible the Invisible: Recognition of Severely Underrepresented Populations in STEM
 - Part I: BP as a Solution and Not a Problem
 - I. Introduction (Kaye and Suzanne)
 - II. Catalysis of Creativity, Productivity, and Innovation by Broadened Participation (Suzanne with Rupa, Gilda, and David)
 - Part II: STEM Accessibility
 - III. Persons with Disabilities (Susan, Peter, and Okhee)
 - IV. Neurodiversity (Susan, Peter, and Okhee)
 - Part III: STEM Inclusivity
 - V. Underserved Communities: Rural and Urban America (Tabbetha and James with John and Manuel)
 - VI. Women in Skilled Technical Workforce and Entrepreneurism (Ann and Rupa)
 - VII. Native Americans (Cynthia and Sean)
 - Part IV: BP Accountability
 - VIII. Measurement/Data (Vernon and Kaye)
 - IX. Recommendations and Future CEOSE Plans (Barbara and Timothy)

Announcements, Closing Remarks, Adjournment – Dr. Kaye Husbands Fealing, CEOSE Chair

The Chair applauded the members for a highly productive meeting, reminded CEOSE Liaisons to attend their upcoming advisory committee meetings, and announced that the next CEOSE meeting is scheduled for June 26-27, 2024. The meeting was adjourned by the Chair.

Attachment: Resources Mentioned in the Chat

Day 1

HRSA of DHHS has rural definitions. Also, USDA

Comments and recommended links during the EPSCoR Presentation:

<https://new.nsf.gov/chips>

<https://new.nsf.gov/funding/opportunities/epscor-collaborations-optimizing-research>

HBCU-ARC: <https://new.nsf.gov/funding/opportunities/advancing-research-capacity-hbcus-through>

<https://new.nsf.gov/about/about-nsf-by-the-numbers>

NSF by the Numbers is a great tool to play around with NSF administrative data. The Numbers by State allow you to drill down quite a ways into proposals and awards.

<https://www.census.gov/library/visualizations/2023/comm/percent-change-state-population.html>

<https://nsf.gov/resources.nsf.gov/2022-06/EPSCoR%20Eligibility%20Table%20Fiscal%20Year%202023.pdf>

The R1 schools dominate funding.

We do not track sub-awards like we do prime awards.

As far as non-R1 institutions take the lead, we know that some of their barriers are the infrastructure available to organize and submit proposals and then manage subsequent awards. This is why GRANTED was established - to build that infrastructure.

Recommended links from the CEOSE Liaison Reports session:

NSF EPIIC: <https://new.nsf.gov/funding/opportunities/enabling-partnerships-increase-innovation-capacity>

NSF should consider having Core Programs (like CISE) in all directorates, with Notices of Interest (like NIH) on the topics that emerge as priorities and promote core grant renewals to provide an easier and more stable path to sustain researchers in the long run.

https://www.nsf.gov/od/searches/mps-240119/nsf_ad_mps_search_letter.jsp

<https://ccrc.tc.columbia.edu/publications/how-important-community-colleges-promoting-stem.html>

<https://new.nsf.gov/funding/opportunities/centers-research-excellence-science-technology-3>

<https://nces.nsf.gov/pubs/nsf23315/report>

Day 2

The INCLUDES alliances at a 2022 convening that centered on the braided river: <https://docs.google.com/presentation/d/1O51Z7U5okV07IGV96Em-t2c92UV6ROzN/edit?usp=sharing&ouid=111241992006749355070&rtpof=true&sd=true>

Experts Regarding Indigenous Groups-

Daryl Baldwin from Miami University to talk with NSF about their center's relationship with the Miami Tribe of Oklahoma

Greg Cajete has several books on science, research, and education.

Paul Boyer-Native Science Report (online)