NSB-2024-33
December 4, 2024

APPROVED MINUTES
OPEN PLENARY SESSION
490th MEETING
NATIONAL SCIENCE BOARD

National Science Foundation (NSF)
Videoconference
July 24 -25, 2024

Key Points

July 24, 2024, 8:45 am – 3:00 pm, EDT

Chair's Remarks

- NSB Chair Dario Gil delivered his inaugural address outlining his perspectives on how the science and engineering landscape has changed over the last 75 years and highlighted opportunities to embrace and respond to the changes to secure U.S. science and technology (S&T) leadership and to deliver the benefits of S&T progress to all Americans. https://www.nsf.gov/nsb/publications/2024/NSB_Connected_Horizons.pdf

Director's Remarks

- **Updates from the Hill –** The House Appropriations Committee allocated $9.26 Billion to NSF for FY 2025, a 2% increase over 2024 levels. The Senate Appropriations Committee bill is expected shortly.
- **Highlights of NSF thematic priorities -** Anchoring his presentation to NSF's three strategic objectives / pillars the Director highlighted several programs and investments, multi-sectoral partnerships, awards, and impacts to exemplify progress toward each objective.
- **Engagements -** The Director described a few of his many national and international engagements since the May 2024 NSB meeting aimed at establishing partnerships and strengthening collaboration in areas including investments in AI and critical and emerging technologies.
- **Senior Staff Introductions**
    - Micah Cheatham, Chief Management Officer
    - Mr. Francisco Ruben, Agency Ethics Official and Senior Assistant General Counsel
    - Victor Powers, Division Director, Division of Administrative Services in the Office of Information and Resource Management
    - Felecia Nave, Division Director in the Division of Equity for Excellence in the Directorate for STEM Education
    - Kathryn Jablokow, Deputy Division Director, Division of Research, Innovation, Synergies, and Education in the Directorate for Geosciences
    - John-David Swanson Section Head for Innovation Programs within the Division of Innovation and Technology, in the Directorate for Technology, Innovation and Partnerships.

***Changed S&E Landscape, Seizing the Opportunities,* NSB External Panel –**

- Gil introduced the panel of experts from across government, philanthropy, and academia and asked them to share their perspectives on **how the science and engineering landscape has changed over the last decade, the areas that require collective action and partnerships, and ideas on how to make those partnerships effective.**
- **Panelists**
    - Tarun Chhabra, Special Assistant to the President and Senior Director for Technology and National Security, National Security Council
    - L. Rafael Reif, President Emeritus, Ray and Maria Stata Professor of Electrical Engineering and Computer Science, Massachusetts Institute of Technology
    - David Spergel, President, Simons Foundation
- **Key highlights of the presentations and discussion with Members** included a range of recommendations from building a broad coalition across sectors to coalesce around a clear message that the U.S. needs a national industrial strategy, incentivizing and derisking private investments in the domestic manufacturing of critical emerging technologies, encouraging communication across sectors, complimentarily funding across sectors, and implementing better approaches for working with China including a more balanced view of the risks and benefits of working together.
- Reif offered that a current-day crisis is that the U.S. is losing S&T competitive ground to China of which the public may be unaware, a problem of access, opportunity, and lack of resources for higher education, and are inadequately preparing our human capital for the future. A National Defense and Education Act (NDEA) 2.0 could address this.

NSF U.S. Antarctic Program – Vision and Strategy

NSF Director, Alex Isern, Assistant Director for Geosciences, and Jean Cottam Allen, Acting Director of the Office of Polar Programs (OPP) briefed members on NSF's vision and strategy for the U.S. Antarctic Program (USAP) **to reaffirm the importance of the Foundation's role and strategic goals and provide insights into how the strategic goals and plans are developed and implemented.**

Why is the NSF in the Antarctic?

- The Director outlined the authorities mandating NSF's presence in the Antarctic beginning in about 1959. NSF's role is to support scientific activities in major disciplines and manage the USAP on behalf of the U.S. government. USAP has a national mission that involves multiple U.S. federal agencies, with the NSF serving as the steward of that mission.
- **The Antarctic Treaty was signed in 1959** under which 12 countries established 60 Antarctic research stations. There are currently 57 member nations with 29 consultative parties conducting substantial scientific research activity in Antarctica. Since the Treaty was signed, a **series of directives and presidential memoranda** that transitioned USAP from a primarily military to civilian operation requiring year-round operation of stations at McMurdo, the South Pole and Palmer and reaffirming NSF's role in the Antarctic. **The most recent memorandum signed by the President in May 2024, describes and reaffirms long-held policies and positions of the U.S. government as it relates to the Antarctic.**
- Key relationships are managed under two main instruments: a Memorandum of Agreement with the Department of Defense and the USAP support contract.

Discussion following presentations

- Members raised c**oncerns about the pace of funding and growing costs of maintenance and operation** in the USAP and other programs. The Director offered that a multi-agency and multi-sector strategy is needed as NSF begins to prepare for the next decadal. NSF must continue asking whether the science being done in the Antarctic must be done there.
- NSF provided examples of the impacts of scientific research conducted by USAP. NSB **encouraged NSF to communicate highlights of the impacts and benefits** when engaging externally.

How NSF develops its long-term strategic vision for the USAP

Isern briefed the Board on how NSF develops its USAP long-term strategic vision.

- The visioning process occurs **every 10 to 15 years**.
- The **current strategic priorities stem from international collaboration** through the Scientific Committee on Antarctic Research (SCAR) Horizon Scan and the International Polar Year (IPY) in which U.S. researchers have participated and are expected to take a leading role in the upcoming IPY scheduled for 2033. Planning is already in progress.
- The **domestic research agenda** was then developed using **three foundational studies.**
    1) **The National Academies' 2011 study** outlined key research areas for Antarctic and Southern Ocean investments over the next 20 years, focusing on global change and discovery. These priorities have directed NSF's funding since the report's release.
    2) **The NSF's 2012 Blue Ribbon Panel report**, influenced by the National Academies report, aimed to guide NSF in improving logistical support for USAP over the next 20 years.
    3) NSF's **Office of Polar Programs** commissioned a **follow-on Academies report** completed in 2015 to assemble a more resource-realistic decadal vision for NSF's Antarctica and Southern Ocean Research.

Isern provided examples of significant progress in implementing the recommendations and noted that the next plan will get underway soon.

Implementing the Strategic Vision

Allen briefed Members on how NSF fulfills its role to meet its strategic vision through scientific research, operations, and the community. Key points of NSF's implementation strategy and planning include:

- Since the 1950s, the scope of **USAP** has been significantly **larger than any other national Antarctic program**, in population and square footage under roof necessary to support the year-round active and influential presence and science programs. The U.S. population is nearly 30 percent of the total on-ice presence.
- The Capital Investment Review Board establishes priorities for NSF's major investments. NSF supports the science in Antarctica from end-to-end and balances funding and investments across disciplines, small and large-scale projects, and rapid and long-term research. NSF seeks to align infrastructure with scientific goals.
- The science is **supported by three USAP stations** across Antarctica which Allen described including size, capacity for population, fuel and energy needs, and types of projects and scientific disciplines at each.
- Other important assets - USAP is the **only national program with access to the ski-equipped LC-130 planes** which are unmatched in terms of range and cargo capacity. USAP also has the Nathaniel B. Palmer **Research Vessel** and the **next-generation Antarctic Research Vessel** with more capacity is underway.

Discussion following presentations

- Concerns were raised about funding not keeping up with maintenance and operation costs. The Director suggested a multi-agency strategy as NSF prepares for the next decadal. The Foundation should consider if the Antarctic is the necessary location for the science being conducted.
- In 2019, wind turbines between the New Zealand base and McMurdo Station partially failed, reducing power capacity. NSF plans to replace them with larger machines for greater output and energy storage.
- NSF shared examples of the impacts of USAP scientific research and NSB urged NSF to highlight these benefits in external communications.

NSF Update, Sexual Assault & Harassment Prevention Response (SAHPR)

Renée Ferranti, Special Assistant to the Director for SAHPR and Implementation briefed Board Members on key activities since the last in-person briefing in February 2024 and written update in May 2024 and on planning for the coming year.

- NSF is focused on **setting up the SAHPR program office** and **fostering understanding** of the program within the organization, all **while prioritizing individual care**. Their efforts will be rooted in a victim and survivor-centered, trauma-informed, comprehensive, and sustainable framework.
- NSF is starting to implement a program **across the enterprise** to support individuals affected by sexual harassment or assault in all NSF-funded activities.
- **Challenges** in other **international settings** include NSF's inability to require reports of sexual harassment or assault in facilities it does not own or manage. The goal is to establish networks with like-minded partners and spread information about available resources for victims, emphasizing that sexual harassment and assault are not tolerated in connection with NSF-funded research.

Key activities since February 2024 and currently underway

- Continued engagement, coordination, and case tracking and management with Leidos leaders and staff and across NSF directorates.
- Established an NSF SAHPR program office and is recruiting four staff - a victim advocate, a program manager, a tech policy writer, and a data analyst.
- Developed procedures for handling cases reported cases to Leidos and using the Safer Science email.
- **Currently analyzing responses to NSF's first USAP climate survey. Planning to brief Members in February 2025.**
- Expanding the 24/7 Antarctic helpline to an enterprise-wide system.

Key activities planned for by about September 2025

- Develop and execute role-specific trauma-informed training to help prepare managers, supervisors, and program officers to respond to a traumatic disclosure.
- Build a strong Title IX coordinator network to ensure effective coordination when an incident is reported to NSF.
- Explore establishing a volunteer or collateral duty victim advocate program.
- Prepare to launch the second USAP climate survey by May 2026 and explore survey options for other directorates.

Committee Reports

Committee on External Engagement (EE)

- NSB members and committee chairs Dorota Brzezinska (EE), Julia Phillips (Committee on National Science and Engineering Policy), and Marvi Rodriguez (Committee on Strategy) will serve as liaisons among the three committees. Their goal is to enhance communication and collaboration, ultimately strengthening alignment with the NSB mission.
- Brzezinska noted that the upcoming EE retreat would focus on ideas for engaging with Congress, celebrating the 75th anniversary of the NSF, coordinating efforts across committees and with the NSF, and exploring responses to the changing science and technology landscape across different sectors.

Committee on National Science and Engineering Policy (SEP)

Chair Julia Phillips outlined SEP goals for the Indicators 2026 cycle.

- To be able to provide expanded policy advice for the U.S. Science and Engineering enterprise;
- To maximize impact to inform policy and policymakers; and
- Continue to work closely with the National Center for Science and Engineering Statistics as the data experts.

She provided a brief summary of the **significant changes** made to the Indicators report since she joined the Board. The aim of these changes was to reduce the volume of materials while still delivering the same data. This approach has allowed for more in-depth policy work and increased accessibility for stakeholders.

- **The 2026 Indicators cycle** will include four reports all delivered over the next two years that align with the availability of data and a data dashboard. They include the State of U.S. Science and Engineering report (slated for release in March 2026), Talent (slated for release in 2025), Discovery, and Translation or Impact.
- **The data dashboard** will provide detailed trends and enable more frequent access to data than every two years. It aims to help SEP create focused thematic reports while maintaining the comprehensive information that makes Indicators the Gold Standard for U.S. S&E enterprise data.
- **Special Topic reports** – With some additional bandwidth on the part of NCSES, the board, and board office staff will develop special topics reports and pieces throughout the next two years. The goal of these will be to complement the evergreen topics, talent discovery, and translation with short, focused reports on science and engineering topics of high importance today (e.g. AI).

Over the next two years, the committee will focus on providing policy advice and advancing the U.S. S&E enterprise. This includes tracking U.S. leadership in critical technologies and STEM talent, with an emphasis on pre-K through 12 STEM education, community colleges, and the skilled technical workforce. The goal is to identify recommendations that maximize investment impacts through strategic coordination and partnerships, building on successful initiatives.

Committee on Awards and Facilities (A&F)

Chair Keivan Stassun outlined the four committee priorities.

1) Partnership with NSF – sustained cooperation and collaboration
2) Long-term planning for research infrastructure and major facilities
3) Extremely Large Telescopes

4) Antarctic infrastructure and logistics

On July 23, NSF's Director of the Division of Acquisition and Cooperative Support Patrick Breen updated Committee Members on the status of the Antarctic Support Contract.

- The draft Request for Proposal (RFP) will be released on July 26, 2024, with a 30-day public comment period during which A&F will provide feedback. The final RFP will be released in fiscal year 2025.
- NSF anticipates multiple parties will be interested in competing for the contract. The decision to use an indefinite delivery, indefinite quantity (IDIQ) contract is based on lessons learned from the current contract. Selection criteria will include past performance and relevant prior experience.
- The contract ceiling was informed by NSF's strategic goals and is sufficient to support the USAP mission.

NSB-NSF Commission on Merit Review (MRX)

Commission Chair Wanda Ward provided an overview of the work accomplished since May 2024 and an outline of planned work.

- **Commission Meetings** - On June 14, MRX met with the Committee on Equal Opportunities in Science and Engineering (CEOSE) for a discussion on broader impacts, accessibility, and bias in the review process and institutional representation; On July 23, MRX met with NSF's Executive Leadership Team (ELT) to discuss preliminary policy recommendations including portfolio balancing, high-risk and high-reward proposals, broadening participation, and engagement with NSF stakeholders. MRX plans to meet with the ELT again before finalizing its report.
- **COV Analysis** – NSB Staff Office reviewed and analyzed a sample of Committee of Visitors (COV) reports produced between 2012 and 2023 (25% of COV reports across all divisions). Some conclusions will be incorporated into the MRX report.
- **Surveys and data collection -**
    - MRX completed collecting data from two internal groups - NSF staff and NSF/NSB leadership.
    - MRX is preparing to launch two external data collections via a Request for Information to the public and focus group sessions aimed at COVs and Vice Presidents for Research.
- **Report writing** - The Commission anticipates presenting its report to the full Board at the February 2025 meeting. Ward outlined the reporting writing and review process by Commission members before the February NSB meeting.

Follow-up Items for NSB

N/A

Motions / Votes

Members approved 2025 NSB Meeting dates:

- February 11-12 NSB Meeting
- May 14-15 NSB Meeting
- July 23-24 NSB Meeting
- September 16-17 NSB Retreat

- November 12-13 NSB Meeting

Attendance on July 24-25, 2024

Members Present	Members Present	Members Absent
Dario Gil, *NSB Chair*	Matthew Malkan	Aaron Dominguez
Victor McCrary, *NSB Vice Chair*	Julia Phillips	Dan Reed
Sudarsanam Babu	Marvi Ann Matos Rodriguez	Merlin Theodore
Deborah Ball	Scott Stanely	
Roger Beachy	Keivan Stassun	
Vicki Chandler	Wanda Ward	
Maureen Condic	Bevlee Watford	
Suresh Garimella	Stephen Willard	
Dorota Grejner-Brzezinska	Heather Wilson	
Melvyn Huff	Sethuraman Panchanathan, ex officio	
Steven Leath		

There being a quorum, the National Science Board convened in an Open Plenary Session at 8:45 a.m. EDT on Wednesday, July 24, 2024, in person and via videoconference with NSB Chair Darío Gil, presiding. The open session was adjourned at 3:00 p.m. EDT.

Approval status of previous meeting minutes

May 1-2, 2024, 2024, Open Plenary Session Approved: _X_Yes __No

Notes (optional)

N/A

12/8/2024

X Andrea I. Rambow

Andrea I. Rambow

Signed by: ANDREA I RAMBOW

Andrea Rambow
Executive Secretary to the National Science Board