

MEMORANDUM TO MEMBERS AND CONSULTANTS OF THE NATIONAL SCIENCE BOARD

SUBJECT: Summary Report of the February 23-24, 2009 Meeting

The major actions and approvals of the National Science Board (Board, NSB) and a preliminary summary of the proceedings at the Board's February 2009 meeting are provided. This memorandum is also made available for public review. The minutes of the Plenary Open Session for the February 2009 meeting will be posted on the Board's public Web site (<http://www.nsf.gov/nsb/>) following Board approval at the May 2009 meeting.

1. Major Actions of the Board (not in priority order):

- a. The Board approved the minutes of the Plenary Open Session (NSB-08-123) for the December 2008 meeting (<http://www.nsf.gov/nsb/meetings/2008/1209/minutes.pdf>). Minutes for the Plenary Executive Closed and Closed Sessions for December 2008 meeting of the Board were also approved.
- b. On behalf of the Board, the Executive Committee approved a resolution to close portions of the upcoming May 13-14, 2009 Board meeting dealing with staff appointments; future budgets; grants and contracts; specific Office of the Inspector General investigations and enforcement actions; and National Science Foundation (NSF) participation in a civil or administrative action, proceeding, or arbitration (<http://www.nsf.gov/nsb/meetings/2009/0513/closed.pdf>).
- c. The Board authorized the NSF Director, at his discretion, to make an award to Boston University for the Renewal of the Science of Learning Center (SLC), Center of Excellence for Learning in Education, Science, and Technology (CELEST).
- d. The Board authorized the NSF Director, at his discretion, to make an award to the University of Washington for the Renewal of SLC: Learning in Informal and Formal Environments (LIFE) Center.
- e. The Board authorized the NSF Director, at his discretion, to make an award to Carnegie-Mellon University for the Renewal of SLC: Pittsburgh Science of Learning Center (PSLC).
- f. The Board approved the FY 2010 budget requests to the Office of Management and Budget for NSF, which includes the Board, as well as the Office of the Inspector General.
- g. The Board approved the recipient for the 2009 Alan T. Waterman Award, and the Chairman announced the awardee: Dr. David Charbonneau, Associate Professor of Astronomy, Harvard University, Harvard-Smithsonian Center for Astrophysics.

- h. The Board Chairman announced the recipients of the 2009 Vannevar Bush Award and the 2009 NSB Public Service Awards. Vannevar Bush Award: Dr. Mildred Dresselhaus, Institute Professor and Professor of Physics and Electrical Engineering, Massachusetts of Technology. Public Service Award - Individual: Dr. Roald Hoffmann, Frank H. T. Rhodes Professor Emeritus of Humane Letters and Professor of Chemistry, Cornell University. Public Service Award - Group: Project SEED (Summer Experiences for the Economically Disadvantaged) of the American Chemical Society. These honorary awards were approved by the Board at the December 2008 meeting.
- i. The Board approved the final report, *Investing in the Future: NSF Cost Sharing Policies for a Robust Federal Research Enterprise* (public comment draft [NSB-09-2](#), and final report [NSB-09-20](#)) for public release subject to minor edits approved by the Chairman of the Board, the CSB chairman, and the Task Force on Cost Sharing chairman.
- j. The Board approved the draft report, *Building a Sustainable Energy Future* (draft for public comment [NSB/CPP/SE-09-1](#)) to be released for public review and comment, subject to additional edits from Board Members and approval by the Chairman of the Board, the CPP chairman, and the Task Force on Sustainable Energy co-chairmen.
- k. The Board approved a charge for the new Committee on Strategy and Budget, Subcommittee on Facilities (SCF) ([NSB-09-29](#)) with Dr. José-Marie Griffiths, chairman, and members Drs. Mark Abbott, Barry Barish, and Esin Gulari.
- l. The Board Chairman established the *ad hoc* Committee on Nominating for NSB Elections (Elections Committee) with Dr. Jon Strauss, chairman, and members Drs. Douglas Randall and Thomas Taylor.

2. Board Chairman's Report

Dr. Steven Beering, Chairman, welcomed Dr. Cora Marrett, NSF Acting Deputy Director. He announced that Dr. Jane Lubchenco, former Board Member, was nominated to head the National Oceanic and Atmospheric Administration (NOAA). Dr. Lubchenco and Dr. John Holdren, President Obama's nominee to head the Office of Science and Technology Policy (OSTP), had their confirmation hearings on February 12, 2009.

Dr. Beering presented a draft of the Board's new Communication Plan, which outlines communications strategies to highlight the Board's role as a policy advisory body. The objective is to establish an effective communications plan to increase awareness about the Board, its roles and responsibilities, as well as studies and reports on a broad range of significant science and engineering, research and education policy topics.

The Chairman announced the Board approved the 2009 Alan T. Waterman Award recipient. He also announced the recipients of the 2009 Vannevar Bush and NSB Public Service Awards, which were approved at the December 2008 meeting. (See 1.g. – 1.h.) The awards will be presented at the Board's annual awards dinner on Wednesday, May 13, 2009 at the Department of State's Diplomatic Reception Rooms.

The *ad hoc* Committee on Nominating for NSB Elections, otherwise known as the Elections Committee, was established (See 1.1.) In May 2009, there will be two vacancies (for 2-year terms) on the Executive Committee as the terms for Drs. Mark Abbott and Kathryn Sullivan end.

Dr. G.P. “Bud” Peterson would soon be named President of Georgia Institute of Technology, and replace Dr. G. Wayne Clough who is the new Secretary of the Smithsonian Institution. Dr. Peterson currently serves as Chancellor of the University of Colorado at Boulder.

Dr. Beering welcomed Ms. Betty Wong, who joined the Board Office in February 2009 as a Program Analyst. He also announced the departure of Mr. Brandon Powell, a Program Assistant in the Board Office, who was accepted into the Federal Air Marshals Program.

3. NSF Director’s Report

Dr. Arden Bement, NSF Director, introduced the following new NSF staff:

- ◆ Dr. Harold Clarke, Division Director, Social and Economic Sciences (SES), Directorate for Social, Behavioral, and Economic Sciences (SBE) (as of December 9, 2008).
- ◆ Dr. Thomas Peterson, Assistant Director, Directorate for Engineering (ENG) (as of January 12, 2009).

For the congressional update, Dr. Bement reported that President Obama signed the American Recovery and Reinvestment Act (ARRA) on February 17, 2009 at the Denver Museum of Science and Nature – a long-time recipient of NSF funding. The Act provides \$3 billion to NSF and is in recognition of the enormous role that NSF plays in job creation and innovation.

For FY 2009 appropriations, Congress was expected to take up the remaining FY 2009 appropriations bills in an Omnibus bill before the Continuing Resolution expires on March 6, 2009. On February 23, 2009, the House Appropriations Committee introduced a \$410 billion Omnibus bill. Under the bill, NSF would be funded at \$6.5 billion, which is \$363 million above 2008.

Dr. Bement also reported on the following hearing and legislation. On February 26, 2009, Dr. Joan Ferini-Mundy, Division Director, Education and Human Resources’ (EHR’s) Research on Learning in Formal and Informal Settings, would testify before the House Science Committee’s Subcommittee on Research and Science Education. On February 11, 2009, the House of Representatives passed H.R. 554, the National Nanotechnology Initiative Amendments Act of 2009.

4. Board Committee Reports

(Note: The Task Force on the NSB 60th Anniversary did not meet in February 2009.)

a. Executive Committee (EC)

Dr. Bement, EC chairman, provided an update on the status of the recruitment of Assistant Directors for SBE and the Directorate for Biological Sciences (BIO). He reported that he discussed the Committee on Equal Opportunities in Science and Engineering’s (CEOSE’s) interest in having the Board address the structure of the Broader Impacts criterion. Additionally, he presented, and the committee discussed, a proposed plan on NSB priority setting, which EC will present to the full Board for approval at the May 2009 meeting.

b. Committee on Audit and Oversight (A&O)

In A&O Open Session, Dr. Dan Arvizu, A&O chairman, noted that the search for NSF's next Inspector General was proceeding smoothly. He also provided an update on activities related to research ethics and accountability and international partnerships. Mr. Thomas Cooley, NSF Chief Financial Officer (CFO) and Mr. Thomas (Tim) Cross, Interim Inspector General (IG), reported on the challenges, faced by both NSF and the grantee community, of implementing the ARRA, which provides over \$3 billion to NSF with accountability and transparency. Mr. Cross briefed the committee about efforts to launch the new IG Council, a product of the new IG Reform Act. Mr. Cooley discussed the FY 2008 and FY 2009 financial statement audits, plans for a new financial system, and a recent review of controls related to international funding actions.

Dr. Kelvin Droegemeier discussed options for revising NSB Award Delegation Thresholds for NSF. Ms. Emily Woodruff, Office of the Inspector General (OIG), presented information about the FY 2009 Audit Plan. Dr. Bement noted that NSF has met with OIG and discussed how best to address audit activities, including plans for audits that NSF will be arranging and paying for directly, in addition to the work that the OIG undertakes.

In A&O Closed Session, the OIG presented the FY 2010 budget request, and A&O approved recommending it to the full Board. [*The full Board subsequently approved the OIG budget submission.*] (See 1.f.) The committee also discussed personnel matters.

c. Committee on Education and Human Resources (CEH)

Dr. Camilla Benbow provided an update on the planning of the Expert Panel Discussion on Preparing the Next Generation of STEM Innovators. Dr. Benbow informed CEH that the task group reached general consensus on the agenda topics, the meeting structure, and a pool of contributing participants. The expert panel discussion is slated for August 2009.

The committee then heard a presentation from Dr. Betty Tuller, Program Director, Division of Behavioral and Cognitive Sciences (BCS), SBE; and Dr. Gregg Solomon, Program Director, Division of Research on Learning in Formal and Informal Settings (DRL), EHR. They spoke on NSF's activities, challenges, and opportunities regarding basic social and behavioral research and how it is relevant to teaching and learning. The presenters gave a broad overview of work on topics of cognitive science and their relevance to an applied science of learning from both the SBE and the EHR perspectives. The committee discussed specific facets of the presentations, particularly work in intelligent tutors and the relevance of social psychological research to teaching and learning.

Dr. Bruer, CEH chairman, asked members to provide recommended topics that the committee should consider.

d. Committee on Science and Engineering Indicators (SEI)

Board Members considered two possible covers for *Science and Engineering Indicators (Indicators)* 2010 and selected one depicting a visualization system used to develop, test, and validate theoretical models of turbulence. Dr. Lanzerotti, SEI chairman, asked Board Members to review the list of volunteer reviewers of *Indicators* chapters and notify the SEI executive secretary of any changes. The committee reviewed and discussed prototypes for the printed and electronic versions of the *Indicators* Digest.

The committee discussed possible topics for the Board's companion policy statement to accompany *Indicators 2010*. It was agreed that further reflection was warranted, both about the proposal for a focus on priority-setting in Federal science and engineering (S&E) investment and about other possible topics. Dr. Lanzerotti requested that Board Members contact him with their ideas by March 23, 2009.

The meeting closed with a brief presentation by Dr. Lynda Carlson, Director, Division of Science Resources Statistics (SRS), about new data on research and development in industry and higher education as well as the S&E workforce that were expected to be available for the 2012 edition of *Indicators*.

e. Committee on Programs and Plans (CPP)

In CPP Open Session, Dr. Joann Roskoski, BIO Executive Officer, presented an information item on iPlant, the Plant Science Cyberinfrastructure Collaborative, one of BIO's three synthesis centers. It focuses on using extant data to provide a means to extract new knowledge in the plant sciences field. iPlant is starting its second year, and is now in the process of selecting grand challenge projects.

Dr. Tony Chan, Assistant Director, Directorate for Mathematical and Physical Sciences (MPS), presented an update on the Planning for Coherent Light Source Development. An NSF Advisory Panel was charged with providing guidance to MPS, and recommended in its November 2008 report that NSF should take an active role in the stewardship of fourth generation light sources. NSF expects to bring an action before the Board at the August 2009 meeting.

Dr. Edward Seidel, Director, Office of Cyberinfrastructure (OCI), gave an update on Track 2D (High Performance Computing System Acquisition: Towards a Petascale Computing Environment for Science and Engineering). Track 2D awards will be cooperative agreements between NSF and the awardees and are designed to broaden the range of high performance computing resources provided to the community. OCI is currently conducting site visits and reviews for the proposals received in November 2008. NSF expects to present recommendations for four awards before the Board in May 2009.

Dr. Mark Abbott continued the discussion of the committee's progress in revising the Major Research Equipment and Facilities Construction (MREFC) process, including the establishment of a Committee on Strategy and Budget Subcommittee on Facilities. Mr. Cooley discussed the timeline and plans for implementation.

In CPP Closed Session, the committee approved three action items for the Renewals of Science of Learning Centers (SLCs), which were forwarded to the full Board for approval:

- ♦ Center of Excellence for Learning in Education, Science, and Technology (CELEST) at Boston University;
- ♦ Learning in Informal and Formal Environments (LIFE) Center at the University of Washington; and
- ♦ Pittsburgh Science of Learning Center (PSLC) at Carnegie-Mellon University.

[The full Board subsequently approved the three award resolutions.] (See 1.c. – 1.e.)

CPP Subcommittee on Polar Issues (SOPI)

Dr. Karl Erb, Director, Office of Polar Programs (OPP), noted that despite rising fuel prices and fewer airplanes, several significant research goals were met or exceeded in the Antarctic season that just ended. He gave special recognition to the Wisconsin Consortium for its efficiency and to the 109th Airlift Wing of the New York Air National Guard for these contributions to OPP's goals. He also noted that Canada recently passed an economic recovery act that includes \$86 million for renovating Arctic facilities, as well as substantial funding to design a major Arctic research station. A celebration of the 50th anniversary of the Antarctic Treaty signing will take place at its meeting in April, and Secretary of State Hillary Clinton will open the meeting.

Dr. Erb also presented a synopsis of the Arctic Region Policy National/Homeland Security Presidential Directive that was signed by President Bush in mid-January 2009. This supersedes the comparable directive signed in 1994 for Arctic Policy, and does not change current US policy in the Antarctic. Dr. Erb highlighted the reasons for the review, noting homeland security and climate change issues, and focused on those aspects of the policy in which NSF has a significant stake.

Finally, Ms. Renee Crain, OPP Research Support and Logistics Manager, and Ms. Valentine Kass, EHR Program Director, provided an overview of International Polar Year (IPY)-related education activities.

CPP Task Force on Sustainable Energy (SE)

Task force co-chairmen, Drs. Dan Arvizu and Jon Strauss, summarized recent revisions to the draft report, *Building a Sustainable Energy Future* based on comments from Board Members and NSF staff. Dr. Arvizu reviewed the draft report's major findings, recommendations to the U.S. Government, and guidance to NSF. The task force discussed the importance of implementing an outreach strategy to U.S. Government stakeholders before the draft report is released for public comment. CPP approved release of the draft report for public comment (NSB/CPP/SE-09-1), subject to additional edits submitted by Board Members and subject to final approval by the task force co-chairmen, CPP chairman, and Board Chairman. *[The full Board subsequently approved this draft report for public comment, subject to the approvals stated above.]* (See 1.j.)

f. Committee on Strategy and Budget (CSB)

In CSB Open Session, the committee recommended that the Board establish a new CSB Subcommittee on Facilities (SCF) and suggested a charge (NSB-09-29) for the Board Chairman's consideration for vote and approval. *[The full Board subsequently approved the SCF charge.]* (See 1.k.)

The committee reviewed the NSF investment priorities in the *NSF Strategic Plan, FY 2006-2011* in anticipation of updating the plan as required by the Government Performance and Results Act (GPRA). Discussion on this topic will continue at the May 2009 meeting.

NSF's approach for allocating, monitoring, and reporting on ARRA funding was presented and discussed. Plans for obligating the ARRA funds in a timely, transparent, and accountable manner are being developed by NSF. A status update of the FY 2009 appropriation process was provided.

In CSB Closed Session, the Committee discussed the FY 2010 budget request for NSF, including the Board, and recommended bringing it to the Board for approval to submit to the Office of Management and Budget. *[The full Board subsequently approved the NSF budget submission.]* (See 1.f.)

CSB Task Force on Cost Sharing (CS)

CSB reviewed the report on cost sharing, “*Investing in the Future: NSF Cost Sharing Policies for a Robust Federal Research Enterprise*” (NSB-09-20), and recommended that the report be brought to the full Board for approval for publication, subject to final edits to be approved by the task force chairman, CSB chairman, and the Board Chairman. The NSF implementation of the report recommendations and strategies for community engagement were also discussed. *[The full Board subsequently approved this report, subject to the approvals stated above.]* (See 1.i.)

[signed]
Craig R. Robinson
Acting Executive Officer