

MEMORANDUM TO MEMBERS OF THE NATIONAL SCIENCE BOARD

SUBJECT: Summary Report of the May 14-15, 2007 Meeting

The major actions of the National Science Board (Board) at its 398th meeting on May 14-15, 2007 and a preliminary summary of the proceedings are provided. This memorandum will be publicly available for any interested parties to review. A more comprehensive set of Board meeting minutes will be posted on the Board's public Web site (<http://www.nsf.gov/nsb/>) following Board approval at the August 2007 meeting.

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

- a. The Board approved the minutes of the Plenary Open Session (NSB-07-42) for the March 2007 meeting (<http://www.nsf.gov/nsb/meetings/2007/0329/minutes.pdf>). Minutes for the Plenary Executive Closed and Closed Sessions for the March 2007 meeting of the Board were also approved.
- b. The Board approved a resolution to close portions of the upcoming August 7-8, 2007 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/2007/0807/closing.pdf>).
- c. Drs. Mark Abbott and Patricia Galloway were elected to 2-year terms, May 2007 - May 2009, as members of the Executive Committee.
- d. The Board approved a schedule of meetings for calendar year 2008 (NSB-07-60) (Attachment 1), and asked Dr. Michael Crosby, Executive Officer of the Board, to report at the August 2007 meeting on candidate locations for the February 2008 meeting, annual retreat, and off-site visit.
- e. The Board accepted the 2006 Annual Report of the Executive Committee as presented by the committee chairman, Dr. Arden Bement, NSF Director (NSB/EC-07-2) (Attachment 2)
- f. The Board Chairman discharged the *ad hoc* Committee for the Vannevar Bush Award with thanks to Dr. Kathryn Sullivan, chairman, and Drs. Kelvin Droegemeier, Patricia Galloway, José-Marie Griffiths, and Thomas Taylor.
- g. The Board Chairman discharged the *ad hoc* Committee on Nominating for NSB Elections, informally known as the Elections Committee, with thanks to Dr. Kathryn Sullivan, chairman, and Drs. Elizabeth Hoffman, Douglas Randall, and Jo Anne Vasquez.

- h. The Board approved the transmittal letter and management response for the NSF Office of Inspector General's *Semiannual Report to Congress, March 2007*.

2. Board Chairman's Report

Dr. Steven Beering, Board Chairman, reported that in the Plenary Executive Closed Session, the Board elected Drs. Mark Abbott and Patricia Galloway to serve as members of the Executive Committee (see: 1.c.).

With the Board approval of the meeting schedule for the 2008 calendar year (NSB-07-60 (Attachment 1), Dr. Beering asked Dr. Michael Crosby, Executive Officer and Board Office Director, to develop a short list of candidate locations for the February 2008 meeting, retreat, and off-site visit (see: 1.d.).

The Chairman announced that Board Members will visit Hawaii, June 3-9, 2007. Dr. Beering, along the rest of the visitation team - Drs. Dan Arvizu, Ray Bowen, Kelvin Droegemeier, Karl Hess, Elizabeth Hoffman, and Kathryn Sullivan - will meet with various directors, researchers, and representatives from the University of Hawaii, the broader science and engineering research and education community, and the State Government of Hawaii. The visitation team has an ambitious schedule to meet with 70 people in 5 days on 3 different islands to learn more about education initiatives that can promote greater participation of Native Hawaiians and Pacific Islanders as well as NSF-funded research in science and engineering on the islands.

On April 26, 2007, Dr. Beering along with Drs. Elizabeth Hoffman and Jo Anne Vasquez, gave a briefing to the Science, Technology, Engineering, and Mathematics (STEM) Education Caucus on the Board's forthcoming National Action Plan on STEM education. Also participating in this event was a representative of the National Governors Association who discussed its initiatives in this area.

Regarding the NSF re-authorization bills for FY 2008-2010 currently in Congress, Dr. Beering asked Dr. Crosby to give a report to the Board regarding those bills as pertaining to the Board. Dr. Crosby reported that on April 25, 2007 the Senate passed the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act (or America COMPETES Act, S. 761). That bill states that the NSF Director, in consultation with the Board, will submit a comprehensive, multi-year plan describing how the authorized funds would be used if appropriated to Congress, no later than 180 days after enactment of the Act. On May 2, 2007 the House passed the NSF Authorization Act of 2007 (H.R. 1867) which tasks the Board with the following duties:

- The Board will review and assess the effects of NSF policies on institutions of higher education regarding the limitations on the number of proposal submissions by a single institution.
- The Board will evaluate the role of NSF in supporting interdisciplinary research, including through the Major Research Instrumentation program, the effectiveness of NSF's efforts in providing information to the scientific community about opportunities for funding and process of selection of interdisciplinary research proposals.

- The Board will conduct a review and assessment of the NSF pilot program of grants for new investigators, including the number of new investigators funded, the distribution of awards by type of institution of higher education, and the success rate upon re-submittal of proposals by new investigators funded through this pilot program.
- The Board will evaluate the impact of its policy to eliminate cost-sharing for existing programs that were developed around industry partnerships and that historically required industry cost-sharing, such as the Engineering Research Centers and Industry/University Cooperative Research Centers.
- The Board will submit a report to Congress no later than 6 months after the enactment of this Act on preconstruction funding and maintenance and operation costs and on any recommendations for modifying the current policies related to allocation of funding for major research equipment and facilities.

Dr. Beering described the Awards Dinner at the Department of State's Reception Rooms held on May 14, 2007. The Board was honored to receive a message from President George W. Bush. The following honorary award recipients were recognized for their distinguished contributions:

- Dr. Shirley Ann Jackson, President, Rensselaer Polytechnic Institute, received the Vannevar Bush Award.
- Dr. Peidong Yang, Associate Professor of Chemistry, University of California, Berkeley, received the Alan T. Waterman Award.
- Dr. Bassam Shakhshiri, Professor of Chemistry, University of Wisconsin-Madison, received the individual NSB Public Service Award.
- NUMB3RS, a television series, co-creators Ms. Cheryl Heuton and Mr. Nicolas Falacci, received the group NSB Public Service Award.

Dr. Beering made two committee announcements: He discharged the *ad hoc* Committee for the Vannevar Bush Award with thanks to Drs. Sullivan, chairman, and Droegemeier, Galloway, Griffiths, and Taylor. He also discharged the *ad hoc* Committee on Nominating for NSB Elections with special thanks to Drs. Sullivan, chairman, and Hoffman, Randall, and Vasquez (see: 1.f and 1.g.)

Dr. Beering recognized Dr. Christine Boesz, NSF Inspector General, who was recently asked to be the new Vice Chairman of the Executive Council on Integrity and Efficiency. He also recognized Ms. Clara Englert, who worked in the Board Office as a Science Assistant since December 2004. Ms. Englert is leaving to pursue advanced science degrees at North Carolina State University.

3. NSF Director's Report

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

- Dr. Allen Soyster, Director, Division of Engineering Education and Centers (EEC) (as of November 1, 2006).
- Dr. Judy Raper, Director, Division of Chemical, Bioengineering Environmental and Transport Systems (CBET) (as of January 9, 2007).
- Dr. Joan Ferrini-Mundy, Director, Division for Research on Learning and Informal Setting, (DRL) (as of January 22, 2007).

Dr. Bement also announced the following staff reassignments:

- Dr. Machi F. Dilworth was selected to head NSF's Tokyo Office. Dr. Dilworth was serving as Division Director, Division of Biological Infrastructure, Directorate for Biological Sciences (BIO).
- Dr. David Stonner was selected to head the NSF Europe Office. Dr. Stonner was serving as Head of the Congressional Affairs Section, Office of Legislative and Public Affairs (OLPA).

The NSF Director stated that Dr. Kathie Olsen, NSF Deputy Director, gave a presentation to Board Members at the March 2007 meeting of the Audit and Oversight (A&O) Committee on NSF's Framework for Human Capital Management, which encompassed succession planning at NSF. During her presentation, she noted the establishment of an agency-wide group made up of deputy assistant directors and deputy office directors to address workforce strategy and succession planning issues. NSF's Kathryn Sullivan, Deputy Director, Office of International Science and Engineering (OISE), Office of the Director, was selected to bring focused energy to NSF's succession planning efforts over the next 9 months. The group plans to report on its progress at the October 2007 A&O meeting.

For the congressional update, Dr. Bement reported that he testified on April 19, 2007, with Dr. John Marburger, Senior Advisor to the President and Director, Office of Science and Technology Policy (OSTP), the White House; and Dr. William Jeffrey, Director, National Institute of Standards and Technology (NIST); before the Senate Commerce Subcommittee on Technology, Innovation, and Competitiveness. The hearing was on the role of basic research sustaining America's competitiveness in the global economy.

Since the March 2007 Board meeting, four major pieces of legislation affecting NSF were passed. During one remarkable week, the House passed two bills that were key parts of the congressional "Innovation Agenda," and the Senate passed a reauthorization bill that encompassed three separate committees of jurisdiction.

- On April 24, 2007 the House passed H.R. 362, "10,000 Teachers, 10 Million Minds Math and Science Scholarship Act," and H.R. 363, "Sowing the Seeds Science and Engineering Research Act," both authored by the House Science and Technology Committee Chairman Bart Gordon. Both bills implement many of the science education recommendations of the National Academies report, *Rising Above the Gathering Storm*.

- Also on April 24, 2007 the Senate passed S. 761, “America COMPETES Act” that provides for a doubling of NSF’s budget over 4 years by providing \$11.2 billion in budget authority in FY 2011.
- On May 2, the House passed H.R. 1867, the NSF Authorization Act of 2007. The bill would provide budget authority for NSF for the next 3 fiscal years, ending with \$7.5 billion in FY 2010.

Dr. Bement further reported that the House plans to pass all of its separate bills under one bill number in order to conference these pieces of legislation, and get a bill to the President’s desk for signature. Regardless of whether the bills become public law or not, all of the bills that have been passed are a tremendous affirmation by Congress of the good work being done at NSF.

4. Board Committee Reports

a. Executive Committee

The committee endorsed the Annual Report of the Executive Committee, which summarized the activities from May 2006 through April 2006, as presented. *[The EC Annual Report was subsequently accepted by the full Board.]* (See 1.e.)

b. Audit and Oversight (A&O) Committee

A&O Open Session

Dr. Christine Boesz, NSF Inspector General, discussed the latest OIG Semiannual Report and Dr. Joan Frye, NSF’s Director’s Office, relayed the management response with data tables. The committee approved the transmittal letter for the report and recommended that the full Board approve it. *[The full Board subsequently approved the transmittal letter and management response.]* (See 1.h.)

Mr. Salvatore Ercolano, Partner-in-Charge with Clifton Gunderson LLP, briefed the committee on the status of NSF’s financial statement audit and IT security program review. Mr. Ercolano reported that the auditors were reviewing NSF’s Corrective Action Plan for the two reportable conditions cited last year, and that final resolution of the findings would depend on the adequacy of implementation activities. Further, Mr. Ercolano stated that the finding on contract monitoring was not likely to be resolved this year. He also informed the committee that audit standards changed, lowering the threshold for what is considered a material weakness or significant deficiency, and making it more likely that weaknesses will be reported throughout Government.

Mr. Ercolano and Mr. George Strawn, NSF Chief Information Officer, both discussed challenges related to the planning of penetration testing under the Federal Information Security Management Act of 2002 (FISMA) review. Discussions between the agency and the auditors on this subject would continue.

Mr. Thomas Cooley, NSF Chief Financial Officer, discussed the ramp-up for the FY2007 audit and stated that considerable progress was made on addressing reportable conditions from the FY 2006 audit. He also noted that developing a revitalized contract monitoring function will be a multi-year process.

A&O Closed Session

The committee received information about several pending investigations.

c. Education and Human Resources (EHR) Committee

The Committee noted that that Department of Education "Report of the Academic Competitiveness Council" was released and asked NSF for a brief discussion on the report at the August 2007 meeting.

The committee heard a presentation given by Dr. Maria Zuber, Massachusetts Institute of Technology, on the report of the National Academies *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering*. Dr. Zuber provided background on the report and recommendations and significant findings, which included a finding that more women are earning science and engineering doctorates but are leaving academic careers.

As of March 2007, EHR had the responsibility to present to the Board a draft National Action Plan for STEM education. Dr. Hoffman reviewed the progress made since March 2007 on the draft, and the committee agreed that critical central issues were addressed in the draft plan. The committee determined to continue with the current direction of the document, with the intent to have a discussion in August 2007 that could allow for release of a draft for public comment at that time. Dr. Hoffman will coordinate the revisions and asked for comments on the current draft before June 1, 2007.

The committee heard a presentation from Board Member, Dr. Camille Benbow, entitled, "NSF's Role in Supporting the Next Generation of High Ability Students." Dr. Benbow focused on how to nurture excellence and talent development. She provided background on math education, and the growing need for qualified math teachers, and current programs that have recently been enacted including No Child Left Behind and the American Competitiveness Initiative. Dr. Hoffman invited Dr. Benbow to continue a discussion on this topic at the August 2007 meeting, and to explore the possibility of creating an *ad hoc* task group to develop this idea further.

d. EHR Subcommittee on Science and Engineering Indicators (SEI)

The subcommittee discussed the reviewer comments and author responses for the six remaining chapters of *Science and Engineering Indicators 2008*, and examined the key findings in all eight chapters to determine which ones might be included in the new condensed version or digest of *Indicators*. The subcommittee also discussed possible topics for the *Science and Engineering Indicators 2008* Companion Piece.

e. Committee on Programs and Plans (CPP)

CPP Open Session

The committee heard a report from the *ad hoc* Task Group on Sustainable Energy. The committee agreed to develop a formal charge to create a CPP Task Force on Sustainable Energy. Dr. Jon Strauss, along with Dr. Dan Arvizu and other interested committee members, will work to develop this charge to be brought before the committee at a future meeting for action.

The committee continued its discussion of recompetition, operations, and management costs for NSF contracts, cooperative agreements, and grants. NSF has provided information at several points since this discussion began, and in March 2007 the Board Office organized a meeting with NSF staff to clarify the request. NSF will provide additional data later in May 2007, and the remaining information on management and operations cost drivers for MREFC projects will be provided in July 2007. The committee will continue this discussion in August and October 2007 when more data and analyses are completed. Clarification of NSF's recompetition decision and approval process will also be discussed at a future meeting.

The committee discussed the possibility of inviting advisory committee chairmen to future Board meetings to hear briefings on what their committees think are emerging issues. CPP will work with Dr. Crosby and the Board Office to explore this idea more fully.

CSB Closed Session

The committee held a preliminary discussion on the FY 2009 budget.

f. CPP Subcommittee on Polar Issues (SOPI)

Dr. Karl Erb, Director, Office of Polar Programs (OPP), reported that NSF reached an agreement in principle with several Swedish organizations that will allow shared use of the *Oden* in both Polar Regions for the next 5 years for icebreaking, joint research, and international outreach and education purposes. At the Antarctic Treaty meeting held in New Delhi, a resolution was passed encouraging parties to form an Antarctic Observing System to investigate climate change. Attendees also passed a resolution limiting tourist ships to 500 passengers and landing parties to 100 persons.

The subcommittee also heard a report from Dr. Thomas Wagner, Director, Antarctic Sciences Program, OPP, on Polenet, an NSF-funded project to establish a polar system of GPS sensors to weigh ice sheets and characterize their geologic setting in Greenland and Antarctica. Additionally, Dr. Martin Jeffries, Director, Arctic Sciences Program, OPP, reported on the Arctic Observing Network (AON) awards that were funded as part of the FY 2006 International Polar Year (IPY) competition. Dr. John Lightbody, Senior Facilities Officer, Division of Physics, Directorate for Mathematical and Physical Sciences (MPS), provided an update on the IceCube Neutrino Observatory, a MREFC project currently underway in Antarctica.

g. CPP Task Force on International Science (INT)

The task force heard two presentations: Dr. Christine Boesz, NSF Inspector General, provided the Task Force with an overview of her work to support international accountability and address the growing need for mutual understanding of research misconduct issues; and Dr. Thomas Weber, Director of the NSF Office of International Science and Engineering (OISE), provided the task force with an update on NSF's response to the Board interim report, *Toward a More Effective NSF Role in International Science and Engineering* ([NSB-00-217](#)).

Dr. Jon Strauss, INT Chairman, plans to travel to the Middle East with Dr. Crosby in July 2007 to hold informal meetings and discussions. The task force will prepare a draft report and recommendations for Board discussion at the August 2007 meeting.

h. CPP Task Force on Transformative Research (TR)

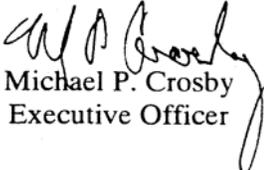
The TR report, *Enhancing Support of Transformative Research at the National Science Foundation* ([NSB-07-32](#)) was in production and printed copies would be available in June 2007. NSF will provide a response to the report's recommendation at the August 2007 meeting.

i. Committee on Strategy and Budget (CSB)

Dr. Ray Bowen commented that the CSB initiative to establish an informal *ad hoc* Task Group on Cost-Sharing at the March 2007 meeting was timely in light of the current House authorization language asking the Board to examine the cost-sharing issue. He also stated that A&O continues to have an interest in the cost-sharing discussion and CSB will welcome its involvement. In March 2007, Dr. Droegemeier, who volunteered to head this task group to look closely at the impacts of cost-sharing policies within the research community, reported that the Board Office worked closely with the NSF Director's Office to identify and obtain appropriate material to inform the Board on this issue. Discussions on this item will continue at the August and October 2007 meetings.

Each Board Member received a copy of NSF's Long Range Planning 2007 notebook. Mr. Cooley reported that a similar document had been prepared annually for about 20 years. It offers data for trend analyses, and includes information about NSF strategic goals and funding activities, along with an examination of the broad context in which those activities take place.

As part of the FY 2009 budget planning process, CSB will hold two teleconferences this summer to review the proposed FY 2009 budget in detail. The Board Office will poll Members for acceptable dates in June and July 2007. At the August 2007 meeting, the Board will review the proposed budget and, if appropriate, approve it for submission to the Office of Management and Budget.


Michael P. Crosby
Executive Officer

Attachment 1: [NSB-07-60](#)
Attachment 2: [NSB/EC-07-2](#)

NATIONAL SCIENCE BOARD

CALENDAR OF MEETINGS*

2008

February 6 – 7
(Wednesday – Thursday)
[Annual Retreat and Visit]

March 26 – 27
(Wednesday – Thursday)

May 6 – 7
(Tuesday – Wednesday)
[Annual Meeting and Awards Dinner]

August 12 – 13
(Tuesday – Wednesday)

October 1 – 2
(Wednesday – Thursday)

December 9 – 10
(Tuesday – Wednesday)

* Approved at the May 15, 2007 meeting of the National Science Board.

National Science Board

2006 Annual Report of the Executive Committee

In accordance with the requirements of 42 U.S.C. § 1865 (d), I hereby submit this annual report of the National Science Board (Board) Executive Committee, as approved at the Executive Committee meeting on May 15, 2006. This report covers the period from May 2006 through April 2007. I served as Director of the National Science Foundation and the Board's Executive Committee chairman during the above time period.

The elected Board membership of the Executive Committee during the past year was as follows.

From May 1, 2006 to May 10, 2006:

Dr. Barry C. Barish

Dr. Steven C. Beering

Dr. Diana S. Natalicio

Dr. Warren M. Washington

From May 11, 2006 to April 30, 2007:

Dr. Barry C. Barish

Dr. Steven C. Beering

Dr. Ray M. Bowen

Dr. Kathryn D. Sullivan

Dr. Michael P. Crosby, the Board's Executive Officer and Board Office Director, served as Executive Secretary for the entire period.

The Executive Committee met four times during this period at the National Science Foundation in Arlington, Virginia. Oral reports of its activities were made at meetings of the full Board and are reflected in the minutes of those meetings.

The Executive Committee's powers and functions are based on a delegation of authority to it by the Board according to 42 U.S.C. § 1865(a). The Board's current delegation to the Executive Committee (Attachment B to NSB-99-158) authorizes the Executive Committee to approve awards on behalf of the Board when an immediate decision is required between Board meetings and when the necessary action is not within the authority of the Director of the National Science Foundation. There were no occurrences of this condition or Executive Committee actions on behalf of the Board during the above time period.

/s/

Arden L. Bement, Jr.

Chairman

Executive Committee