

MEMORANDUM TO MEMBERS OF THE NATIONAL SCIENCE BOARD

SUBJECT: Summary Report of the November 29-30, 2006 Meeting

The major actions of the National Science Board (Board) at its 395th meeting on November 29-30, 2006 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 November 2006 meeting.

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

- a. The Board approved the minutes of the Plenary Open Session (NSB-06-112) for the September 2006 meeting (<http://www.nsf.gov/nsb/meetings/2006/0927/minutes.pdf>). Minutes for the Plenary Executive Closed and Closed Sessions for the September 2006 meeting of the Board were also approved.
- b. The Board approved a resolution to close portions of the upcoming February 7-8, 2007 Board meeting dealing with staff appointments; future budgets; grants and contracts; specific Office of the Inspector General (OIG) 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/2007/0207/closing.pdf>).
- c. The Board authorized the NSF Director, at his discretion, to make an award to the firm selected in the competitive procurement process to conduct the 2008 and 2010 Surveys of Doctorate Recipients (SDR). By approving the issuance of this request for proposal, the Board also approved the selection of the contractor that emerges from NSF's competitive procurement process.
- d. The Board authorized the NSF Director, at his discretion, to make an award #0518943 to the University of Michigan for the Panel Study of Income Dynamics (PSID).
- e. The Board approved the report, *Hurricane Warning: The Critical Need for a National Hurricane Research Initiative* (NSB-06-104) (http://www.nsf.gov/nsb/committees/hurricane/pre_publication.pdf), subject to final editing by the Board Chairman and Task Force on Hurricane Science and Engineering (HSE) co-chairmen.
- f. The Chairman discharged the HSE Task Force, and thanked co-chairmen Drs. Kelvin Droegemeier and Kenneth Ford, and task force members Drs. Daniel Hastings, Elizabeth Hoffman, and Alan Leshner.

- g. The Chairman established the *ad hoc* Vannevar Bush Award Committee for the 2007 award, with Dr. Kathryn Sullivan, chairman, and Drs. Kelvin Droegemeier, Patricia Galloway, José-Marie Griffiths, and Thomas Taylor as members.
- h. The Board approved the extension of the charge to the Task Force on Transformative Research (TR), which was due to expire in December 2006, through the May 2007 Board meeting.
- i. The Board approved a timeline of activities for the Task Force on International Science (INT) and its plans to convene a third international roundtable discussion in Brussels during the spring of 2007.
- j. The Board approved a request from the Chairman for NSF to provide the Board Office with additional information related to recompetition for NSF contracts, grants, cooperative agreements, interagency agreements, and the operations and management costs associated with major projects and facilities.
- k. The Board approved the transmittal letter and management response for the NSF OIG *Semiannual Report to Congress, September 2006*.

2. Board Chairman's Report

Dr. Steven Beering, Board Chairman, reported that the Board's 2007 annual retreat, meeting, and visit will take place at Oregon State University (OSU), Corvallis, Oregon, on February 7-8, 2007. He asked Board Members for specific topics for consideration during the retreat.

Dr. Michael Crosby, Board Executive Officer and Board Office Director, provided an update on the planned activities, which will include: optional tours of the Linus Pauling Collection and the Hatfield Marine Science Center; briefings from OSU's NSF-supported science and engineering research and education endeavors; a tour of the Network for Earthquake Engineering Simulation (NEES) facility; Board retreat; breakfast with OSU leadership, faculty, and students; student research poster session, lecture by Dr. Jane Lubchenco, OSU professor and former Board Member; and Board committee meetings and Plenary Sessions.

The Chairman announced the appointment of Board Members to serve on the *ad hoc* Committee for the Vannevar Bush Award: Dr. Sullivan, chairman, and Drs. Droegemeier, Galloway, Griffiths, and Taylor. The committee will select the recipient of the 2007 Vannevar Bush Award for "outstanding contributions toward the welfare of mankind and the Nation through public service activities in science and technology."

The Chairman also discharged the Task Force on Hurricane Science and Engineering, which had completed its work with approval of the report, *Hurricane Warning: The Critical Need for a National Research Initiative*. Special thanks went to co-chairmen, Drs. Droegemeier and Ford, and the task force members Drs. Hastings, Hoffman, and Leshner.

Dr. Beering also mentioned that the updated pamphlet, *National Science Board Members 2006*, also known as the Board "Photobook," was published in October and includes the newest Board Members.

He was pleased to announce that Dr. Sullivan was named as the first Director of the new Battelle Center for Mathematics and Science Education Policy at The Ohio State University's John Glenn School of Public Affairs. Also, Dr. Jo Anne Vasquez accepted the position as Director of Policy and Outreach at the Center for Research on Education in Science, Mathematics, Engineering, and Technology at Arizona State University. In addition, Dr. Hoffman was named Executive Vice President and Provost at Iowa State University.

The Commission on 21st Century Education in Science, Technology, Engineering, and Mathematics (STEM) continued to make progress. Dr. Beering called on Dr. Hoffman to report for Dr. Vasquez. Dr. Hoffman reported that the Commission established seven working groups, which met during October and November, with the following chairmen: Dr. Vasquez, Curriculum; Mr. Timothy McCollum, Teachers; Dr. Cindy Moss, Infrastructure that Supports Reform; Dr. Karen Gallagher, Higher Education; Dr. Maritza MacDonald, Information Science Education and Community and Parental Inputs; Mr. Ronald Bullock and Dr. James Gentile, Stakeholder Engagement; and Ms. Maria Lopez-Freeman, NSF.

The full Commission met for the second time, November 20-21, 2006, in Chicago at the Museum of Science and Industry where all the working groups reported to the full Commission. Dr. Beering gave opening remarks to the Commission and Dr. Sullivan also participated in the meeting. The Commission heard from Congressman Daniel Lipinski (D-IL), who expressed his view that improvement in science and math education is necessary to an educated workforce that is the foundation of our economic strength.

The Commission plans to meet in January 2007 in Arizona where it will have the opportunity to interact with Governor Janet Napolitano, who is currently the Chairman of the National Governors Association and spearheads their Innovation America Initiative, which has a focus on K-12 STEM education. The Commission will prepare a draft report to submit to the Board at the February 2007 meeting.

3. NSF Director's Report

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

- Dr. Cora Marrett, Assistant Director, Directorate for Education and Human Resources (EHR) (presently serving as a consultant and joining NSF full time in February 2007)
- Dr. Haym Hirsh, Director, Division of Information and Intelligent Systems, Directorate for Computer and Information Science and Engineering (CISE) (as of October 2006)
- Dr. Linda Slakey, Director, Division of Undergraduate Education, EHR (as of November 27, 2006)
- Ms. Karen Tiplady, Director, Division of Grants and Agreements, Office of Budget, Finance and Award Management (BFA) (as of October 1, 2006)
- Ms. Teresa Davies, Senior Advisor, Office of Legislative and Public Affairs (OLPA) (as of October 16, 2006)
- Mr. George Lennon, Senior Advisor for Public Affairs, OLPA (as of October 29, 2006)

Dr. Bement also announced the following NSF staff departures:

- Dr. Peter Freeman, Assistant Director, CISE (as of January 2007)
- Mr. Charlie Brown, Senior Ethics Official, Office of General Council (OGC) after 35 years of Government service, including 15 years service with NSF, who created one of the best and most highly regarded ethics programs in all of Government (as of January 2007)

Additionally, Dr. Bement announced five 2006 Presidential Rank Awards to NSF employees:

- Dr. Karl A. Erb, Director, Office of Polar Programs (OPP) received the Distinguished Executive Presidential Rank Award
- Dr. Wanda Ward, Deputy Assistant Director, Directorate for Social, Behavioral, and Economic Sciences (SBE) received the Distinguished Executive Presidential Rank Award
- Dr. Deborah Crawford, Deputy Assistant Director, CISE, received the Meritorious Executive Presidential Rank Award
- Mr. Thomas C. Cross, Deputy Inspector General, OIG received the Meritorious Executive Presidential Rank Award
- Dr. Thomas Weber, Director, Office of International Science and Engineering (OISE) received the Meritorious Executive Presidential Rank Award

For the congressional update, the NSF Director reported that the elections resulted in a switch in the majority party for both the House and Senate. Although NSF will be working with new committee chairmen and ranking members, they have worked with and been supportive of NSF in the past.

Regarding appropriations, Dr. Bement reported that, although the Science, State, Justice, and Commerce appropriations bill was passed by the House and reported out of Committee by the Senate, final action was not completed when Congress adjourned. Congress would return for a lame duck session the following week and it was expected that they would pass a continuing resolution that would be effective into January 2007.

There were no hearings involving NSF since the September Board meeting. A number of legislative bills were introduced or had been subject to Congressional action since the September 2006 Board meeting. The list of these bills was provided to Board Members, but none of the bills was likely to be enacted prior to the conclusion of the 109th Congress.

4. Board Committee Reports

a. Executive Committee (EC)

Dr. Bement reported on NSF personnel updates (see Director's Report).
(The Executive Committee did not meet in Closed Session in November 2006.)

b. Audit and Oversight (A&O) Committee

A&O Open Session

Dr. Christine Boesz, NSF Inspector General, discussed the *OIG Semiannual Report to Congress, September 2006* and Dr. Fae Korsmo, Office of the Director, presented the management response with data tables. The committee approved the transmittal letter and recommended approval by the full Board. *[The full Board subsequently approved the transmittal letter and management response for the OIG Semiannual Report to Congress, September 2006.]*

Mr. Salvatore Ercolano, Partner-in-Charge with Clifton Gunderson LLP, presented the results of the NSF's financial statement audit. The agency received an unqualified opinion in its financial audit report with no material weaknesses. However, despite improvements made over the past year, two prior-year reportable conditions remained: (1) post-award oversight for high-risk grants and cooperative agreements; and (2) contract monitoring. Mr. Ercolano stated that most of the improvements made by the agency to improve post-award oversight were implemented at the end of the year leaving little time for evaluation by the auditors. He also stated that the review of NSF's IT Security Program, known as the FISMA (Federal Information Security Management Act) report, found no significant deficiencies, but listed six findings under "other matters." The agency agreed with the findings but disagreed with the auditors about their significance.

Dr. George Strawn, NSF Chief Information Officer, reported on NSF's plans to handle the FISMA related findings and additional IT security demands in FY 2007.

Mr. Thomas Cooley, NSF Chief Financial Officer, noted that this financial statement audit cycle was particularly successful and complimented the new audit firm on its extensive and open communications. Copies of the *FY2006 Performance and Accountability Report* are available on the NSF Web page, http://www.nsf.gov/publications/pub_summ.jsp?ods_key=par. Mr. Cooley reported on NSF's extensive efforts in FY 2006 and planned for FY2007 to address the reportable condition related to post-award monitoring for high risk awards. He emphasized a comprehensive risk based approach for oversight of NSF's \$19 billion multi-year award portfolio and the suite of activities for the Award Monitoring and Business Assistance Program. Mr. Cooley also reported on NSF's new Project Report Tracking and Notification System, which went live in November 2006. He also provided the committee with an update on related activities of the National Science and Technology Council's Committee on Science's "Research Business Models" activities. This project included a number of interagency initiatives to develop common standards in a variety of policies and practices related to Federal research funding and management.

A&O Closed Session

The committee was presented information about several ongoing investigations.

c. Education and Human Resources (EHR) Committee

The EHR Committee heard from two guest speakers. Mr. Robert Shea, Associate Director for Management, Office of Management and Budget (OMB) and Head, President's Budget and Performance Integration Initiative, who provided the committee with an overview of OMB's work to evaluate the effectiveness of programs in STEM education, with emphasis on programs relevant to NSF. The full OMB report will be available in February 2007 and will clarify the roles of programs and their impacts to date, as well as approaches to reduce the cost of evaluations.

Dr. Wanda Ward, Acting Assistant Director, NSF Directorate for EHR, provided the committee with background information regarding NSF EHR systematic approach to evaluation, the methods and procedures used, and how the evaluations are used to inform and revise EHR programs. Dr. Ward highlighted several outstanding examples of recent evaluation results and impacts, and noted significant impacts from program evaluations.

Dr. Vasquez updated the committee on the recent meeting of the Board's STEM Commission held on November 20-21, 2006, at the Museum of Science and Industry in Chicago.

The committee discussed a response to the recent request from Congressman Rush Holt (D-NJ), asking the Board to provide a summary of its review of the NSF EHR program evaluations. In a letter dated October 31, 2006, Dr. Beering responded to Congressman Holt on behalf of the Board, stating that the Board will provide a summary review of the NSF EHR programs with respect to evaluation procedures and results. Dr. Hoffman asked the committee for ideas and comments for the response to Congressman Holt. One option discussed was that all data gathered to date should be provided in January 2007, with a two-three page summary of the Board's findings. The letter to Congressman Holt should also state that the Board would provide an update to him in 6-9 months, which would allow time for Dr. Marrett to start as Assistant Director, NSF EHR, and become engaged with this Board review. Suggestions from committee members for crafting the letter are to be sent via e-mail to Drs. Hoffman and Crosby, who will draft a response and circulate it to Board Members for review and comment. Dr. Sullivan noted that it would be useful to provide the information to Congress before the start of the next session.

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

The subcommittee agreed that the revised outlines were ready for the authors to begin preparing chapter drafts to meet the tight schedule for production of *Science and Engineering Indicators 2008*. The subcommittee also reviewed the matrix circulated to Board Members to sign up as chapter reviewers, identified prospective external expert reviewers for each of the chapters, discussed initial candidate topics for the Companion Piece; and began discussion on *Science and Engineering Indicators 2010*.

e. EHR *ad hoc* Engineering Education Group

Dr. Hastings briefed the committee on the November 7, 2006 Board-sponsored workshop on Engineering Education, “Moving Forward to Improve Engineering Education,” that was held at the Georgia Institute of Technology. The *ad hoc* group plans to synthesize the findings and recommendations of its two workshops, in an effort to guide NSF in supporting innovations in engineering education. An initial draft is anticipated for the March 2007 Board meeting.

f. Committee on Programs and Plans (CPP)

CPP Open Session

The committee discussed both the FY 2007 schedule of information and action items for Board review as well as the Board policy on recompetition of NSF awards. The committee also heard information reports on the Astronomy Division Senior Review and the management review of the National Optical Astronomy Observatory (NOAO) and the National Solar Observatory (NSO), and a status report on the Scientific Ocean Drilling Vessel.

Dr. Margaret Leinen, Assistant Director, Directorate for Geosciences, presented an update on the status of the Scientific Ocean Drilling Vessel – a construction project, funded through the Major Research Equipment and Facilities Construction (MREFC) account, to modify a drillship for the Integrated Ocean Drilling Program. The proposals NSF received for this project exceeded the planned budget. NSF is looking for alternatives to reduce the cost that will continue to meet the science goals.

The committee briefly discussed the FY 2007 schedule of information and action items for Board review. Dr. Crosby provided the committee with a short overview of the schedule.

Dr. Louis Lanzerotti provided the committee with an update on the Board policy on recompetition of NSF awards, and recommended that the Board request NSF to provide the Board Office with additional data related to NSF’s recompetition practices. The committee also discussed the Board’s concern about dramatic increases in the management and operations of NSF-sponsored large projects and facilities. CPP recommended full Board approval for the Board Chairman to request additional information from NSF. *[The full Board subsequently approved a request from the Board Chairman for NSF to provide the Board Office with additional information related to recompetition for NSF contracts, grants, cooperative agreements, interagency agreements, and the operations and management costs associated with major projects and facilities.]*

CPP heard two presentations on information items from the Division of Astronomical Sciences (AST), Directorate for Mathematical and Physical Sciences (MPS): one on the AST Senior Review, presented by Dr. Roger Blandford, and one on the Management Review of the 5-year Cooperative Agreement with the Association of Universities for Research in Astronomy (AURA), by Dr. Thomas Barnes.

CPP Closed Session

The committee considered and approved two action items: Request for Proposals and Award of a Contract for the Conduct of the Survey of Doctorate Recipients (SDR), and Continuity and Change in American Economic and Social Life: The Panel Study of Income Dynamics (PSID) for Fiscal Years 2007 – 2011 to the University of Michigan. *[The full Board subsequently approved both resolutions (see page 1).]*

g. CPP Subcommittee on Polar Issues (SOPI)

Dr. Karl Erb, Director, OPP, circulated copies of postage stamps that the U.S. Postal Service will release in celebration of the International Polar Year (IPY). He also noted a recent award by the state of Colorado to Raytheon Polar Services Corporation, contractor for the U.S. Arctic Program, for exemplary environmental stewardship; provided a status update on the *Oden* travel to McMurdo Station; and reported that NSF will publish a request for information concerning re-supply services for McMurdo Station within the next few days.

Dr. Anita Jones, former Board and SOPI member, and chairman of the National Research Council (NRC), Committee on the Assessment of US Coast Guard (USCG) Polar Icebreaker Roles and Future Needs, provided an overview on the committee's charge and recommendations: (1) resume regular USCG patrols in the Arctic, with science agencies paying incremental costs; (2) build two new ships, keeping *Polar Sea* and *Healy* mission capable; and (3) issue a Presidential Decision Directive, asserting the need for U.S. icebreaker capability and aligning agency responsibilities and budgets. The committee also noted that NSF research relates to U.S. foreign policy, and is committed to reviewing its May 2006 policy statement on icebreakers. Dr. Ford, CPP chairman, requested that Dr. Barry Barish, SOPI chairman, develop an official response to the NRC recommendations, which would be presented to CPP at the Board meeting in March 2007.

h. CPP Task Force on Hurricane Science (HSE)

The task force submitted a final draft report to CPP, with changes to address public comments, on a critical need for a national hurricane research initiative. CPP recommended forwarding the final draft report with a minor addition, to the full Board for approval. *[The full Board subsequently approved the final draft report "Hurricane Warning: The Critical Need for a National Hurricane Research Initiative" (NSB-06-104) subject to final editorial changes approved by the Chairman and HSE co-chairmen. The Board released a pre-publication copy on the Board's Web site (see page 1).]*

i. CPP Task Force on International Science (INT)

Dr. Jon Strauss, INT chairman, presented the committee with a proposed timeline of future plans for the task force, which included plans for a roundtable discussion in Brussels followed by several smaller meetings with science and technology government and university representatives in the Middle East. The committee approved the INT timeline and plans for a spring 2007

international meeting, and recommended approval by the full Board. *[The full Board subsequently approved a timeline of INT activities and plans to convene a third international roundtable discussion in Brussels during the spring of 2007.]* The task force planned to have a report prepared by the October 2007 Board meeting.

j. CPP Task Force on Transformative Research (TR)

The Task Force on Transformative Research presented a timeline for completing the report to the committee in which a final report will be submitted for Board approval in March 2007. CPP voted to recommend to the full Board that the charge to the task force be extended through the May 2007 Board meeting in order to complete the report. *[The full Board subsequently approved the extension of the charge of the task force through the May 2007 Board meeting.]*

k. Committee on Strategy and Budget (CSB)

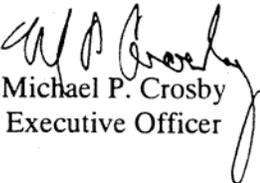
CSB Open Session

Dr. Bement presented an update on the status of NSF's FY 2007 Budget Request. NSF was operating under a continuing resolution through December 8, 2006. It was anticipated that Congress would pass another continuing resolution that would be effective into January.

Dr. Joanne Tornow, chairman of the NSF Working Group on the Impact of Proposal and Award Management Mechanisms (IPAMM), shared findings of the group. In general, her team found that there has been an increase of Principal Investigators (PIs) submitting more proposals to NSF and an increase in PIs receiving research grants. She covered possible external drivers related to NSF that increase proposal submission. A draft report from the working group is expected in the spring of 2007.

CPP Closed Session

Dr. Bement reported on the status of the FY 2008 Budget request. Mr. Anthony Arnolie, Director, NSF Office of Information and Resource Management (OIRM), gave a presentation on NSF's involvement in the Federal Grants Management Line of Business (GMLoB).


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