

**APPROVED MINUTES¹
OPEN SESSION
381ST MEETING
NATIONAL SCIENCE BOARD**

The National Science Foundation
Arlington, Virginia
August 4-5, 2004

Members Present:

Warren M. Washington, Chair
Diana S. Natalicio, Vice Chair
Barry C. Barish
Steven C. Beering*
Ray M. Bowen
Nina V. Fedoroff
Kenneth M. Ford
Daniel E. Hastings
Elizabeth Hoffman
Anita K. Jones
Douglas D. Randall
Robert C. Richardson*
Michael G. Rossmann
Maxine Savitz*
Daniel Simberloff
Jo Anne Vasquez
Mark S. Wrighton

Arden L. Bement, Jr., *ex officio*

Members Absent:

Delores M. Etter
Anita K. Jones*
George M. Langford*
Jane Lubchenco
Joseph A. Miller, Jr.*
Luis Sequeira*
John A. White, Jr.

* Consultant, outgoing Class of 2004

¹ The minutes of the 381st meeting were approved by the Board at the October 2004 meeting.

The National Science Board (NSB, the Board) convened in the Open Session at 1:15 p.m. on Thursday, August 5 with Dr. Warren Washington, Chair, presiding (NSB-04-119). In accordance with the Government in the Sunshine Act, this portion of the meeting was open to the public.

AGENDA ITEM 5: Approval of Open Session Minutes, May 2004

The Board APPROVED the Open Session minutes of the May 2004 meeting (NSB-04-95, Board Book Tab 12 I).

AGENDA ITEM 6: Closed Session Items for August 2004

The Board APPROVED the Closed Session items for the October 2004 meeting (NSB-04-113, Board Book Tab 12 J).

AGENDA ITEM 7: Chairman's Report

a. Results of Executive Committee Member Election

The Board elected Dr. Barry Barish to the Executive Committee to fill the vacancy created by Dr. Robert Richardson whose term expired in May. Dr. Barish will serve until May 2005.

b. Discharge of NSB Nominating Committee

Dr. Washington discharged with thanks the *ad hoc* Committee on Nominating for NSB Elections, which completed its work with the Executive Committee election. Dr. Ray Bowen chaired that committee. Other committee members were Drs. Kenneth Ford, Daniel Hastings, and Elizabeth Hoffman. Dr. Michael Crosby, NSB Executive Officer, served as Executive Secretary with assistance from Ms. Susan Fannoney of the Board Office.

c. New Chairs of Board Committees

Dr. Washington announced new chairs of several Board committees: Dr. Hoffman, Education and Human Resources (EHR); Dr. Bowen, Committee on Strategy and Budget; and Dr. Daniel Simberloff, Committee on Programs and Plans. Dr. Steven Beering will serve as the acting chair of the EHR Subcommittee on Science and Engineering Indicators.

d. Section 14 Report

Dr. Washington reported that, as required by Congress under Section 14 of the NSF Authorization Act of 2002, he will be sending a report to appropriate congressional committees concerning delegations of Board authority related to the use of NSF's Major Research Equipment and Facilities Construction account. This report is due on September 15, and will state that no delegation of authority occurred during the last year.

e. Merit Review Process

Dr. Washington reported that by way of the recent FY 2005 NSF budget report, the House Appropriations Subcommittee for VA, HUD, and Independent Agencies wanted the Board to conduct a "Structured evaluation" of the NSF merit review process during FY 2005. Dr. Washington asked the Audit and Oversight (A&O) committee to develop and implement a process for conducting such a review. The NSB Office will coordinate this effort for A&O and oversee the preparation of a draft report for A&O to review and recommend to the full Board for approval.

f. Annual Board Retreat and Off-site Meeting for 2005

At the May meeting, Dr. Washington asked Dr. Crosby to develop a list of proposed sites for the annual Board retreat and meeting site for February 2005. The Executive Committee and the chairs of the four standing committees recommended that the next retreat and off-site meeting be held at the University of Texas at El Paso. The Chairman fully endorsed this proposal. Dr. Crosby will develop logistics and the agenda, and will provide updates to the Board at the October and December meetings.

g. Award to Dr. Lubchenco

Dr. Washington announced that Dr. Jane Lubchenco had been elected to the highly competitive United Kingdom's Royal Society. She is one of six foreign members elected, and the only female elected this year. On behalf of the Board, Dr. Washington extended congratulations to Dr. Lubchenco.

AGENDA ITEM 8: Director's Report

a. NSF and NAVSEA Sign Memorandum of Agreement

Dr. Arden Bement reported that, on August 2, Dr. Margaret Leinen, Assistant Director for Geosciences and Rear Admiral Charles Hamilton, Program Executive Office for Ships, Naval Sea Systems Command (NAVSEA), signed a memorandum of agreement for the acquisition of three Regional Class research vessels.

b. Congressional Update

Dr. Bement reported that, on June 24, Dr. Galip Ulsoy, Director of Engineering's Division of Civil and Mechanical Systems, testified on behalf of NSF at a hearing before the Subcommittee on Science, Technology, and Space of the Senate Commerce, Science and Transportation Committee. On July 7, Dr. Peter Freeman, Assistant Director, Computer and Information Sciences and Engineering Directorate, was a witness at a hearing before the Subcommittee on Technology, Information Policy, Intergovernmental Relations, and the Census on defining Federal information technology research and development. Also on July 7, Dr. Leinen testified on behalf of NSF before the House Resources Committee, Fisheries Conservation, Wildlife and Oceans Subcommittee on ocean observatories.

Dr. Bement also reported that, on the legislative front, the most significant Congressional action was the mark-up of the House VA, HUD, and Independent Agencies appropriations bill for the coming fiscal year. In other legislative matters, the House passed three noncontroversial bills with provisions that affect NSF, mostly by involving NSF in coordination of research activities with other agencies. Those bills were: H.R. 3980, the National Windstorm Impact Reduction Act of 2004, which establishes that the National Windstorm Impact Reduction Program to achieve major measurable reductions in losses of life and property from windstorms; H.R. 4218, the High-Performance Computing Revitalization Act of 2004, which directed the President to implement a High-Performance Computing Research and Development Program to provide for long-term basic and applied research on high-performance computing; and H.R. 3598, the Manufacturing and Technology Competitiveness Act of 2004, which directed the President to establish or designate an interagency committee to coordinate Federal efforts in manufacturing, research, and development. Although the three bills had been sent to the Senate, the Senate had not taken any action as yet.

c. Recognition of NSF Employees in the Military

Dr. Bement stated that the National Science Foundation (NSF) takes great pride in its "citizen soldiers," some still on active duty, who have served in Iraq and elsewhere.

Two NSF employees who had recently returned from active duty:

- Sergeant Major Gwendolyn Adams, USAR, with the NSF Office of Polar Programs. Sergeant Major Adams served as a paralegal and the first noncommissioned officer in charge of the Judge Advocate General Special Projects Division, Department of Army.
- Colonel Christopher McRae, USMCR, with the NSF Education and Human Resources Directorate. Colonel McRae served on active duty for 30 months. He last served as the senior Marine Corps representative and executive director for the Operation Tribute to Freedom Program in the Office of the Assistant Secretary of Defense for Public Affairs at the Pentagon.

Additionally, three NSF employees are currently on active duty in the Army Reserves:

- Major Pamela Conyers, USAR, with the NSF Education and Human Resources Directorate, recently completed a year in Iraq where she was deployed with the 352nd Civil Affairs Command and received the Bronze Star decoration. She is on active duty at the U.S. Army Reserve Civil Affairs Command in Maryland.
- Major Keaven Stevenson, USAR, with the NSB Office, is a mobilization officer in the Army Operations Center at Headquarters, Department of the Army at the Pentagon. His military assignment began in December 2002 and had been extended for a second year.
- Sergeant Steven Burch, USAR, with the NSF Office of International Science and Engineering, was recently recalled to duty in Iraq.

Colonel McRae, Major Conyers, Major Stevenson, and Sergeant Major Adams stood to be recognized and received applause. Sergeant Burch's wife, Joyce, who works in the Education and Human Resources Directorate, represented her husband in his absence.

AGENDA ITEM 9: Committee Reports

a. Executive Committee (EC)

Dr. Bement, chairman of the Executive Committee, reported that in Open Session the committee approved the minutes of their May meeting (NSB/EC-04-09, Board Book Tab 9A). As mentioned in the Chairman's Report, the Executive Committee also discussed the February 2005 Board meeting and retreat site, and made recommendations to the NSB Chairman.

b. Audit and Oversight (A&O)

A&O Open Session

Dr. Mark Wrighton, chairman of the A&O Committee, reported that the committee reviewed issues related to NSF's use of temporary appointments under the Intergovernmental Personnel Act (IPA) and Office of Personnel Management Visiting Scientist Engineer and Educator (VSEE) authority.

The committee received background reports from NSF staff and Office of Inspector General (OIG) staff on recommendations of the National Academy of Public Administration (NAPA) report and current NSF policy and procedures for IPAs/VSEE/temporary workers, including the 1997 Inspector General (IG) study on this topic. The use of IPAs and VSEEs was deemed an important contribution to the NSF and to the community that the NSF serves. The annual incremental costs of using this

approach were judged modest in comparison to overall expenditures for Research and Related Activities (R&RA), and that those costs provide commensurate return on investment.

The Board Office will take the lead in preparing Board responses to IPA-related questions sent from Hill staff. The draft responses will be developed in consultation with NSF leadership and with OIG. Drs. Wrighton and Washington will work closely with the Board Office to formulate responses prior to discussion by A&O and the Board at the October meeting.

The committee discussed and recommended full Board approval for a resolution (NSB-04-135, Supplemental Folder) on the FY 2005 NSF budget accounting relating to IPA costs from the R&RA account to the S&E account.

The Board APPROVED the resolution for the NSB Chairman to communicate with the Chairman and Ranking Member of the House Appropriations Subcommittee for VA, HUD, and Independent Agencies regarding the Board's concern on the budget accounting relating to IPAs.

The committee also discussed the NSB position on the question from the House Subcommittee on Government Efficiency and Financial Management on whether the NSF IG should be a Presidential appointment. The committee determined that the current IG appointment and reporting structure worked well, and it would be appropriate to continue to support the current mode of appointment of the IG by NSB.

Mr. Thomas Cooley, NSF Chief Financial Officer, provided an update on the status of corrective actions on the FY 2003 management letter, with special attention to initiatives in proactive communication and outreach with grantees and budget/performance/cost integration. Mr. Joseph Burt, NSF Director in the Division of Human Resource Management, discussed the current status of the business analysis. He reported that much progress is being made on various areas including human capital management, business process analysis, and information technology enterprise architecture for the NSF.

Ms. Jill Schamberger, Audit Manager in the Office of Inspector General, presented the results of an audit of the Math and Science Partnership Program (MSP). The objectives of this audit were to determine whether individual MSP awardees have an effective evaluation process for their projects and whether the NSF has a plan to evaluate the overall performance of the MSP Program. She reported that NSF agrees that appropriate guidance for evaluations is necessary; however, some of the elements that were used as criteria are being debated. The EHR Directorate will convene evaluation experts to frame a "statement of practice" that responds to the intent of the recommendations made by those involved in the audit.

A&O Closed Session

The committee considered elements of the financial impact of those associated in rotator positions. The committee also reviewed the OIG budget request for FY 2006, and heard updates on ongoing investigations conducted by OIG.

c. Education and Human Resources (EHR)

Dr. Hoffman, chair of the EHR committee, reported that the committee heard NSF staff presentations that summarized topics of continuing interest including the status of the MSP. NSF staff presented a summary of a joint NSF/National Institutes of Health (NIH)/Council of Graduate Schools (CGS) Graduate Support Workshop on the support of science, technology, engineering, and mathematics graduate students and post-docs that was held on June 17-18 at the American Association for the Advancement of Science.

The committee discussed recommendations made by three working groups that reviewed education programs across the NSF in 2003, addressing K-12, undergraduate level, and graduate level programs and activities. The committee also discussed ways to follow up on the working groups' recommendations and consider long-range policy that might be put in place. The committee members agreed that it would be useful to invite faculty from MSPs to discuss the impact of that program, and to invite members of industry to the committee to discuss their skill needs and perceived shortages of appropriate skills in the workforce. The committee also agreed to invite representatives of the Historically Black Colleges and Universities (HBCU) cluster to talk about that activity at the October EHR meeting.

The committee reviewed and discussed several of the comments received on the draft report *Broadening Participation in Science and Engineering Research and Education* (NSB-04-41). The committee members agreed to accept the recommendations submitted by Dr. Elias Zerhouni, Director of NIH, and noted the need to refer to the Board's more extensive policy report on S&E workforce to provide context for the limited focus of the report on broadening participation. Work will continue on the draft report and one or two EHR Committee teleconferences will be scheduled before the October NSB meeting to discuss revisions.

Lastly, the committee was briefed on a recent review from the staff of the EHR Directorate. Background on the final report on the mathematics education portfolio review was presented, highlighting the process and data sources used in the review.

d. EHR Subcommittee on S&E Indicators

Dr. Beerling, acting chairman, reported on the EHR Subcommittee on Science and Engineering Indicators. He noted that the addition of the state's chapter received much enthusiasm around the Nation, and that the document has been of great help to agencies, Members of Congress, and all manner of organizations that use these statistics. The

subcommittee discussed the proposed outlines for the 11 chapters for the next edition in 2006. Dr. Beering noted with special interest a significant section on stem cell research.

e. Committee on Programs and Plans (CPP)

Dr. Simberloff, chairman of the Committee on Programs and Plans, stated that the committee heard a report from Dr. Leinen on the status of environmental activities at NSF, a continuing followup to *Environmental Science and Engineering for the 21st Century, The Role of the NSF* (NSB-00-22). Dr. Leinen briefed the committee on current transition plans as Biocomplexity and the Environment moves into core NSF programs.

The committee continued discussions on setting priorities for large research facility projects at NSF and on a response to the National Academies' report on that subject. NSF's response to the report has focused on four major issues: transparency, criteria, funding for planning activities, and a roadmap. A joint NSB/NSF response to the report will be developed by a working group of CPP. The draft will be considered at the October NSB meeting.

f. Subcommittee on Polar Issues (SOPI) [formerly known as Polar Issues (PI)]

In the absence of Dr. John White, Dr. Simberloff reported for Subcommittee on Polar Issues. He stated that the NSF Office of Polar Programs briefed the SOPI on a meeting of the Antarctic Treaty System. NSF's environmental reviews of IceCube and Overland Traverse were well received by the Antarctic Treaty's Committee on Environmental Protection.

g. *ad hoc* Task Group on High Risk Research (HiRisk)

Dr. Nina Fedoroff reported that plans for the upcoming workshop on transformative research include a day and a half at the Santa Fe Institute in New Mexico, September 22-23. The workshop will solicit individual researcher insights from a broad spectrum of the scientific community. Invitations to participants will be sent in August along with a background paper that is being developed.

h. Committee on Strategy and Budget (CSB)

CSB Open Session

Dr. Bowen, chairman of the Committee on Strategy and Budget, reported that the committee discussed the status of the FY 2005 budget request to Congress. He noted that a recent mark-up from the House Appropriations Committee was provided to Board Members. The OIG and the NSB were funded at the FY 2005 request level in the mark-up of the NSF as a whole, which was below the request level.

CSB Closed Session

The committee heard a report from Dr. Bement on the FY 2006 budget outlook and proposed budget scenarios and strategies. Dr. Crosby presented the FY 2006 budget request for the NSB and outlined activities and initiatives that would be supported.

Dr. Washington adjourned the Open Session at 1:45 p.m.

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