

NSB-01-149

**APPROVED MINUTES¹
OPEN SESSION
364th MEETING
NATIONAL SCIENCE BOARD**

The National Science Foundation
Arlington, Virginia
August 9, 2001

Members Present:

Eamon M. Kelly, Chairman
Anita K. Jones, Vice Chair
John A. Armstrong
Nina V. Fedoroff
Pamela A. Ferguson
Mary K. Gaillard
M.R.C. Greenwood
Stanley V. Jaskolski
George M. Langford
Robert C. Richardson
Vera Rubin
Luis Sequeira
Daniel Simberloff
Bob H. Suzuki
Warren M. Washington
John A. White, Jr.
Mark S. Wrighton

Rita R. Colwell, NSF Director

Members Absent:

Jane Lubchenco
Joseph A. Miller, Jr.
Diana S. Natalicio
Michael G. Rossmann
Maxine Savitz
Richard Tapia
Chang-lin Tien

¹ The minutes of the August 9 meeting were approved by the Board at the October 11, 2001 meeting.

The National Science Board (NSB) convened in Open Session at 3:30 p.m. on Thursday, August 9, 2001, with Dr. Eamon Kelly, Chairman of the Board, presiding (Agenda NSB-01-111). In accordance with the Government in the Sunshine Act, this portion of the meeting was open to the public.

In order to accommodate travel plans and in consideration of the limited time available, Dr. Kelly stated that the agenda had been ordered to place action items first and that Agenda Item 10, a presentation on the Urban Systemic Evaluation, had been deleted from the Open Session.

AGENDA ITEM 5: Open Session Minutes, March 2001

The Board APPROVED the Open Session minutes of the May 2001 meeting (NSB-01-98, Board Book Tab I).

AGENDA ITEM 6: Closed Session Items for October 2001

The Board APPROVED the Closed Session items for the October 2001 Board Meeting (NSB-01-115, Board Book Tab J).

AGENDA ITEM 7: Chairman's Report

a. SPI Committee Report

Dr. Kelly, chair of the Committee on Strategic Policy Issues (SPI), presented the draft report, "Federal Research Resources: A Process for Setting Priorities," for Board discussion and approval as an interim report. He reminded Board members that the SPI study began more than two years ago in response to a request from the House Appropriations Committee and encouragement from the Office of Management and Budget (OMB). After exhaustive data collection, the committee distributed the draft to Board members in February. In March the Board approved the draft as a discussion document to be circulated for public comment. The discussion document was posted on the Board's website, mailed or emailed to approximately 200 organizations and individuals, and was the subject of a two-day stakeholders' symposium in May. The SPI Committee incorporated comments received into the current draft before the Board. If approved as an interim report, the document will be released for additional public comment. The SPI Committee intends to bring the revised document with its appendices to the Board for final approval at the October meeting.

The Board APPROVED "Federal Research Resources: A Process for Setting Priorities" (NSB-01-39) as an interim report.

b. Committee Business

Dr. Kelly stated that he was discharging two committees that had completed their work:

- The NSB Nominating Committee for the election of May 2001, chaired by Dr. Anita Jones, with members Drs. John Armstrong, Stanley Jaskolski, and Bob Suzuki; and
- The Committee on the February 2001 NSB Retreat, chaired by Dr. Jones, with members Drs. Armstrong, Jaskolski, Suzuki, Joseph Miller, and Robert Richardson.

c. February 2002 Policy Meeting

Dr. Kelly reminded Board members that they had approved the meeting calendar for 2002 and had discussed potential topics and locations for the February 2002 policy meeting. Because of attendance and travel difficulties, and because a number of current Board studies are not yet at the stage to organize the February policy meeting, Dr. Kelly suggested that the Board consider combining the February and March 2002 Board meetings, defer the policy meeting until a later time, and attach the retreat to the March meeting.

After brief discussion by Board members, Dr. Kelly stated that the Board Office staff would re-poll the members with the objective of identifying an earlier meeting date in late February or early March that would allow maximum attendance.

AGENDA ITEM 8: SEI 2002 Review

In the absence of Dr. Richard Tapia, chair of the Science and Engineering Indicators Subcommittee, Dr. Richardson presented the subcommittee's choice of a cover for "Indicators 2002," a track of a neutrino measured at the detector at the South Pole. He also reported on a discussion of potential topics for a companion piece to accompany "Indicators 2002." The companion piece gives the Board an opportunity to interpret data related to a topic of special interest to the Board. Four topics discussed by the subcommittee are information science and the Internet, education, partnerships, and the globalization of science and technology. During discussion, Board members suggested a focus on the data related to urban systemic initiatives, a combination of information technology and nanotechnology, or the importance of basic research from a global perspective. Dr. Richardson indicated that the subcommittee would complete its consideration by October and report back to the Board.

Dr. Richardson reported that the subcommittee had discussed distributing future "orange book" drafts on CD-ROM. The subcommittee also discussed changing the interval at which the full document is published. For example, the complete document might be published every four years, but the graphs and tables could be updated annually on the website.

Dr. Richardson presented the "orange book," the draft of "Science and Engineering Indicators 2002," for approval as an interim report, to be made available for public comment. He noted that comments should be submitted to Dr. Tapia by September 7 for the subcommittee's review, and that the subcommittee would submit a complete, revised document for final Board approval at the October meeting.

The Board APPROVED the draft "Science and Engineering Indicators 2002" as an interim report.

AGENDA ITEM 9: Director's Report

a. Staff Introductions

Dr. Rita Colwell, Director of the National Science Foundation (NSF), introduced two recently appointed staff: Dr. Judith Ramaley, Assistant Director for Education and Human Resources; and Ms. Andrea Norris, Director of the Division of Information Systems.

b. Congressional Update

Dr. Colwell reported that there have been several hearing involving NSF on topics of Arctic climate change research, plant genomics, and oceanography. The House Science Committee held two hearings on information technology research.

Although the final NSF FY 2002 budget figures will not be known until after conference negotiations, Dr. Colwell noted that NSF appropriations bills have passed both houses of Congress and therefore can no longer be used to draw from for other appropriations bills. The House appropriations bill gives NSF a 9.7 percent increase over the FY 2001 budget, and the Senate bill provides a 5.9 percent increase.

Dr. Colwell stated that the House passed two NSF-related science education bills: H.R. 1858 authorizes NSF to establish partnerships with institutions of higher education and school districts, establishes scholarships to attract college junior and senior math and science majors into teaching, and establishes four new university centers for research into teaching and learning. H.R. 100 authorizes NSF to provide funding to institutions of higher education for a master teacher program to aid science and math teachers.

Other NSF-related bills that have been introduced are H.R. 2049 and H.R. 2050, authorizing activities in support of research on learning, and H.R. 2051, providing for the establishment of regional plant genome and gene expression research and development centers.

AGENDA ITEM 10: Presentation: Urban Systemic Evaluation

[As noted above, this item was deleted from the agenda. The presentation, however, was given to the Board as an information item before the Open Session began.]

AGENDA ITEM 11: Committee Reports

a. Committee on Programs and Plans (CPP)

In the absence of Dr. Armstrong, committee chair, Dr. Richardson reported that Dr. Joseph Bordogna, NSF Deputy Director, briefed the committee on NSF's Large Facility Projects Management and Oversight Plan. The committee also considered and approved six awards and agreements, which were later approved by the Board in Closed Session: the Laser Interferometer Gravity Wave Observatory, the National Superconducting Cyclotron Laboratory, extension of the Cooperative Agreement for Management of the National Radio Astronomy Observatory, the authorization of ALMA Year 5 Design and Development, the Distributed Terascale Facility, and the Panel Study of Income Dynamics.

b. Audit and Oversight (A&O)

Dr. Jaskolski, committee chair, reported that committee members participated in the CPP meeting to hear Dr. Bordogna's update on the Facilities Management and Oversight Plan.

In its regular meeting, the committee received three reports. First, Mr. Thomas Cooley, Director of the Office of Budget, Finance and Award Management, presented a study on Congressional and OMB interest in agencies making improper and/or erroneous payments and how this affects NSF. In terms of payment accuracy, NSF has a good record. The committee was assured that NSF and Office of the Inspector General (OIG) reviews undertaken in response to Congressional requests do not and will not affect scientific work negatively. Second, Dr. Mary Santonastasso, Director of the Division of Grants and Agreements, reported on how risk assessment techniques will be used as a systemic management tool. Third, Dr. Linda Massaro, Director of the Office of Information and Resource Management and Chief Information Officer, briefed the committee on the five-year Administration and Management Strategic Plan. The plan will be submitted as part of the FY 2003 budget.

In supervisory session, the committee approved the OIG's FY 2003 budget and heard presentations on several ongoing audits and reviews. The Inspector General, Dr. Christine Boesz, informed the committee that she has been asked to testify along with the Director and Board Chair before the Research Subcommittee of the House Science Committee on September 6, regarding NSF plans to manage large facility projects.

In addition, the committee is reviewing the resources of the Board and how those resources are used, with the intent of identifying ways to improve the efficiency of Board operations.

c. Education and Human Resources Committee (EHR)

In the absence of Dr. Suzuki, committee chair, Dr. Vera Rubin reported that Dr. Ramaley shared with the committee her initial thoughts about the challenges regarding education

and workforce issues. The committee heard presentations from (1) Dr. Susan Duby, Director of the Division of Graduate Education, on the effort to establish a professional master's degree, a program at research universities that is being funded by the Sloan Foundation and also involves industry; (2) Dr. Costello Brown, Director of the Division of Educational System Reform, on findings of the recent evaluation of NSF's Urban Systemic Initiative; (3) Dr. Ramaley on the status of the Math and Science Partnership Initiative; and (4) Dr. Eric Hamilton, Interim Director of the Division of Research, Evaluation and Communication, on findings about how students learn, based on data drawn from many activities of the Education and Human Resources Directorate.

The main focus of the committee meeting was a discussion of the draft report "The Road to Excellence: The National Science Foundation's Leadership in K to 16 Science, Mathematics, Engineering and Technology Education." The purpose of the report is to provide a framework for the Board's evaluation of the EHR Directorate's current and proposed programs. The Board will receive a draft of the report for comment. The committee intends to finalize the report at its next meeting.

d. EHR Task Force on National Workforce Policy (NWP)

In the absence of Dr. Miller, task force chair, Dr. George Langford reported that the task force discussed the framework for its report, sharpened the focus of the draft, and revised the approach for the next draft. The task force plans to present its revised draft to the EHR Committee at the November meeting.

e. CPP Subcommittee on Polar Issues

Dr. Warren Washington, subcommittee chair, reported that NSF staff briefed the subcommittee on progress at the South Pole station and the possibility of increasing available berthing spaces to 150; health and safety issues and logistical support for the Arctic; and research involving sub-glacier lakes in Antarctica. Dr. Karl Erb, Director of the Office of Polar Programs, provided an update on the Antarctic Treaty Organization; Argentina will be named secretariat. Dr. Margaret Leinen, Assistant Director for the Geosciences, briefed the subcommittee on the presidential initiative for research on climate change.

f. CPP Task Force on Science and Engineering Infrastructure (INF)

Dr. John White, task force chair, reported that the NSF directorates provided analyses of their current infrastructure funding, their needs over the next ten years, and challenges they face in meeting the needs of the disciplines they serve. Expenditures for infrastructure range from 10 percent to 80 percent of directorate budgets. The degree to which external communities are involved in identifying and prioritizing future needs also varied greatly. Dr. White noted that, in total, NSF currently spends approximately \$1.1 billion a year in support of infrastructure. When the needs over the next ten years are consolidated, approximately twice that figure is needed—a strong argument for doubling the overall NSF budget, because it makes no sense to provide the infrastructure if the

support is not there to produce the scientists to use it. Because of these findings, the task force believes that the appropriate audience for its report is the Congress, OMB, and the Office of Science and Technology Policy. The task force's report will focus on the NSF infrastructure needed to meet the needs of the disciplines it serves.

g. Committee on Strategy and Budget (CSB)

Dr. Jones, committee chair, reported that the committee held its first face-to-face meeting on August 8. The committee has selected two issues to focus on this year: award size and duration, and the balance between core business and initiatives. The committee examined the FY 2002 budget, with a presentation from the NSF Director, and in Closed Session recommended that the Board approve the FY 2003 budget submission to OMB. The Board approved the budget submission in Closed Session.

h. Task Force on International Issues in Science and Engineering (ISE)

In the absence of Dr. Diana Natalicio, task force chair, Dr. Pamela Ferguson reported that the main focus of the task force meeting was the draft consolidated report, which combines the earlier transition report and the guidance report requested by the NSF Director. The task force expects to distribute the revised consolidated draft to the full Board for comment and to ask for Board approval of the draft as an interim report at the October meeting. It is anticipated that the final report will be submitted for Board approval at the November meeting.

AGENDA ITEM 12: Other Business

Dr. Kelly welcomed Mr. Gerard Glaser as Senior Policy Officer in the Board Office.

After thanking the many NSF staff members who helped prepare for and who participated in the meeting, Dr. Kelly adjourned the Open Session at 4:30 p.m.

Janice E. Baker
Policy Writer/Editor