

May 30, 2001

Revised

MEMORANDUM TO MEMBERS OF THE NATIONAL SCIENCE BOARD

SUBJECT: Preliminary Report of the May 23-24 2001 Meeting

The major actions of the Board at its 363rd meeting on May 23 and 24, are summarized for the information of those members absent and as a reminder to those present.

1. Board Elections

The Chairman announced that Dr. M.R.C. Greenwood and Dr. Robert C. Richardson have been reelected to serve 2-year terms as members of the Executive committee.

2. Board Actions

- a) The Board approved the management response to the June, 2001 Inspector General's Semi-Annual Report.
- b) The Board received the annual report of the Executive Committee (NSB/EC-01-10) from the Chair, Dr. Rita Colwell.
- c) The Board approved a schedule of meetings for 2002, NSB-01-93 (Attachment 1).
- d) The Board approved the Closed and Open Session minutes of the March 2001 meeting.

2. Awards

The Board approved the following awards:

Amount not
to exceed

Directorate for Mathematical and Physical Sciences

Division of Astronomical Sciences

Authorization of ALMA (MMA) Year 4 Design
and Development Funding
Associated Universities, Inc. (AUI)
(NSB-01-79)

Amended Level
\$32,000,000 through
December 31, 2001

Directorate for Geosciences

Division of Earth Sciences

Exploring the Earth at High Resolution:
The IRIS 2005 Program Plan,
Incorporated Research Institutions
for Seismology
(NSB-01-78)

\$88,000,000
for 60 months

NSB Committees

The Chairman discharged with thanks the Committee on the 2001 Vannevar Bush Award, Chaired by Dr. Langford, with members Drs. Fedoroff, Washington and Wrighton, and Executive Secretary Ms. Susan Fannoney.

The Chairman announced that Dr. Simberloff has replaced Dr. Miller on the EHR Subcommittee on S&E Indicators.

The Chairman announced the establishment of a standing Committee on Strategy and Budget, Chaired by Dr. Jones, with members Drs. Ferguson, Lubchenco, Miller, Natalicio, Washington and Wrighton. A committee charge (NSB-01-104, attachment 2) was finalized. With the establishment of this committee, approval of the NSF budget and the OIG budget will once again be exercised by the full Board.

Committee Reports

(Materials for committee summaries are provided by executive secretaries.)

a. Executive Committee

The Executive Committee briefly discussed the status of the budget process and heard an update on congressional activities. It also approved the annual report of the Executive Committee (NSB/EC-01-10), as required by the NSF Act.

b. Audit & Oversight (A&O)

The committee heard updates on GPRA and the financial statements and computer system audits. New computer security audit requirements under the Government Information Security Reform Act were identified. A report on the inaugural meeting of the Business and Operations Advisory Committee was also given. The committee also heard a briefing on how NSB-approved awards are tracked within NSF. The agency's response to the Gemini audit was discussed, in terms of both responses to specific recommendations and improvements for agency facilities management in general. It was noted that an agency Facilities Management Plan, currently under development, will be discussed at the August NSB. Dr. Bordogna shared copies of the draft transmittal letter for the OIG semi-annual report, and the committee voted to recommend that the full Board approve the letter.

Supervisory Session:

The committee discussed how the OIG would use additional FY 2002 funds if they become available. There was a presentation of the OIG's Outreach Plan and an update on NSF actions to address an OIG audit. The committee considered ways to better understand and be involved in addressing management challenges facing NSF.

c. Education and Human Resources (EHR)

Members of the EHR Committee were invited to attend a portion of the CPP meeting where NSF's merit review Criterion 2 and its use in the review process was discussed.

The EHR meeting heard reports from the Science and Engineering Indicators Subcommittee and the Task Force on National Workforce Policies (NWP) for Science and Engineering. The chair of the Indicators Subcommittee reported that five remaining chapters will be reviewed via teleconference in the near future. The NWP Task Force chair reported that the task force feels it must revisit the schedule for completion of the report as November 2001 now appears very unrealistic given the amount of work involved.

The committee then discussed a draft of a report entitled "The Road to Excellence: The National Science Foundation's Leadership in K-16 Science, Mathematics, Engineering, and Technology Education." A number of suggestions were made for reorganizing and refining the draft. The plan is to have a new draft ready for discussion at the August meeting. The committee reviewed the status of the draft "transition" paper on Education and Human Resource Development and decided against further work on this document since the content will likely be covered in the NSF Leadership in K-12 report.

The committee next discussed a Sloan Foundation project where grants are made to institutions to develop programs that offer a "professional master's degree". The program aims to foster graduate training that equips people to work outside of academia. The Sloan Foundation is interested in the possibility of partnering with NSF on this program. The committee asked that the EHR staff further explore the possibilities with the Sloan Foundation and report back to the committee at the next meeting.

The committee discussed the problem of under-representation of women at NSF-sponsored conferences and meetings – both as participants and, in particular, as invited speakers. The committee agreed that the Board should be asked to consider whether all directorates should have a policy similar to the Biological Sciences Directorate, which has a policy making awards for conference support contingent on the inclusion of women among the invited speakers.

The committee heard presentations from Dr. Sunley regarding details of the EHR FY02 budget, and from Dr. Hamilton on current EHR plans for better communicating information about their programs and their research and evaluation studies.

Programs and Plans (CPP)

The Committee on Programs and Plans, with the Education and Human Resources Committee members invited, discussed the NSB merit review criteria two, on broader impacts, adopted in 1998. Committee discussion covered use of criterion two by proposers and reviewers, and

considered ways to ensure that both criteria are addressed in the proposal and review process. There will be further discussion at the October meeting. Three action items were identified for consideration at the October NSB meeting: (1) a draft NSB resolution on the importance of both merit review criteria will be prepared, (2) NSF will explore the development of generic examples for Criterion 2 modeled after those done by the OPP Advisory Committee, and (3) NSF will prepare a plan for better communicating the importance and use of the merit review criteria.

CPP considered two proposed awards, and recommended award approval to the full Board: ALMA (MMA) Year 4 Design and Development Funding (Associated Universities, Inc.) and Exploring the Earth at High Resolution: The IRIS 2005 Program Plan (Incorporated Research Institutions for Seismology).

The Committee heard an update on planning for cyber infrastructure, including information on the new Advisory Committee on Cyber Infrastructure (ACCI). ACCI will evaluate the performance of the program for Partnerships for Advanced Computational Infrastructure (PACI); recommend new areas of emphasis for the CISE Directorate; and recommend an implementation plan in conjunction with recommendations for new areas of emphasis. CPP was also provided with the review schedule for the Distributed Terascale Facility.

CPP heard a brief report on the status of NSB-approved awards, including new procedures in place for notification to the Director when discretionary authority granted by the NSB will be used. As requested at its March 2001 meeting, CPP was provided with guidelines for the use of Gemini funds currently held in reserve for contingencies. A baseline cash-flow analysis for the Gemini project was outlined, including an analysis of risks.

The committee received a presentation on Major Research Equipment (MRE), including discussion of revised guidelines for major infrastructure projects. CPP also heard a summary of the planning process underway to consider potential candidates for future support through the MRE budget account. There was a presentation and discussion of the Network for Earthquake Engineering Simulation (NEES), an example of a distributed infrastructure project.

The Infrastructure Task Force provided a brief report to the committee. CPP also received two written information items from the Office of Polar Programs; on the International Arctic Research Center (IARC), and on LC-130 aircraft upgrades currently underway.

a. Science and Engineering Indicators (SEI)

Dr. Daniel Simberloff was welcomed to the Subcommittee as its newest member, replacing Dr. Joseph Miller.

The principal authors, lead reviewers and other subcommittee members discussed three draft Indicators-2002 chapters, summaries of reviewers' comments, and authors' responses.

Dr. Jean Johnson, author of the Higher Education chapter, discussed the purpose of the chapter and summarized the reviewers' comments. Dr. Richardson, lead Subcommittee reviewer, commented that the chapter was a very important document containing a wealth of longitudinal data. It was suggested that the order of the chapter be changed to first highlight the status of, and trends in, higher education in the U.S. and then to discuss international trends.

Dr. Thomas Smith, author of the Elementary and Secondary Education chapter, summarized the reviewers' comments and lead reviewer Dr. Tapia stated the chapter was very well done. He recommended clarification of the point that improvement of achievement over time is based on the NAEP long-term trend assessment. Also, there needs to be more information, if available, on the impact of calculators on elementary and secondary education. It was also recommended that achievement in inner city schools, not just in states, be highlighted wherever possible. In comparisons across racial and ethnic groups, Dr. Tapia noted that it is important to acknowledge that there is wide variability within Hispanics and Asians by country of origin, even if data are not available to distinguish them separately in the reporting in Indicators.

Mr. Jankowski, one of the authors of the U.S. and International R&D Funds and Alliances chapter, presented an overview of the chapter, discussing reviewers' comments and proposed responses.

Overall, the subcommittee concluded that the chapters appear to be well written and include interesting topics. The subcommittee agreed that teleconferences should be scheduled in the next several weeks to review the remaining five draft chapters. In addition to subcommittee members, teleconferences will also include, whenever possible, NSB members who have been assigned to the specific chapters being reviewed. Mary Poats will work with the Board Office and SRS on scheduling arrangements.

h. International Issues in S&E (ISE)

Dr. Diana Natalicio reminded everyone that the Task Force issued two preliminary reports: a "transition report" which was recently sent to Secretary of State Colin Powell, and a guidance report requested by the NSF director. With respect to the former, the task force discussed Secretary Powell's response to the transition report as well as interactions with the Department of State. Specifically, NSF is working on a program to detail NSF staff to U.S. embassies for short periods of time. Some 33 embassies have requested temporary scientific expertise in a number of areas and about a dozen NSF employees have volunteered to participate in the program. To date, 9 possible matches have been identified.

With respect to the NSF guidance report, Dr. Colwell reported to the task force that an internal NSF-wide group was established to look in depth at NSF's international activities. That group has produced an interim report and each of the Assistant Directors has been asked to comment on the report and provide concrete recommendations. The objective of these activities is to carefully formulate an action plan, which is likely to be ready sometime this summer.

Finally, the task force discussed the preparation of the consolidated final report. During this discussion it was confirmed that the audience for the integrated report would be a broad one, including both the policy and the science and engineering communities. Task force members were comfortable with the revised report outline and the work done to date and agreed on a process for producing the final report. The task force expects to present it to the full Board before the November meeting.

i. Strategic S&E Policy Issues (SPI)

The Committee on Strategic Science and Engineering Policy Issues met and discussed the results of the Symposium on Allocation of Federal Resources for Science and Technology, May 21 and 22, and next steps toward producing a final report. Members were pleased both with the discussions and attendance at the Symposium. Next steps include compilation of comments from the symposium and mail submissions, redrafting the discussion paper to incorporate the comments and developing an outline for a broader final report for submission to NSB at the August meeting; and preparing a final report for consideration by NSB at the October meeting.

j. CPP Task Force on S&E Infrastructure (INF)

The task force heard presentations from the Assistant Directors for SBE, GEO, ENG, and CISE, and from the Director of OPP. These presentations provided valuable information concerning S&E infrastructure status, needs and opportunities. The task force heard from the ADs for BIO and MPS at its March meeting and will hear from EHR at the August meeting. Dr. Colwell asked the task force to provide input in time to be used for the FY 2004 budget cycle.

k. EHR Task Force on National Workforce Policies for S&E (NWP)

Continuing its review of available data the task force heard presentations from (1) Dr. Lindsey Lowell, demographer at Georgetown University, on the “State of Knowledge on the Flow of Foreign Science and Technology Workers to the United States,” (2) Dr. Susan Hackwood, Executive Director of the California Council on Science and Technology on the “Critical Path Analysis of California’s S&T Education System,” and (3) Dr. Lawrence Burton, NFS/SRS, on “NSF Data on Mid-Career Training and Education.” A brief question and answer period followed each presentation.

In executive session, the Task Force reached consensus to use the California critical path analysis as a model for developing a framework for the Task Force’s report. It was noted that the Department of Labor, the National Academy of Sciences, and the European Union have undertaken workforce studies, and more information about their approaches could be helpful. SRS was asked to gather information on these studies, provide additional information on trends, and provide or identify a data expert who could assist the Task Force. Members of the Task Force agreed that, considering the work that remains to be done, the November 2001 deadline for their report may need to be extended.

Marta Cehelsky
Executive Officer

Attachment 1: NSB-01-93
Attachment 2: NSB-01-104