

**STATEMENT FOR THE RECORD OF
DR. CHRISTINE BOESZ
INSPECTOR GENERAL
NATIONAL SCIENCE FOUNDATION
before the
U.S. SENATE
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON VA, HUD, AND INDEPENDENT AGENCIES
February 26, 2004**

Chairman Bond, Senator Mikulski, and distinguished members of the Subcommittee, I am Dr. Christine Boesz, Inspector General at the National Science Foundation (NSF). I appreciate the opportunity to present to you information as you consider NSF's fiscal year 2005 budget request. NSF's work over the past fifty-four years has had an extraordinary impact on scientific and engineering knowledge, laying the groundwork for technological advances that have shaped our society and fostered the progress needed to secure the Nation's future. Throughout, NSF has maintained a high level of innovation and dedication to American leadership in the discovery and development of new technologies across the frontiers of science and engineering.

Over the past few decades, however, the nature of the scientific enterprise has changed. Consequently, NSF is faced with new challenges to maintaining its leadership position. My office has and will continue to work closely with NSF management to identify and address issues that are important to the success of the National Science Board and NSF. Last year, I testified before this Subcommittee on the most significant issues that pose the greatest challenges for NSF management. This year, you have asked me to provide an update, from my perspective as Inspector General, on the progress being made at NSF to address three of these challenges.

MANAGEMENT OF LARGE INFRASTRUCTURE PROJECTS

Throughout my tenure as Inspector General of NSF, we have considered management of large facility and infrastructure projects to be one of NSF's top management challenges.¹ As you know, NSF has been increasing its investment in

¹ Memorandum from Christine C. Boesz, Inspector General, National Science Foundation, to Warren Washington, Chairman, National Science Board, and Rita R. Colwell, Director, National Science Foundation (Oct. 17, 2003) [hereinafter 2003 Management Challenges]; Memorandum from Christine C. Boesz, Inspector General, National Science Foundation, to Warren Washington, Chairman, National Science Board, and Rita R. Colwell, Director, National Science Foundation (Dec. 23, 2002) [hereinafter 2002 Management Challenges]; Memorandum from Christine C. Boesz, Inspector General, National Science Foundation, to Eamon M. Kelly, Chairman, National Science Board, and Rita R. Colwell, Director, National Science Foundation (Jan. 30, 2002) [hereinafter 2001 Management Challenges]; Letter from Christine C. Boesz, Inspector General, National Science Foundation, to Senator Fred Thompson, Chairman, Senate Committee on Governmental Affairs (Nov. 30, 2000) [hereinafter 2000 Management Challenges].

large infrastructure projects such as accelerators, telescopes, research vessels and aircraft, supercomputers, digital libraries, and earthquake simulators. Many of these projects are large in scale, require complex instrumentation, and involve partnerships with other Federal agencies, international science organizations, and foreign governments. Some, such as the new South Pole Station, present additional challenges because they are located in harsh and remote environments.

As I testified last year,² the management of these awards is inherently different from the bulk of awards that NSF makes. While oversight of the construction and management of these large facility projects and programs must always be sensitive to the scientific endeavor, it also requires a different management approach. It requires disciplined project management including close attention to meeting deadlines and budget, and working hand-in-hand with scientists, engineers, project managers, and financial analysts. Although NSF does not directly operate or manage these facilities, it is NSF that is ultimately responsible and accountable for their success. Consequently, it is vital that NSF, through disciplined project management, exercise proper stewardship over the public funds invested in these large projects.

In fiscal years (FYs) 2001 and 2002, my office issued two audit reports on large facilities with findings and recommendations aimed at improving NSF's management of these projects.³ Primarily, our recommendations were aimed at (1) increasing NSF's level of oversight of these projects with particular attention on updating and developing policies and procedures to assist NSF managers in project administration, and (2) ensuring that accurate and complete information on the total costs of major research equipment and facilities is available to decision makers, including the National Science Board, which is responsible for not only approving the funding for these large projects, but also setting the relative priorities for their funding. NSF responded that it would combine its efforts to respond to the recommendations made in these separate audit reports.

During the past year, NSF has made gradual progress towards completing the corrective action plans and has taken steps to address approximately half of the report recommendations. In June 2003, NSF took an important step when it hired a new Deputy Director for Large Facility Projects, and in July the agency issued a *Facilities Management and Oversight Guide*.⁴ NSF has also begun to offer Project Management Certificate Programs through the NSF Academy to help program officers improve their skills in managing large facility projects.

² Statement of Dr. Christine Boesz, Inspector General, National Science Foundation, before the U.S. Senate, Committee on Appropriations, Subcommittee on VA, HUD, and Independent Agencies (Apr. 3, 2003).

³ OFFICE OF INSPECTOR GENERAL, NATIONAL SCIENCE FOUNDATION, AUDIT OF THE FINANCIAL MANAGEMENT OF THE GEMINI PROJECT, Report No. 01-2001 (Dec. 15, 2000); OFFICE OF INSPECTOR GENERAL, NATIONAL SCIENCE FOUNDATION, AUDIT OF FUNDING FOR MAJOR RESEARCH EQUIPMENT AND FACILITIES, Report No. 02-2007 (May 1, 2002).

⁴ NATIONAL SCIENCE FOUNDATION, FACILITIES MANAGEMENT AND OVERSIGHT GUIDE (July 2003) <<http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf03049>>.

However, key recommendations from both of these reports on developing new project and financial management policies and procedures remain unresolved by NSF management. Although NSF has issued a *Facilities Management and Oversight Guide*, this *Guide* does not provide the detail necessary to provide practical guidance to staff that perform the day-to-day work, nor does it address the problem of recording and tracking the full cost of large facility projects. A systematic process for reporting and tracking both the operational milestones and the associated financial transactions that occur during a project's lifecycle, particularly those pertaining to changes in scope, is still needed. Finally, staff involved with large facility projects need to be trained on the revised policies and procedures that affect funding, accounting, and monitoring. NSF plans to address these outstanding audit recommendations by providing several additional modules to its *Facilities Management and Oversight Guide* that will address various topics such as risk management and financial accounting. My office was recently provided with drafts of two of these modules and is currently reviewing them to provide feedback to the Deputy Director for Large Facility Projects.

While I am pleased to see that NSF is continuing to make progress toward addressing this important management challenge, I remain concerned with the level of attention afforded this issue by senior NSF management. The responsibility for continuing to make progress in this area has fallen to the Deputy Director for Large Facility Projects who may not have been afforded the necessary resources to complete the detailed modules to the *Facilities Management and Oversight Guide* in a timely manner. Currently, the Deputy needs additional staff to assist with completing these numerous and detailed modules. Also, a system to identify and account for life-cycle costs is needed to support management, as well as the prioritization of projects.

AWARD ADMINISTRATION

In addition to its management of some of its very large awards, another ongoing management challenge at NSF involves general administration of all of its research and education grants and cooperative agreements.⁵ While NSF has a proven system for administering its peer review and award disbursement responsibilities, it still lacks a comprehensive, risk-based program for monitoring its grants and cooperative agreements once the money has been awarded. As a result, there is little assurance that NSF award funds are accurately protected from fraud, waste, abuse, and mismanagement. Recent audits conducted by my office of high-risk awardees, such as foreign organizations and recipients of Urban Systemic Initiative (USI) awards, confirm that in the absence of an effective post-award monitoring program, problems with certain types of grants tend to recur.

In a given year, NSF spends roughly ninety percent of its appropriated funds on awards for research and education activities. In FY 2003, NSF reviewed 40,075

⁵ 2003 Management Challenges; 2002 Management Challenges; 2001 Management Challenges; 2000 Management Challenges, *supra* note 1.

proposals – an increase of 14% over FY 2002 – in order to fund 10,844 awards.⁶ Given the amount of work required to process an award, NSF is challenged to monitor its \$18.7 billion award portfolio (including all active multi-year awards) for both scientific and educational accomplishment and financial compliance. During the past three years, weaknesses in NSF's internal controls over the financial, administrative, and compliance aspects of post-award management were cited as a reportable condition in the audits of NSF's financial statements.⁷ What this means is that the bulk of staff effort is placed on moving funds out the door with little attention paid to how those funds are used.

NSF has recognized the need to create a risk-based award-monitoring program and has begun to address this issue. The agency has developed a *Risk Assessment and Award Monitoring Guide* that includes post-award monitoring policies and procedures, a systematic risk assessment process for classifying high-risk grantees, and various grantee analysis techniques. During the past year, NSF has made some progress towards fully addressing this management challenge and responding to audit recommendations. For instance, NSF issued the *Award Monitoring and Business Assistance Program Guide*, developed an annual grantee-monitoring plan, conducted thirty-two site visits on selected grantees, and provided grant-monitoring training for its reviewers.

While these efforts represent good first steps toward an effective award-monitoring program, weaknesses still exist and there are inconsistencies with its implementation. For example, the criteria developed for identifying high-risk grantees is not comprehensive and does not include all potential risk characteristics such as a history of poor programmatic or financial performance. Further, the program does not address medium and low-risk awards, for which NSF could implement a lesser degree of oversight at a minimal cost. Finally, the site visits that are being conducted do not necessarily follow consistent policies and protocols, are not adequately documented, and may not be followed-up on by NSF staff to ensure that corrective actions are taken in response to site visit recommendations.

STRATEGIC MANAGEMENT OF HUMAN CAPITAL

While the previous two management challenges are of an urgent nature, they may be symptomatic of a larger more pressing need for improved strategic management of NSF's human capital. In order to fully address its award management challenges, NSF will need to devote more resources and attention to making business and process improvements, while at the same time, planning for its current and future

⁶ NATIONAL SCIENCE FOUNDATION, FY 2003 PERFORMANCE AND ACCOUNTABILITY REPORT (Nov. 2003) <http://www.nsf.gov/pubs/2004/nsf0410/new_pdf/nsf0410final.pdf>.

⁷ Auditor's Report, Fiscal Year 2003 National Science Foundation Financial Statement Audit (Nov. 17, 2003); Auditor's Report, Fiscal Year 2002 National Science Foundation Financial Statement Audit (Jan. 29, 2003); Auditor's Report, Fiscal Year 2001 National Science Foundation Financial Statement Audit (Jan. 18, 2002).

workforce needs. Although advances in technology have enhanced the workforce's productivity, NSF's rapidly increasing workload has forced the agency to become increasingly dependent on temporary staff and contractors to handle the additional work. NSF's efforts in the past to justify an increase in staff have been impeded by the lack of a comprehensive workforce plan that identifies workforce gaps and outlines specific actions for addressing them. Without such a plan, NSF cannot determine whether it has the appropriate number of people and competencies to accomplish its strategic goals.

NSF has recognized the seriousness of this challenge and has now identified investment in human capital and business processes, along with technologies and tools, as objectives underlying its new Organizational Excellence strategic goal.⁸ NSF also contracted in fiscal year 2002 for a comprehensive, \$14.8 million, three to four-year business analysis, which includes a component that includes a Human Capital Workforce Plan (HCMP). Preliminary assessments provided by the contractor confirm that NSF's current workforce planning activities have been limited and identify that specific opportunities for NSF exist in this area.

Currently, the HCMP is a preliminary effort to develop a process for identifying and managing human capital needs and contains few specific recommendations that will have a near-term impact. In addition, the HCMP provides little in the way of milestones and accountability for the accomplishment of these early steps. According to that project schedule, it will be more than a year before the HCMP will identify the specific gaps that NSF needs for justifying budget requests for additional staff resources. I believe NSF faces an urgency with its workforce issues. If not adequately addressed, these issues will undermine NSF's efforts to confront its other pressing management challenges and to achieve its strategic goal of Organizational Excellence.

Chairman Bond, this concludes my written statement. I would be happy to answer any additional questions you or other members of the Subcommittee may have, or to elaborate on any of the issues that I have addressed today.

CONTACT INFORMATION

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⁸ NATIONAL SCIENCE FOUNDATION, STRATEGIC PLAN FY 2003 – FY 2008 (Sept. 30, 2003) <http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf>.