

# Chapter 1: Management’s Discussion and Analysis

## Agency Overview

### Mission and Vision

The National Science Foundation (NSF) was established in 1950 “to promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense.”<sup>1</sup> The first part of this mission statement—to promote the progress of science—describes NSF’s overall role in advancing research and education in science and engineering across all fields and disciplines and at all educational levels. The second part of the mission statement—to advance the national health, prosperity, and welfare; and to secure the national defense—underscores NSF’s contributions to addressing the nation’s most pressing challenges.

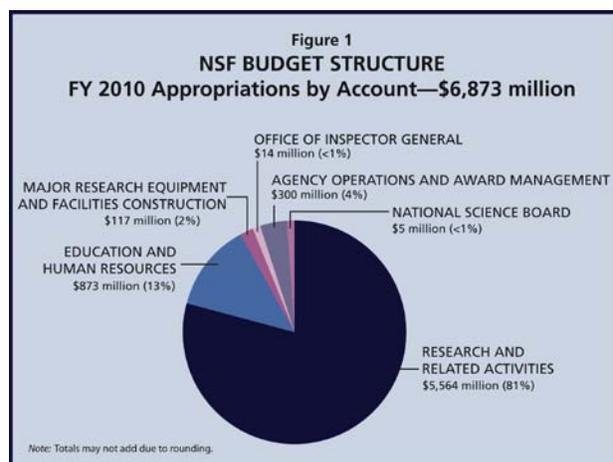
NSF supports the basic research and education that enable advances in many areas, including technology-based innovations that spur economic prosperity; understanding, mitigating, and adapting to climate change; developing sustainable approaches to the utilization of energy and natural resources; and transforming undergraduate education for the preparation of tomorrow’s leading scientists. NSF integrates research and education to support the development of a world-class scientific and engineering workforce as well as nurture the growth of a scientifically and technologically aware public, one that is able to engage fully in a 21st century life that increasingly relies on technology to meet challenges and grasp opportunities.

NSF’s vision, “advancing discovery, innovation, and education beyond the frontiers of current knowledge, and empowering future generations in science and engineering,” is achieved through four interrelated strategic outcome goals: Discovery, Learning, Research Infrastructure, and Stewardship.<sup>2</sup>

### Achieving the NSF Mission

NSF achieves its mission and vision by making awards and managing portfolios of the highest quality research and education projects that reflect national priorities. NSF is funded primarily through six congressional appropriations, which totaled \$6.9 billion in fiscal year (FY) 2010 (Figure 1).<sup>3</sup>

- NSF’s largest appropriation is Research and Related Activities which accounted for 81 percent of the agency’s FY 2010 funding. This account supports basic research and education activities at the frontiers of science and engineering including high-risk and transformative research.
- The Education and Human Resources appropriation supports activities that ensure a diverse, competitive, and globally engaged U.S. science, technology, engineering, and mathematics workforce and a scientifically



<sup>1</sup> The National Science Foundation Act of 1950 (Public Law 81-507).

<sup>2</sup> NSF’s Strategic Plan for FY 2006–2011, *Investing in America’s Future*, is available at [www.nsf.gov/pubs/2006/nsf0648/nsf0648.jsp](http://www.nsf.gov/pubs/2006/nsf0648/nsf0648.jsp). NSF plans to issue a new strategic plan in the spring of 2011.

<sup>3</sup> In Figure 1, appropriations of \$6,873 million plus \$54.0 million transferred to U.S. Coast Guard, H-1-B Nonimmigrant Petitioner Receipts (\$91.2 million) and Donations (\$54.5 million) equals \$7,072 million as shown in the Statement of Budgetary Resources.

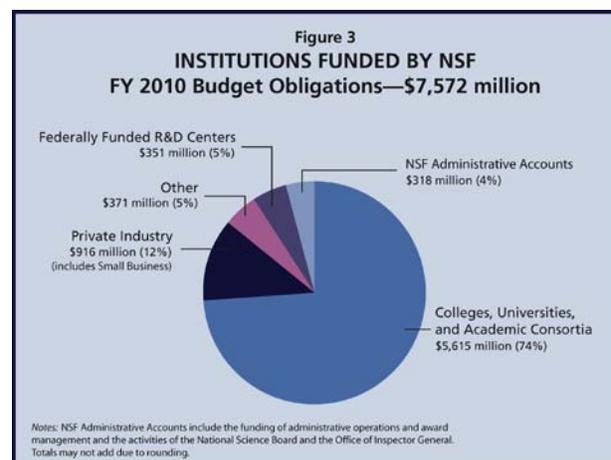
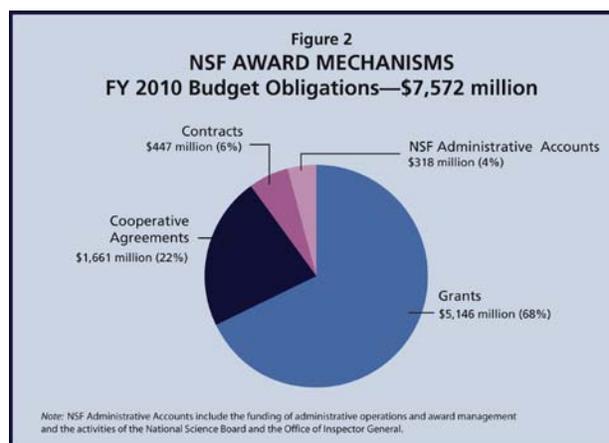
literate citizenry.

- The Major Research Equipment and Facilities Construction (MREFC) appropriation supports the construction of unique national research platforms and major research equipment that enable cutting-edge research.
- The Agency Operations and Award Management appropriation supports NSF's administrative and management activities.
- Funding for the operation of the Office of Inspector General (OIG) and for the National Science Board (NSB) is provided in two separate appropriations.

In FY 2010, 86 percent of research funding was allocated through competitive merit review.<sup>4</sup> Nearly 46,000 members of the science and engineering community participated in the merit review process as panelists and proposal reviewers.<sup>5</sup>

Ninety-six percent of FY 2010 obligations directly supported programmatic activities; 90 percent of FY 2010 obligations funded projects through grants or cooperative agreements (Figure 2).<sup>6</sup> Grants can be funded either as standard awards, in which funding for the full duration of the project is provided in a single fiscal year, or as continuing awards, in which funding for a multi-year project is provided in increments. Cooperative agreements are used when the project requires substantial agency involvement during the project performance period (e.g., research centers, multi-use facilities). Contracts (procurement instruments) are used to acquire products, services, and studies (e.g., program evaluations) required primarily for NSF or other government use.

In FY 2010, NSF made awards to over 2,100 institutions in 50 states, the District of Columbia, and 5 U.S. territories. These institutions employ America's leading scientists, engineers, and educators and train the leading-edge innovators of tomorrow. In total, NSF awards directly involved an estimated 294,000 senior researchers, postdoctoral associates, other professionals,



<sup>4</sup> NSF does not require merit review for certain kinds of proposals, including proposals for international travel grants and some conferences, symposia, and workshops.

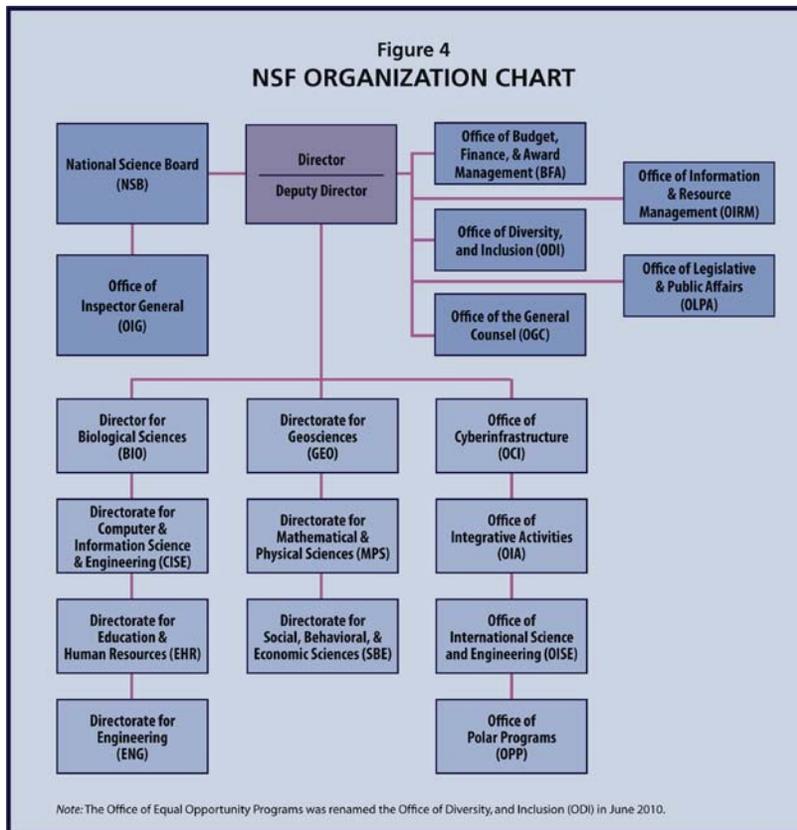
<sup>5</sup> For more information about NSF's merit review process, see [www.nsf.gov/bfa/dias/policy/meritreview](http://www.nsf.gov/bfa/dias/policy/meritreview) and *Report to the National Science Board on the National Science Foundation's Merit Review Process FY 2009* (NSB-1-0-27) at [www.nsf.gov/nsb/topics/MeritReview.jsp](http://www.nsf.gov/nsb/topics/MeritReview.jsp).

<sup>6</sup> In Figure 2, FY 2010 obligations include regular (\$7.0 billion) and Recovery Act funding (\$600 million). Total base and Recovery Act obligations of \$7.6 billion plus Trust Funds (\$43.6 million) and H1-B Nonimmigrant Petitioner Receipts (\$96.8 million) equal Direct Obligations Incurred (\$7.7 billion) as shown on the Statement of Budgetary Resources.

graduate and undergraduate students, and K–12 students and teachers. Most NSF awards are to academic institutions (Figure 3) including colleges, universities, and academic consortia. Awards are also provided to Federally Funded Research and Development Centers (FFRDCs) and private industry, including small businesses. Other recipients include federal, state, and local governments; nonprofit organizations; and international organizations.<sup>7</sup>

### Organizational Structure

NSF is an independent federal agency headed by a Director ([www.nsf.gov/od](http://www.nsf.gov/od)) appointed by the President and confirmed by the U.S. Senate. A 25-member NSB meets five times a year to establish the overall policies of the Foundation ([www.nsf.gov/nsb](http://www.nsf.gov/nsb)). NSB members—prominent contributors to the science and engineering research and education community—are also appointed by the President with the consent of the Senate. The NSF Director is a member *ex officio* of the Board. Both the Director and the other NSB members serve 6-year terms. The NSF workforce includes 1,400 permanent staff.<sup>8</sup> NSF also regularly recruits visiting scientists, engineers, and educators as rotators who work at NSF for up to four years.<sup>9</sup> The blend of permanent staff and rotators, who infuse new talent and expertise into the agency, is integral to NSF's mission of supporting the entire spectrum of science and engineering research and education at the frontier. As shown in Figure 4, NSF's organizational structure aligns with the major fields of science and engineering ([www.nsf.gov/staff/orgchart.jsp](http://www.nsf.gov/staff/orgchart.jsp)). In addition to the agency's headquarters located in Arlington, Virginia, NSF maintains offices in Paris, Tokyo, and Beijing to facilitate its international activities and an office in Christchurch, New Zealand, to support the U.S. Antarctic Program (USAP).



<sup>7</sup> A small number of awards are for research in collaboration with other countries, which has value to the U.S. scientific enterprise.

<sup>8</sup> Full-time equivalents

<sup>9</sup> As of September 2010, temporary appointments included 165 under the Intergovernmental Personnel Act.

### Management Challenges

The NSF OIG identified six issue areas as the most serious management and performance challenges facing the agency in FY 2010 and FY 2011: ensuring proper stewardship of Recovery Act funds,<sup>10</sup> improving grant administration, strengthening contract administration, becoming a model organization for human capital management, encouraging the ethical conduct of research, and effectively managing large facilities and instruments.<sup>11</sup> Management's report on significant activities undertaken in the past year to address these challenges is included as Appendix 3B of this report. The report also discusses planned activities for FY 2011 and beyond. Among activities reported are the following:

- In accordance with requirements of the Recovery Act, NSF established a monitoring program for all ARRA awards. Each quarter, ARRA award recipients report financial and programmatic information on the progress of their grants via [www.FederalReporting.gov](http://www.FederalReporting.gov). NSF assesses this information through its quarterly, multi-phase recipient reporting review process which includes reviewing for omissions (non-reported awards) and /or significant errors, checking for compliance through data matches, sampling review of descriptive fields, and validating against the Federal Financial Report submitted for the comparable quarter.
- To enhance NSF's advanced post-award monitoring effort, the Award Monitoring and Business Assistance Program was updated to integrate the results of the quarterly ARRA reporting requirements. In addition, NSF has refocused its monitoring efforts on organizations identified as needing more intensive business assistance.
- To improve grant administration, NSF's complete suite of Award Terms and Conditions was revised to incorporate new mandates from the Office of Management and Budget (OMB) such as reporting information on first tier-tier sub-awards and required maintenance of valid Central Contractor Registration and Universal Identifier Requirements, among others.
- To strengthen the agency's contract administration, management focused on the USAP contract and worked closely with the Defense Contract Audit Agency to resolve audit-related issues. To reduce use of high risk contracts, NSF issued specific guidance and provided targeted training to assist acquisition personnel in improving requirements development and assessing acquisition risk. NSF has implemented agency-wide acquisition workforce policy that includes agency specific training requirements to facilitate increased use of



Fifth-grade students participate in the Student Teacher Outreach Mentorship Program (STOMP), which enlists undergraduate engineering students to mentor K–12 teachers and students. A core principle behind STOMP is that all elementary school students are capable of learning engineering concepts and that those concepts can be built on throughout the years.

Credit: Elsa Head, Tufts University

<sup>10</sup> NSF received \$3.0 billion under the American Recovery and Reinvestment Act of 2009 (Recovery Act or ARRA).

<sup>11</sup> OIG's memorandum on FY 2010 management challenges can be found in NSF's *FY 2009 Agency Financial Report* (Appendix 3A) at [www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf10001](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf10001). The OIG's memorandum on FY 2011 management challenges can be found in Appendix 3A of this report.

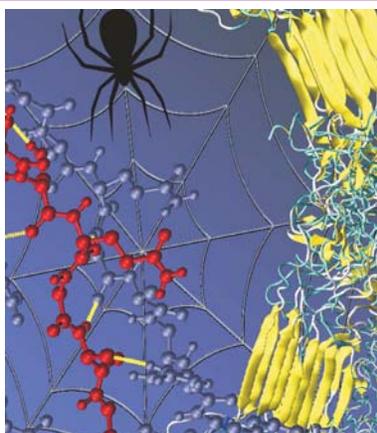
performance based fixed price contracting.

- To enhance human capital management, a work group of Deputy Assistant Directors was convened to identify future resource needs and annual directorate staffing plans have been developed to guide ongoing hiring and succession planning efforts. A Human Resources Policies Work Group was established to develop recommendations related to the role of rotators.
- To encourage the ethical conduct of research, NSF's *Proposal and Awards Policies and Procedures Guide* was updated to provide guidance addressing research integrity. NSF also supported a workshop on international responsible conduct of research in conjunction with the 2nd World Conference on Research Integrity.
- To more effectively manage large facilities and instruments, NSF management collaboratively assisted program staff in the oversight of three new projects started in FY 2010—Advanced Technology Solar Telescope, Alaska Region Research Vessel, and the Ocean Observatories Initiative—and jointly planned and carried out the Final Design Review of the National Ecological Observatory Network. In addition, oversight of planning, construction, and operation of other large facility projects was strengthened. Monthly facilities status reports are being provided to the Budget, Finance, and Award Management Office and feedback is being provided to directorates on annual facility performance goals and metrics.

### Future Challenges and Opportunities

Other areas that NSF will focus on in FY 2011 and in the longer term include the following.

#### *Support for Innovative and Potentially Transformative Research*



NSF-supported researchers found that hydrogen bonds, which are among the weakest types of chemical bonds, gain strength when confined to spaces on the order of a few nanometers in size. The researchers concluded that silk's strength and ductility—its ability to bend or stretch without breaking—result from this peculiar arrangement of atomic bonds.

Credit: M.J. Buehler, Massachusetts Institute of Technology

For 60 years, NSF has played a vital role in innovation by catalyzing the development of fundamental ideas in science and engineering and supporting the people who generate them. At a time when economic and environmental issues are becoming increasingly pressing, NSF is uniquely positioned to stimulate innovation and transformative research that create the new technologies, which, in turn, generate new industries and employment opportunities. Transformative research leads to creation of a new paradigm or field of science, engineering, or education, which can then result in new knowledge and breakthrough solutions to some of the nation's most critical problems. Since this is a multi-year process, recognizing which NSF investments were transformative can only be done retrospectively and in the long term, well after the investment has been made. NSF strives to continue to enhance its ability to identify and support research that could potentially be transformative or could lead to innovation.

#### *Performance and Program Evaluation*

NSF is in the process of updating its performance assessment framework. A number of NSF-wide activities that are currently underway will continue to be priorities in the near term and longer: completion of a new strategic plan; continuation of progress towards the High Priority Goal to develop evaluation and assessment systems for six major science, technology, engineering,

and mathematics (STEM) workforce development programs;<sup>12</sup> and planning for an expanded NSF-wide assessment and evaluation capacity. NSF will also continue efforts to develop decision-supporting metrics and rigorous evaluation plans for programs in the Learning portfolio and enhance its capacity for program evaluation through a new evaluation initiative. NSF's ongoing participation and support of the STAR METRICS (Science and Technology for America's Reinvestment: Measuring the Effect of Research on Innovation, Competitiveness, and Science) initiative will help the federal government document the value of its investments in research and development to a degree not previously possible. The goal of the STAR METRICS project, which is a partnership between science agencies and research institutions, is to develop a data-driven analytical capability for assessing the impacts of federal investments in science and engineering research and education.<sup>13</sup>

### ***Open Government Directive***

In FY 2010, OMB issued the Open Government Directive, which directed executive departments and agencies to take specific actions to implement the principles of transparency, participation, and collaboration. NSF has designated its Chief Technology Officer as the agency's high-level senior official accountable for open government. NSF published the *NSF Open Government Directive Plan* in April 2010, and a subsequent revision in September 2010, in response to comments from various stakeholders and to provide updated information. The plan was produced by the NSF Open Government Working Group, which has key responsibility for identifying high-value datasets that are a key component of the open government plan. NSF has a history of providing open access to agency information. NSF's website already provides access to a wide variety of agency information, including NSF meeting announcements and minutes; funding trends data; budget information; award and funding information; news releases and media advisories; the NSF Multimedia Gallery, which provides visual media for educational and informational use; and much more. In FY 2011, NSF will continue implementing its plan. A key challenge is determining which of the currently available data are of sufficiently high value to convert to the open formats specified in the Open Government Directive.

### ***Federal Funding Accountability and Transparency Act Sub-award Reporting***

The Federal Funding Accountability and Transparency Act of 2006 (Transparency Act) and the Recovery Act created a renewed emphasis on transparency, open access, and data quality. The public has enhanced access to agency information from the added transparency, and it has come at the cost of an increased reporting burden on awardees and additional NSF staff workload to review and disseminate data on a more frequent basis. In FY 2011, NSF, along with other federal agencies, will begin requiring prime grant and contract awardees to report the sub-awards they make using federal funds, in order to comply with one of the central requirements of the Transparency Act.

### ***Future NSF***

NSF's current lease for the headquarters facility expires in December 2013. Through the Future NSF Headquarters Project, extensive studies have been conducted to determine approaches through which the agency will secure a new lease and occupy more collaborative, efficient, and sustainable space for the next 15 to 20 years. Congressional authorization and competitive lease procurement for NSF's next generation headquarters will be the primary challenges for FY 2011. The anticipated schedule for a new lease award is early FY 2012 with the goal of completing the acquisition of NSF's future space during FY 2014.

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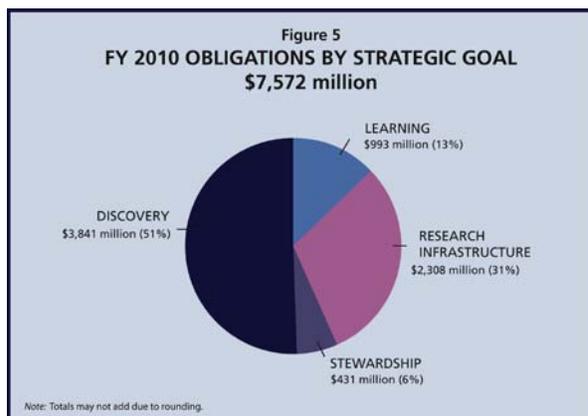
<sup>12</sup> For information on NSF's High Priority Goal, see [www.performance.gov](http://www.performance.gov).

<sup>13</sup> For more information about STAR METRICS, see [www.starmetrics.nih.gov](http://www.starmetrics.nih.gov).

## Performance Goals and Results

In FY 2010, NSF was guided by *Investing in America's Future*, the agency's FY 2006–2011 strategic plan.<sup>14</sup> The FY 2006–2011 strategic plan established four long-term strategic outcome goals for the agency's activities and performance: Discovery, Learning, Research Infrastructure, and Stewardship. Figure 5 depicts NSF's FY 2010 obligations by each of these strategic goals.

- Discovery:** Foster research that will advance the frontiers of knowledge, emphasizing areas of greatest opportunity and potential benefit, and establishing the nation as a global leader in fundamental and transformational science and engineering.
- Learning:** Cultivate a world-class, broadly inclusive science and engineering workforce and expand the science literacy of all citizens.
- Research Infrastructure:** Build the nation's research capacity through critical investments in advanced instrumentation, facilities, cyberinfrastructure, and experimental tools.
- Stewardship:** Support excellence in science and engineering research and education through a capable and responsive organization.



In FY 2009, NSF began the process of developing a new strategic plan. The draft plan, *Empowering the Nation Through Discovery and Innovation: NSF Strategic Plan for Fiscal Years (FY) 2010–2015*, will be completed by the spring of 2011. In FY 2010, to meet the assessment and reporting requirements established by the Government Performance and Results Act (GPRA), NSF adopted a streamlined performance assessment framework. In response to recommendations from stakeholders,<sup>15</sup> and in anticipation of a changing strategic framework, NSF also began to pilot and review new approaches to the assessment and evaluation of programs.

All FY 2010 performance results, including the Recovery Act performance results reported by NSF, are verified and validated by an independent external management consultant based on guidance from the Government Accountability Office. NSF's FY 2010 Annual Performance Report (APR) will provide a discussion of all the agency's performance measures and a more detailed discussion of the agency's new performance assessment framework. It will also include descriptions of the metrics, methodologies, and results; a list of relevant external reviews; information about NSF's GPRA verification and validation review; and additional performance information.<sup>16</sup>

### Strategic Outcome Goals

In FY 2010, NSF monitored 13 key performance goals. Results for 10 goals are available at this time. As shown in Figure 6 on the following page, to date NSF has met or exceeded targets for eight performance goals.

<sup>14</sup> [www.nsf.gov/pubs/2006/nsf0648/nsf0648.jsp](http://www.nsf.gov/pubs/2006/nsf0648/nsf0648.jsp).

<sup>15</sup> See the 2009 Report of the Advisory Committee for GPRA Performance Assessment, which may be found at [www.nsf.gov/pubs/2009/nsf09068/nsf09068.pdf](http://www.nsf.gov/pubs/2009/nsf09068/nsf09068.pdf).

<sup>16</sup> NSF's FY 2010 APR will be included in the agency's FY 2012 Budget Request to Congress, which will be available on February 7, 2011, at [www.nsf.gov/about/performance](http://www.nsf.gov/about/performance).

Figure 6. Strategic Outcome Goal Performance Dashboard

Performance Measure		2008	2009	2010	2010 Target	Result	
Discovery	Percent of proposals with a time to decision within 6 months	78%	89%*	75%	70%	✓	
	Research and Related Activities directorates will invest a minimum of \$2 million per research division to leverage and facilitate activities that foster potentially transformative research	N/A	N/A	\$138.4 million	\$94.0 million	✓	
Learning	Percent of NSF Learning portfolio with established metrics	N/A	80%	100%	100%	✓	
Research Infrastructure	Percent of MREFC facilities under construction with negative cost and schedule variances at or below 10%	80%	100%	TBD	100%	TBD	
	Percent of facilities in the operational phase with less than 10% lost operating time	100%	100%	100%	90%	✓	
Stewardship	Conduct a Business System Review once per 5-year award cycle for all institutions hosting NSF-supported large facilities**	N/A	3	4	3	✓	
	Percent of reviewed proposals with a written statement describing review process and context of the decision	95%	96%	93%	95%	✗	
	Analyze Committees of Visitors reports to identify issues of quality and transparency of the merit review process	N/A	Analysis begun	Completed report	Completed report	✓	
	Appropriately apply risk assessment strategy to ensure adequate post-award financial and administrative monitoring of riskiest awards	Site visits	100%	100%	80%	95% of 30	✗
		Desk reviews	100%	100%	146%	95% of 73	✓
	FFR transaction testing	100%	100%	100%	100%	✓	
<p>N/A: Not applicable because the performance measure was established after that fiscal year.                      TBD: To be determined. Results are not available at this time; they will be reported in the FY 2010 APR.                      MREFC: Major Research Equipment and Facilities Construction                      FFR: Federal Financial Report                      * The time-to-decision goal was in effect only for the first quarter of FY 2009. NSF suspended this goal to expedite processing time of the additional proposals received as a result of the Recovery Act.                      ** A Business System Review is an award monitoring activity that assesses an institution's capacity to manage a facility in compliance with NSF expectations and federal regulations.</p>							

- NSF did not achieve its goal of providing written context statements to 95 percent of Principal Investigators (PIs) of awarded and declined proposals undergoing the merit review process. Context statements increase the transparency of the review process by providing PIs who submit proposals with information describing the process by which the proposal was reviewed and the context of the decision.
- NSF did not achieve its goal of conducting 95 percent of planned site visits to NSF awarded institutions. NSF's risk-based advanced monitoring activities, including site visits and desk reviews, focus on developing a reasonable assurance that institutions managing the higher-risk awards possess adequate policies, processes, and systems to properly manage federal awards. NSF originally planned to conduct 30 site visits. In FY 2010, NSF award monitoring personnel were temporarily redeployed to support a high-priority, high-dollar procurement. NSF readjusted its award monitoring plan by reducing the number of planned visits from 30 to 24, deferring six site visits to institutions with the lowest risk (as determined using NSF's risk assessment methodology). The six institutions received

advanced monitoring through increased application of the desk review process and have been assigned site visit priority as part of the FY 2011 risk assessment.

- NSF exceeded its dwell time goal of making 70 percent of proposal decisions within 6 months despite a significant increase in workload. The number of competitive proposal actions increased 23 percent in FY 2010, while the workforce increased only 3 percent.
- NSF also exceeded the goals that addressed fostering potentially transformative research, facilities operations, business system reviews, and post-award monitoring desk reviews.
- NSF's two performance metrics for NSF's Recovery Act program will be reported in the APR. Recipient reports are processed during the period after the end of the quarter. For the quarters ending September 30, 2009, December 31, 2009, March 31, 2010, and June 30, 2010: (1) The quarterly average recipient reporting rate was 99.2 percent, exceeding the agency target of 98 percent. (2) The percent of Recovery Act awards with uncorrected significant recipient reporting errors was 0.02 percent which is considerably below the 1.0 percent target.

### Recovery Act Performance Results

In February 2009, NSF received \$3.0 billion under the American Recovery and Reinvestment Act of 2009 (Recovery Act or ARRA). The Recovery Act included long-term investments intended "to increase economic efficiency by supporting technological advances in science and health"<sup>17</sup> and to generate new discoveries and breakthroughs. In FY 2009, NSF obligated 80 percent of its Recovery Act funds (\$2.4 billion). In FY 2010, NSF obligated the remaining 20 percent, nearly \$600 million. By the end of FY 2010, outlays of NSF's Recovery Act funds totaled \$598 million. The bulk of Recovery Act funds supported the Research and Related Activities program, which made over 5,000 competitive core research, facilities, and infrastructure awards to over 8,000 principal investigators, including 2,800 new investigators. Figure 7 on the following page shows selected program performance measures for NSF's Recovery Act programs. NSF has met or exceeded cumulative program targets for seven of eight goals for which results are available at this time.<sup>18</sup>

A key focus in FY 2010 was monitoring awardee performance including compliance with requirements for quarterly recipient reporting; improving the quality of data reported by those award recipients; and increasing awardee communication, outreach, and oversight to ensure the timely expenditure of award funds. Each quarter, ARRA award recipients report financial and programmatic information via [www.FederalReporting.gov](http://www.FederalReporting.gov). NSF implemented a quarterly, multi-phase recipient reporting review process to assess the data reported. This included automated reviews against NSF data and validation against the Federal Financial Report. NSF Program Officers reviewed samples of key data that could not be automatically reviewed, such as the project description. This extensive data quality review process allowed NSF to assess the accuracy of the data reported by awardees that is publicly available through [www.recovery.gov](http://www.recovery.gov) while minimizing the staff time necessary to review the nearly 5,000 reports submitted to NSF each quarter.

Additionally, NSF implemented a coordinated communications plan to remind awardees of their reporting obligations at defined stages during the reporting cycle and to notify them of data quality issues and reporting errors. NSF achieved excellent results in its data quality program and is a government leader with a high degree of compliance among NSF awardees and a low error rate. NSF also designed and implemented a plan to address ARRA outlays in light of the economic spending goals of the statute. Because outlay patterns at NSF are sensitive to the academic year, the agency instituted a monthly

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<sup>17</sup> The American Recovery and Reinvestment Act of 2009 is available at [www.gpo.gov/fdsys/pkg/PLAW-111publ5/content-detail.html](http://www.gpo.gov/fdsys/pkg/PLAW-111publ5/content-detail.html).

<sup>18</sup> The complete list of measures is available at [www.recovery.gov/Transparency/agency/Recovery%20Plans/NSF%20Recovery%20Act%20Plan%20-%20June%202010.pdf](http://www.recovery.gov/Transparency/agency/Recovery%20Plans/NSF%20Recovery%20Act%20Plan%20-%20June%202010.pdf).

process to identify and monitor ARRA awards with no allowable expenditures in the first 12 months after the award date. These awards risked termination for noncompliance with NSF's ARRA award terms and conditions that had been added specifically to implement ARRA's key purposes. These included the requirement to commence work on projects expeditiously, incurring allowable expenditures within a reasonable timeframe. NSF's efforts resulted in no award being terminated for these reasons.

In FY 2011, NSF will continue to refine its recipient report data quality review process and respond to new guidance and recommendations from OMB, the Recovery Accountability and Transparency Board, and the NSF OIG. The agency will also continue its enhanced outreach and communication with ARRA awardees and its expenditure rate monitoring to ensure that the purposes of ARRA are fulfilled.

Figure 7. Recovery Act Performance Dashboard

Program/Subprogram	Measure	2009		2010		Overall Result	
		Target*	Result*	Target*	Result*		
Research and Related Activities	Competitive Awards	Number of awards	4,000	4,599	-	5,027	✓
		Number of ARI-R2 and MRI-R2 awards	-	-	500	398	✗
	Principal Investigators (PIs)	Total number of PIs	6,400	6,762	-	8,030	✓
		Number of new PIs	2,400	2,352	-	2,839	✓
Education and Human Resources	Robert Noyce Teacher Scholarship Program	Number of new awards	67	67	-	-	✓
		New pre-service teachers and teacher participants	30	TBD	370	TBD	TBD
		New teachers teaching in high-need districts	0	TBD	28	TBD	TBD
	Math and Science Partnership (MSP) Program	Number of new awards	9	9	-	-	✓
		Number of MSP teacher leader/master teacher participants	15	TBD	133	TBD	TBD
		Number of post-baccalaureate credentials or master's degree recipients	13	TBD	119	TBD	TBD
	Science Masters Program	Number of new awards			21	21	✓
		Number of students supported	New program in FY 2010		80	100	✓
	Number of students earning science master's degrees			N/A	-	N/A	
Major Research Equipment and Facilities Construction	Alaska Region Research Vessel (ARRV)	> -10%	N/S	>-10%	TBD	TBD	
	Advanced Technology Solar Telescope (ATST)	Variance from target cost and schedule: <10% behind schedule <10% above cost	> -10%	N/S	>-10%	TBD	TBD
	Ocean Observatories Initiative (OOI)	> -10%	N/S	>-10%	TBD	TBD	

\* Targets and results for the Research and Related Activities program are cumulative. All other targets and results are annual values.  
N/A: Not applicable  
N/S: Not significant. Variance data from projects under 10 percent complete are not considered significant.  
TBD: To be determined. Results are not available at this time; they will be reported in the FY 2010 APR.  
ARI-R2: Academic Research Infrastructure-Recovery and Reinvestment solicitation  
MRI-R2: Major Research Instrumentation-Recovery and Reinvestment solicitation

As shown in Figure 7:

- For the Research and Related Activities Program, NSF did not achieve its goal to make 500 awards under the new Major Research Instrumentation–Recovery and Reinvestment (MRI–R2) and Academic Research Infrastructure–Recovery and Reinvestment (ARI–R<sup>2</sup>) solicitations. The goal was based on an extrapolation of FY 2008 MRI program data on requested and awarded amounts. The average request and award under the MRI–R<sup>2</sup> competition were over 50 percent higher than projected, so fewer awards could be made.
- For the Education and Human Resources Program, NSF achieved its target of 21 awards in the Science Masters Program competition, and exceeded its goal for number of students supported. Results for the Robert Noyce Teacher Scholarship Program and the Math and Science Partnership Program will be reported in the APR as they are not available at this time.
- The results for the Major Research Equipment and Facilities Construction (MREFC) facilities goals will also be reported in the APR.

### Workload and Management Trends

NSF continuously monitors key portfolio, workload, and financial measures to understand short and long-term trends to help inform management decisions (Figure 8).

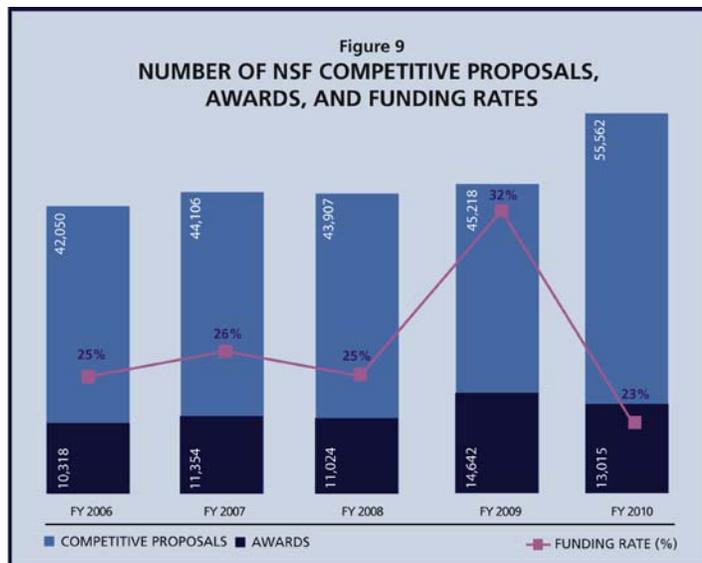
Figure 8. Workload and Management Trends

	Measure	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	Percent Change (FY 2010/FY 2009)	Annual Rate of Change (FY 2010/FY 2006)
<b>Portfolio</b>	Competitive proposal actions	42,050	44,106	43,907	45,218	55,562	23%	8%
	Competitive new awards	10,318	11,354	11,024	14,642	13,015	-11%	7%
	Average annual award size (competitive awards)	\$155,526	\$157,943	\$167,300	\$172,569	\$189,338	10%	5%
	Funding rate	25%	26%	25%	32%	23%	-28%	-2%
<b>Workload</b>	Number of employees (Full-time equivalents, usage)	1,273	1,310	1,339	1,386	1,424	3%	3%
	Number of active awards*	43,959	47,778	48,799	52,858	55,449	5%	7%
	Proposal reviews conducted	239,149	248,335	248,772	241,712	287,017	19%	5%
<b>Financial</b>	Cash-on-hand** (in millions)	\$36	\$33	\$26	\$26	\$19	-27%	-12%
	Number of grant payments	19,714	19,074	19,481	25,723	22,782	-11%	4%
	FCTR/FFRs submitted	99.9%	99.7%	99.8%	99.6%	99.8%	<1%	<1%

\* Active awards include all active awards regardless of whether they received funding during the fiscal year.  
 \*\* FY 2010 is through the third quarter.

- The number of competitive proposal actions reached an historical high of 55,562—a 23 percent increase over the prior year. This unprecedented annual increase is nearly quadruple the 6 percent average annual increase from FY 2001 to FY 2009. The 19 percent increase in the number of proposal reviews in FY 2010 reflects this increase in competitive proposal actions.

- The number of competitive new awards decreased 11 percent—from 14,642 in FY 2009 to 13,015 in FY 2010. The Recovery Act allowed NSF to fund a higher percentage of proposals in FY 2009.
- The FY 2010 funding rate of 23 percent is a 28 percent decrease from the prior year—a 9 percentage point drop from the FY 2009 funding rate of 32 percent that reflected the overall level of investment made possible by the Recovery Act. As shown in Figure 9, the FY 2010 funding rate is slightly below pre-Recovery Act funding rates of 26 and 25 percents in fiscal years 2007 and 2008, respectively.



- The average annual award size increased 10 percent in FY 2010, to \$189,338. This compares to a 4 percent average annual increase in award size from FY 2006 to FY 2009.
- NSF's workforce in terms of full time equivalents (FTEs) increased three percent over FY 2009 to 1,424, in line with the average annual increase since FY 2006. For the same period, workload as measured by proposal reviews conducted and active awards increased 19 percent and 5 percent, respectively.
- Grantees are required to report the status of funds received from NSF on a quarterly basis through the submission of a Federal Financial Report (FFR). NSF has increased its emphasis for collecting the reports following the change in the FFR due date from 40 to 30 days after the end of the quarter. For FY 2010, 99.8 percent (6,739 of 6,751) of the FFRs due were submitted by the end of the reporting period. High FFR submission levels are directly related to the overall accuracy and completeness of NSF grant expenses as reported on NSF financial statements.
- NSF has increased emphasis on grantee cash monitoring in order to improve cash management by grantees, resulting in less governmental risk and improved cash flow for NSF. Unexpended federal cash held by grantees has decreased to \$19 million in FY 2010 from a quarterly average of \$36 million in FY 2006. This decrease has been achieved at the same time NSF payments to grantees have increased by 4 percent annually over the last four years.

In FY 2010, NSF conducted its annual statistical review of FFR expenditures as reported by grant recipients and a separate statistical review of expenditures reported for Recovery Act awards. Consistent with prior year results, the error rate (less than 1/10 of 1 percent) noted in the review of all awards by an independent consultant was well below the materiality levels as defined in OMB standards. Of particular note was that no reporting errors were discovered during the review of Recovery Act awards. NSF intends to continue its grant expenditure sampling process as part of its integrated and comprehensive grant financial monitoring program strategy.

- For FY 2010, the number of NSF grant payments continued to reflect an increase in activity levels compared to FY 2008 and prior fiscal years, primarily due to the increased number of Recovery Act awards. This increased activity level should gradually diminish throughout FY 2011 and beyond as NSF begins the closeout process for these awards.

## Financial Discussion and Analysis

The emphasis on transparency, detail, and open access to data established by the Transparency Act and the Recovery Act is becoming the new standard and an ongoing challenge for financial management at NSF. The federal environment continues to change at a rapid pace in the areas of financial reporting, information technology, and risk management. In meeting these challenges, NSF acted to support its customer and stakeholders while maintaining the highest level of business services. NSF realizes that with difficult challenges also come significant opportunities to deliver better, more useful information to decisionmakers and to citizens.

NSF has a fiduciary and stewardship responsibility to efficiently and effectively manage its federal funds and to comply with federal guidance on financial management. As part of this responsibility, the agency prepares annual financial statements in conformity with generally accepted accounting principles (GAAP) for U.S. federal government entities. The financial statements present NSF's detailed financial information relative to its mission and the stewardship of those resources entrusted to the agency. It also provides readers with knowledge of the resources that NSF has available for use, cost of programs, and the status of resources at the end of the fiscal year.

NSF subjects its financial statements to an independent audit to ensure their integrity and reliability in assessing performance. For FY 2010, NSF received its thirteenth consecutive unqualified audit opinion. The audit report noted no material weaknesses. The report repeated the prior year significant deficiency related to the monitoring of cost reimbursement contracts although noted that the agency had made improvements in the last year. NSF will prioritize its resources in an effort to continue to make progress in contracts monitoring and work with the NSF Office of Inspector General to develop an action plan that will enable the agency to resolve the deficiency.

### Understanding the Financial Statements

NSF's FY 2010 financial statements and notes are presented in accordance with OMB Circular No. A-136, *Financial Reporting Requirements*. NSF's current year financial statements and notes are presented in a comparative format. The Stewardship Investment schedule presents information over the last five years. Figure 10 summarizes the significant changes in NSF's financial position in FY 2010.

**Figure 10. Significant Changes in NSF's Financial Position in FY 2010** (dollars in thousands)

Net Financial Condition	FY 2010	FY 2009	Increase/ (Decrease)	% Change
<b>Assets</b>	\$12,804,423	\$12,627,129	\$177,294	1.4%
<b>Liabilities</b>	\$596,010	\$521,544	\$74,466	14.3%
<b>Net Position</b>	\$12,208,413	\$12,105,585	\$102,828	0.8%
<b>Net Cost</b>	\$6,895,106	\$6,002,380	\$892,726	14.9%

### Balance Sheet

The Balance Sheet presents the total amounts available for use by NSF (assets) against the amounts owed (liabilities) and amounts that comprise the difference (net position). NSF's total assets are largely composed of *Fund Balance with Treasury*. A significant balance also exists in the *General Property, Plant and Equipment (PP&E)* account.

In FY 2010, *Total Assets* (Figure 11 on the following page) increased 1.4 percent over FY 2009 assets. The bulk of the increase occurred in the *Fund Balance with Treasury* account, which grew by \$225.6 million in FY 2010. *Fund Balance with Treasury* is funding available from which NSF is authorized to

make expenditures and pay amounts due through the disbursement authority of the Department of Treasury. It is increased through appropriations and collections and decreased by expenditures and rescissions. The FY 2010 increase is attributed to the Consolidated Appropriations Act, 2010 under Public Law 111-117 which provided funding for each of NSF's appropriations.

NSF's *Total Liabilities* increased by 14.3 percent in FY 2010. NSF's largest liability account is *Accrued Liabilities-Grants* (Figure 12). This account represents amounts owed to NSF grantees for expenses incurred but not submitted to NSF for reimbursement as of the date of the financial report. The increase in *Accrued Liabilities-Grants* is largely attributed to a substantial increase in ARRA-funded grant activity.

**Statement of Net Cost**

This statement presents the annual cost of operating NSF programs. The net cost of each specific NSF program operation equals the program's gross cost less any offsetting revenue. *Intragovernmental Earned Revenues* are recognized when related program or administrative expenses are incurred. Earned revenue is deducted from the full cost of the programs to arrive at the *Net Cost of Operation*.

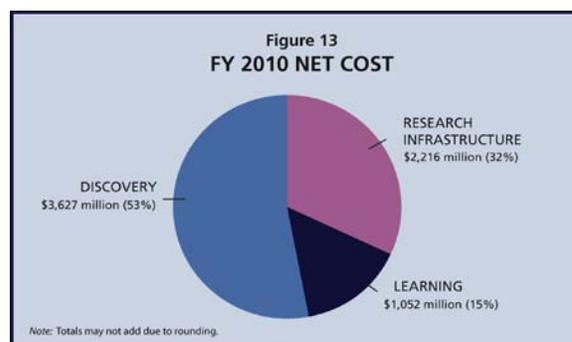
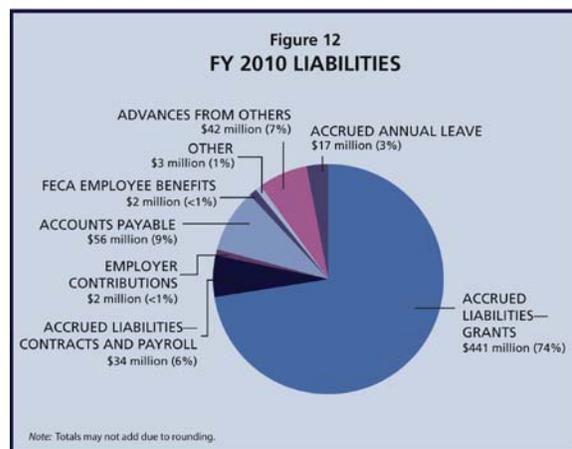
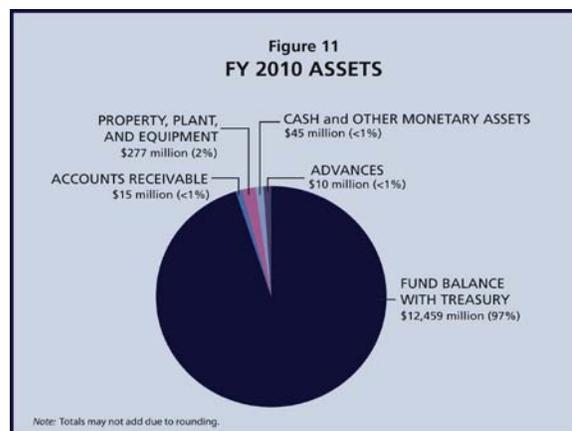
Approximately 96 percent of all current year NSF costs incurred were directly related to the support of the Discovery, Learning, and Research Infrastructure strategic goals. Additional costs were incurred for indirect general operation activities (e.g., salaries, training, and activities related to the advancement of NSF information systems technology) and activities of the NSB and the OIG. These costs were allocated to the Discovery, Learning, and Research Infrastructure strategic goals and account for 4 percent of the total current year Net Cost of Operations (Figure 13). These administrative and management activities are the focus of the agency's Stewardship strategic goal.

**Statement of Changes in Net Position**

The Statement of Changes in Net Position presents the agency's cumulative net results of operation and unexpended appropriations for the fiscal year. NSF's Net Position increased by \$102.8 million, or 0.8 percent, in FY 2010. The slight increase is attributed to *Total Unexpended Appropriations*, which reflects the cumulative amount of Unexpended Appropriations as of September 30, 2010.

**Statement of Budgetary Resources**

This statement provides information on how budgetary resources were made available to NSF for the year and the status of those budgetary resources at year-end. For FY 2010, Total Budgetary Resources



decreased by \$2.0 billion due to the Recovery Act funding appropriated in the prior fiscal year. New *Budget Authority-Appropriation* for the Research and Related Activities, Education and Human Resources, and Major Research Equipment and Facilities Construction accounts were \$5,617.9 million, \$872.8 million, and \$117.3 million, respectively. The combined new *Budget Authority-Appropriation* in FY 2010 for the NSB, OIG, and Agency Operations and Award Management accounts totaled \$318.5 million. NSF also received funding via warrant from the special earmarked H-1B receipt account in the amount of \$91.2 million and via donations from foreign governments, private companies, academic institutions, nonprofit foundations, and individuals in the amount of \$54.5 million.

### ***Stewardship Investments***

NSF-funded investments yield long-term benefits to the general public. NSF investments in research and education produce quantifiable outputs, including the number of awards made and the number of researchers, students, and teachers supported or involved in the pursuit of science and engineering research and education. The FY 2010 increase in Research and Human Capital Activities is directly related to the outlay of ARRA funding received in FY 2009 and the Consolidated Appropriation Act received in FY 2010.

### **Limitations of the Financial Statements**

In accordance with the guidance provided in OMB Circular No. A-136, NSF discloses the following limitations of the agency's FY 2010 financial statements, which appear in Chapter II of this report: The principal financial statements have been prepared to report the financial position and results of operations of NSF, pursuant to the requirements of 31 U.S.C. 3515(b). While the statements have been prepared from NSF books and records in accordance with GAAP for federal entities and the format prescribed by OMB, the statements are in addition to the financial reports used to monitor and control budgetary resources, which are prepared from the same books and records. The statements should be read with the realization that they are for a component of the U.S. Government, a sovereign entity.

### **Other Financial Reporting Information**

#### ***Debt Collection Improvement Act of 1996***

Net Accounts Receivable totaled \$14.5 million at September 30, 2010. Of that amount, \$14.4 million is due from other federal agencies. The remaining \$125,800 is due from the public. NSF fully participates in the Department of the Treasury Cross-Servicing Program. In accordance with the Debt Collection Improvement Act, this program allows NSF to refer debts that are delinquent more than 180 days to the Department of the Treasury for appropriate action to collect those accounts. In FY 2004, OMB issued M-04-10, *Memorandum on Debt Collection Improvement Act Requirements*, which reminded agencies of their responsibility to comply with the policies for writing-off and closing-out debt. In accordance with this guidance, NSF has now incorporated the policy of writing-off delinquent debt more than two years old. Additionally, NSF seeks Department of Justice concurrence for action items over \$100,000.

#### ***Cash Management Improvement Act (CMIA)***

In FY 2010, NSF had no awards covered under CMIA Treasury-State Agreements. NSF's FastLane system with grantee draws of cash makes the timeliness of payments issue under the Act essentially not applicable to the agency. No interest payments were made in FY 2010.

## **Systems, Controls, and Legal Compliance**

### **Management Assurances**

The Federal Managers Financial Integrity Act of 1982 (Integrity Act or FMFIA) requires that agencies establish internal controls and financial systems that provide reasonable assurance that the integrity of federal programs and operations is protected. It requires that the head of the agency provide an annual statement of assurance that obligations and costs comply with applicable laws and regulations; federal assets are safeguarded against fraud, waste, and mismanagement; transactions are accounted for and properly recorded; and financial management systems conform to standards, principles, and other requirements to ensure that federal managers have timely, relevant, and consistent financial information for decision-making purposes. The NSF FY 2010 Statement of Assurance appears on the following page. A summary of the results of NSF's financial statement audit and internal control review is available in Appendix 1.

The Federal Financial Management Improvement Act of 1996 (FFMIA) requires that agencies implement and maintain financial management systems that comply substantially with the federal financial management system requirements, applicable federal accounting standards, and the U.S. Government Standard General Ledger (SGL) at the transaction level. The agency head is to make an annual determination whether the financial systems substantially comply with FFMIA. The NSF financial systems substantially comply with federal financial management systems requirements, federal accounting standards, and the SGL at the transaction level. To meet this requirement, we performed tests of compliance with FFMIA Section 803(a) requirements.

### **Highlights from NSF's Internal Control Quality Assurance Program**

NSF addresses internal control issues through its Internal Controls Quality Assurance Program, the functional leadership for which is provided by the Internal Controls Quality Assurance Team (Team). The Internal Control Assessment is a review of the design and operating effectiveness of key internal control activities for NSF's business processes and for safeguarding of assets and compliance with applicable laws and regulations. The Team follows a risk-based approach in determining the key controls to be assessed during the current year, with some controls assessed on a 3-year schedule.

In the past year, the Team has taken significant steps to strengthen NSF's Internal Control Quality Assurance Program, focusing on the remediation of identified deficiencies by the external auditors, the OIG, internal audits, and the information technology review. NSF developed a remediation plan to correct the significant deficiency relating to the monitoring of cost reimbursement contracts cited in the FY 2009 financial statement audit report. For each OIG recommendation, the remediation plan identifies specific remedies, target dates, responsible officials, and resource estimates required for completion.



## National Science Foundation FY 2010 Statement of Assurance

The National Science Foundation (NSF) management is responsible for establishing and maintaining effective internal control and a financial management system that meets the objectives of the Federal Managers' Financial Integrity Act of 1982 (Integrity Act) and the Office of Management and Budget (OMB) Circular A-123, *Management's Responsibility for Internal Control*.

NSF managers continually monitor and improve the effectiveness of management controls associated with their programs. This continuous monitoring and other periodic evaluations provide the basis for the annual assessment and report on management's controls, as required by the Integrity Act. Based on the results of these evaluations, NSF provides reasonable assurance that as of September 30, 2010, its internal controls over programs and operations were operating effectively to ensure compliance with applicable laws and regulations. No material weaknesses were identified in the design or operation of internal controls under Section 2 of the Integrity Act and no system non-conformances were identified under Section 4 of the Integrity Act.

In addition, NSF is leveraging the established OMB Circular A-123 and the Integrity Act assessment methodologies to assist in assessing the applicable entity-wide controls, documenting the applicable processes, and identifying and testing the key controls applicable to the American Recovery and Reinvestment Act funding and the Open Government Act.

In accordance with Appendix A of OMB Circular A-123, NSF conducted an assessment of the effectiveness of internal control over financial reporting, which included the safeguarding of assets and compliance with applicable laws and regulations. Based on the results of this assessment for the period ending June 30, 2010, NSF provides reasonable assurance that internal control over financial reporting was operating effectively and no material weaknesses were identified in the design or operation of the internal controls.

For fiscal year 2010, NSF is providing an unqualified statement of assurance that its internal controls and financial management systems meet the objectives of the Integrity Act.

A handwritten signature in black ink, appearing to read 'Subra Suresh', is positioned above the printed name.

Subra Suresh  
Director

November 15, 2010

### ***Internal Control Assessment (OMB Circular A-123 Review)***

The Accountability and Performance Integration Council (APIC) Internal Control Working Group (ICWG) assessed and evaluated NSF's compliance with OMB Circular A-123 requirements as of June 30, 2010, and determined the deficiencies identified were below the material weakness level.<sup>19</sup> The ICWG considered the nature of each deficiency, the existence of a compensating control, the dollar value of transactions potentially affected by the deficiency, the level of risk, and the likelihood that an error may not be prevented or detected. The ICWG recommended corrective actions for the deficiencies.

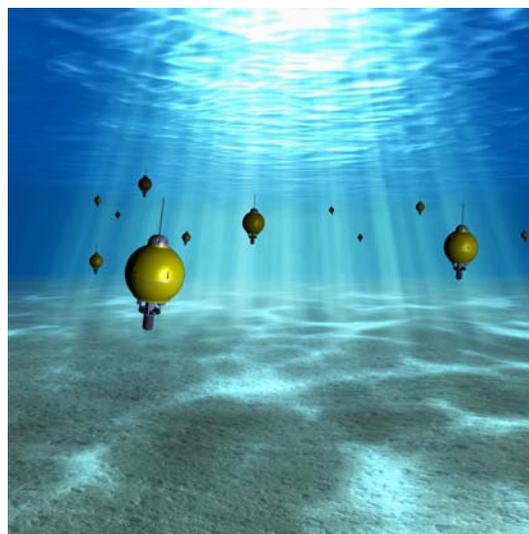
### ***OMB Circular A-127 Review***

In accordance with the requirements of FFMIA, management is responsible for reporting on its implementation and maintenance of financial management systems that substantially comply with federal financial management systems requirements, applicable federal accounting standards, and the U.S. Government SGL at the transaction level. NSF conducted a review under OMB Circular A-127 (Revised January 9, 2009, effective as of October 1, 2009) to determine the level of risk by applying the FFMIA risk model, which ranks risk from nominal to significant. The risk assessment determined NSF's financial system is a moderate risk because 1) it is not certified by the Financial System Integration Office and 2) because of significant manual year-end adjustments both in number of entries and value of transactions. Despite the risks, NSF's financial statements are prepared with information generated by the core financial system consistent with OMB Circular A-136, *Financial Reporting Requirements*, and the agency's financial systems provide timely and reliable financial information.

### ***U.S. Antarctic Program Property***

NSF had an independent consultant develop a cost-basis model for real property construction costs for the U.S. Antarctic Program (USAP). The analysis included both real property and Construction-In-Progress (CIP) assets that included buildings and land improvements. NSF conducted a site visit to the South Pole and McMurdo Stations in Antarctica to analyze the real property valuation assessment by comparing physical characteristics against the architectural analysis resulting from the cost-basis modeling. The results of the analysis provided NSF with an estimate and substantiation of the cost basis stated on its balance sheet.

The USAP accounts for approximately 88 percent of NSF's Property, Plant, and Equipment (PP&E) balance as of June 30, 2010. The multi-year contract between NSF and the Raytheon Polar Services Company (RPSC) states that RPSC is responsible for acquiring, maintaining, and performing a physical inventory of USAP property. NSF relies upon RPSC to maintain all related source documentation and record mounts for the PP&E activities it conducts. NSF had an independent consultant verify and validate the property reports NSF receives from RPSC to obtain an unbiased evaluation and to void



"Swarms" of autonomous underwater explorers (AUEs) will provide new information about the oceans. These robotic ocean explorers will be designed and deployed to provide new knowledge about marine protected areas, harmful algal blooms, oil spills, and key ocean processes.

Credit: Scripps Institution of Oceanography

<sup>19</sup> APIC serves as the agency's Senior Assessment Team to document, monitor, and report on internal control.

overreliance on RPSC. This annual verification and validation project includes capital equipment, CIP, and freight costs. No exceptions were noted that would material impact the PP&E balance on the financial statements.

### ***Information Technology Assessment***

In FY 2010, the Internal Controls Quality Assurance Team reviewed the controls for selected systems using a standard federal methodology (the Federal Information System Controls Audit Manual or "FISCAM"). The methodology covered five domains: access control; contingency planning; configuration management; segregation of duties; and security management. The Team also developed a baseline for future assessments and implementation efforts through interviews, observations, supporting documentation, and gap analysis. Overall NSF's information technology (IT) controls are effective in maintaining a secure IT environment at NSF. The assessment concluded that NSF's IT environment is supported by a suite of comprehensive policies and procedures that incorporate federal mandates and guidance in all domains. Numerous controls have been implemented to protect agency financial information and information resources. There are no Federal Information Security Management Act (FISMA) significant deficiencies related to NSF systems, including the financial system. Continuous monitoring verifies throughout the year that effective IT security controls are in place.

### ***Assessment of Recovery Act Funds***

Under the Recovery Act, NSF received \$3.0 billion to fund investments in science and engineering research and education, which was required to be obligated by September 30, 2010. NSF has established and maintained adequate internal controls to ensure that: 1) Recovery Act funding has been expended for the intended purposes and in accordance with internal and external guidance; 2) reported results regarding the expenditure of Recovery Act funds and the outcomes achieved are accurate and verifiable; and 3) key control processes impacting the execution of Recovery Act funding have been evaluated and deemed effective.

### ***Improper Payments Information Act***

The Improper Payments Information Act (IPIA) of 2002 and OMB Circular A-123, Appendix C, *Management's Responsibility for Internal Control: Requirements for Effective Measurement and Remediation of Improper Payments*, and Executive Order 13520 require agencies to review all programs and activities, identify those that are susceptible to significant erroneous payments, and determine an annual estimated amount of erroneous payments made in those programs.

In FY 2009, NSF conducted a statistical review of its FY 2008 Federal Financial Report transactions received from grant recipients. Consistent with the results of previous reviews, the occurrence of NSF improper payments continued to be well below the significant standard of improper payments, which is defined by OMB guidance as exceeding \$10 million and 2.5 percent of total outlays. As a result, OMB renewed NSF's relief from the annual IPIA reporting for FY 2010 and FY 2011. During this relief period, NSF will continue its annual grant expenditure sampling process and its internal risk-based approach as part of an integrated and comprehensive grant monitoring program strategy. This strategy coupled with strong financial management controls will assist NSF to ensure that taxpayer dollars are spent correctly and efficiently.

Additional actions are being developed in accordance with Executive Order 13520, issued on November 20, 2009, which established new requirements for agencies on improper payments. A key component of the Executive Order is emphasis on high-priority programs which are defined as programs that have a higher impact on improper payments. Although OMB determined that NSF does not have

high-priority improper payment programs, NSF has worked with its OIG and OMB to implement the Executive Order in two areas:

- 1) Developing additional measures and targets on the recovery of improper payments.
- 2) A quarterly high-dollar improper payments report to the Inspector General.

For FY 2010, NSF did not develop additional measures to recover improper payments because its annual outlays for contracts are below the \$500 million threshold specified in OMB guidance. NSF is, nonetheless, reviewing payment transactions and issuing a quarterly High-Dollar Improper Payments Report to the Inspector General.

### Financial System Strategy

NSF's Financial Accounting System (FAS) is a custom-developed online, near real-time system that provides the full spectrum of financial and budget management functionalities as required by a grant-making agency. FAS is integrated with NSF's core mission systems for proposal intake, merit review, award processing, and post-award administration, including Electronic Jacket (eJacket), Awards System, Guest (panelists) Travel and Reimbursement System, FastLane, and Research.gov. FAS also supports the e-Travel System and Training System. The grant and core financial processes are maintained by FAS and the system is used to monitor and track over 55,000 active awards with over 2,100 external grantee institutions.

Consistent with NSF's e-Government Implementation Plan, FAS will remain in a steady-state phase until it is replaced with a new financial management system. In FY 2010, NSF continued planning for iTRAK, a financial management system initiative to replace the current legacy core financial system. NSF is managing iTRAK in accordance with OMB's guidance dated June 2010, that sets forth principles for the implementation and project management of new financial systems. As part of the pre-acquisition phase of the iTRAK initiative, NSF is developing its functional and technical requirements for the new system, documenting its key interfaces, and continuing to focus on cleaning data in FAS to ensure the integrity of the data being migrated to the new system.