

**Right:** NSF-funded researchers at the California Institute of Technology and the University of Iowa are combining insights and methods from brain science with decision science, psychology, and economics to study human judgment and decision-making. Computer-generated visualizations of the brain can help identify the relationship between human behavior and activity in different regions of the brain. In the image shown here, the ellipsoids represent the anatomic variation among the brain regions of 20 subjects based on magnetic resonance imaging (MRI) data. The green, red, and pink ellipsoids represent regions that support language and reasoning. The blue spheres represent areas of the brain that control sensation and motor function.

Research on the relationship between brain function and behavior is stimulating new economic and social theories that incorporate emotion and brain function in formal mathematical models. The goal is to develop integrative theories of social behavior that build upon the bedrock of neural and cognitive functioning, proceed through behavioral analysis, and account for the structure and dynamics of groups and organizations, markets, and societies. For example, high activity in a particular region of the brain, the orbitofrontal cortex, correlates with avoiding choices where people are uncertain about their chances of success and failure (ambiguity aversion). People with damage to portions of the brain associated with the processing of emotion do not exhibit ambiguity aversion. This condition may bestow advantages in circumstances when ambiguity is unavoidable and decisiveness is essential.

For more information:

[www.nsf.gov/od/opp/gpra/cov\\_materials/cov2006/ant\\_nuggets\\_06.pdf](http://www.nsf.gov/od/opp/gpra/cov_materials/cov2006/ant_nuggets_06.pdf)

For more information:

*NSF's FY 2007 Annual Financial Report*  
[www.nsf.gov/publications/pubsumm.jsp?ods\\_key=nsf0802](http://www.nsf.gov/publications/pubsumm.jsp?ods_key=nsf0802)

*OMB Circular A-123, Management's Responsibility for Internal Control*  
[www.whitehouse.gov/omb/circulars/a123/a123\\_rev.pdf](http://www.whitehouse.gov/omb/circulars/a123/a123_rev.pdf)

NSF's FY 2007 Management Assurance statement can be found in NSF's FY 2007 Annual Financial Report.



## FINANCIAL HIGHLIGHTS

### From the Chief Financial Officer



**Thomas N. Cooley**  
Chief Financial Officer

Fiscal Year (FY) 2007 was a busy and successful one for the National Science Foundation (NSF), with a record number of proposals received and awards made—nearly 45,000 and 11,494, respectively. I am pleased to report the Foundation received an unqualified audit opinion, affirming that NSF's financial statements for the year ended September 30, 2007, were presented fairly in all material respects, in conformity with U.S. generally accepted accounting principles. The audit report noted no material weaknesses but included two significant deficiencies: Contract Monitoring (repeated from the prior year) and Property, Plant, and Equipment Accounting and Reporting. NSF is addressing both deficiencies through a combination of process and system improvements. We believe NSF's efforts in developing and implementing a comprehensive post-award monitoring program that is increasingly being recognized as a model in the federal government has resulted in the removal of last year's post-award monitoring deficiency from the audit report.

Sound financial management enables NSF to pursue the critical investments in science and engineering research and education that ultimately help ensure the nation's security, prosperity, and well being. NSF's longstanding commitment to sound financial management practices focuses on providing the highest business services to our customers, stakeholders, and staff, including effective financial control, prompt and streamlined work processes, and reliable and timely financial information to support sound management decisions.

Among NSF achievements during the past year are the following:

- Maintaining "Green" ratings for both the Financial Performance and the Performance Improvement initiatives on the President's Management Agenda scorecard. NSF has successfully sustained a "Green" rating for Financial Performance since inception of the PMA scorecard in 2001.

On March 13, 2007, Thomas N. Cooley (*center*) received the Donald L. Scantlebury Memorial Award at the Federal Financial Management Conference. This award recognizes Cooley's leadership in agency and interagency financial management innovations. Presenting the award are Linda Springer, Director of the Office of Personnel Management, and David Walker, Comptroller General of the United States.



- Consistently receiving +99 percent of quarterly Federal Cash Transaction Reports (FCTR)—a collection rate that significantly exceeds that of other federal agencies. As part of the Federal Grants Streamlining Initiative, NSF has been working with the Office of Management and Budget (OMB) on a Federal Financial Report pilot to consolidate grant recipient financial reporting and replace the FCTR in FY 2008.
- Maintaining an active leadership role in the federal grants management arena including the CFO Council Grants Policy Committee and the Grants Management Line of Business Initiative. NSF is forging the integration of grants and financial management that should result in considerable cost and operations efficiencies. Similarly, NSF's participation in OMB's pilot for performance and accountability reporting, for which we prepared the *Annual Financial Report* and this *Performance Highlights* report, speaks to the Foundation's commitment to innovation—at both the frontier of science and engineering and at the management front.
- Receiving awards from two prestigious communications associations for excellence in annual reporting, for our annual *Performance Highlights* report. The Vision Award from the League of American Communications Professionals and the Blue Pencil Award from the National Association of Government Communicators (NAGC) reinforce our commitment to be accountable to our stakeholders and the public for sound stewardship of the public's resources.

Lastly, I wish to note that this year's unqualified audit opinion marks ten consecutive years of clean audit opinions for the Foundation. As the requirements in financial oversight and accountability have continually increased over the decade, this accomplishment reflects the dedication and diligence of a talented staff that I am proud to lead.

Thomas N. Cooley  
January 2008

## GAZING DEEPER INTO SPACE



An NSF-funded astronomer helped develop this composite image of the supernova remnant W49B, which reveals a barrel-shaped nebula. One of the final events in the creation of this remnant would have been a gamma-ray burst, which occurs when a young massive star burns through its hydrogen core. When the pressure generated by this reaction diminishes, the pull of gravity forces the star's matter to collapse in on itself. For some extremely massive stars, the force of the collapse is strong enough to create a black hole and the energy is sufficient to power a massive explosion, resulting in an eruption of energy and light.

Occurring on the very edges of our universe, these stunning explosions create a powerful light source that allows astronomers to gaze deeper into space. Long-duration gamma-ray bursts last for just a few seconds, but the light is often strong enough to illuminate details in space previously unseen. Luminescence from gamma-ray bursts expands the possibilities for exploration, enabling researchers to collect information on everything between the burst and the telescope.

● For more information:

[www.nsf.gov/discoveries/disc\\_summ.jsp?cntn\\_id=110634&org=NSF](http://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=110634&org=NSF)

## USING TRANSISTORS TO SENSE BIOMOLECULES

A unique sensor system could potentially detect the presence of heart disease from a drop of blood or detect the presence of chemicals used for explosives. By placing a molecule on a microcantilever, such as the protein streptavidin, that protein uniquely binds with a molecule in a specific environment. This binding causes surface stress that bends the microcantilever, which was traditionally measured using optics. With funding from NSF, researchers instead embedded transistors into the microcantilever. This alternative measuring technique affords more flexibility, such as the ability to perform high-resolution sensing in liquids or environments in which light scatters. They could also equip a chip with several cantilever-transistor pairs designed to sense different molecules, allowing sensing of the relative amounts of given molecules in an environment.

● For more information:

*NSF's FY 2007 Annual Financial Report*  
[www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf0802](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf0802)

## Financial Highlights

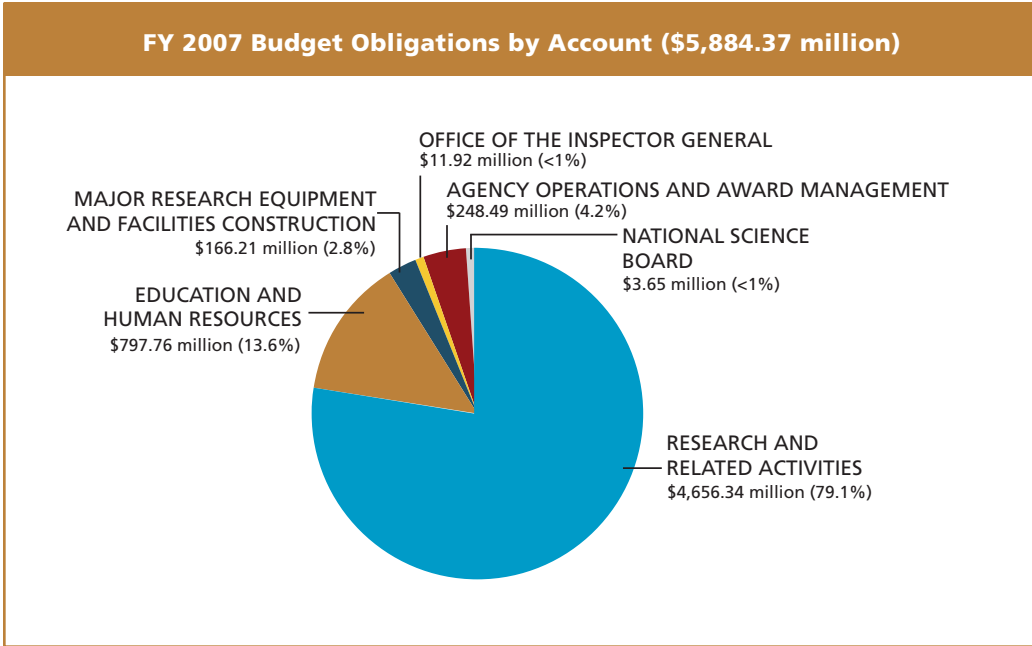
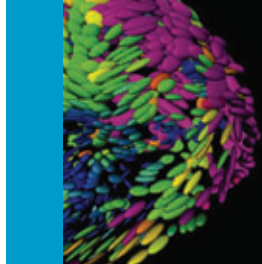
NSF's commitment to excellence, results-oriented management, and stewardship encompasses the agency's financial management arena. In FY 2007, NSF successfully maintained "Green" ratings in both the President's Management Agenda financial performance initiative and the Department of the Treasury's Financial Management scorecards. NSF also achieved top scores in the government-wide Chief Financial Officers Council's financial management metrics. With agency improper payments below the OMB reporting threshold for the past two consecutive years, NSF is now reporting on a three-year cycle, with the next report in FY 2009. However, the Foundation continues to improve operational designs to further minimize improper payments.

NSF has implemented the new Federal Financial Report (FFR) for grant recipients as an important first step to establishing a more streamlined, government-wide grantee financial reporting process. NSF is also participating in OMB's pilot program to improve performance and accountability reporting. Consistent with our leadership role in the CFO Council Grants Policy Committee and the Grants Management Line of Business initiative, NSF is pursuing an innovative integrated approach to the grants and financial management lines of business initiatives.

NSF is in its second year of a three-year implementation of a new internal control program developed in response to the recently updated guidelines issued by OMB in *Circular A-123: Management's Responsibility for Internal Control*. NSF's new internal control program identifies all agency business processes and the controls over those processes, assesses their risk, and tests the key controls in those processes. In FY 2007, NSF was in substantial compliance with financial management and systems requirements; however, the agency is reporting a qualified management assurance over internal control because of the planned scope limitation of the internal review of financial reporting. NSF expects to be in full compliance with OMB's financial reporting requirements by the end of FY 2008.

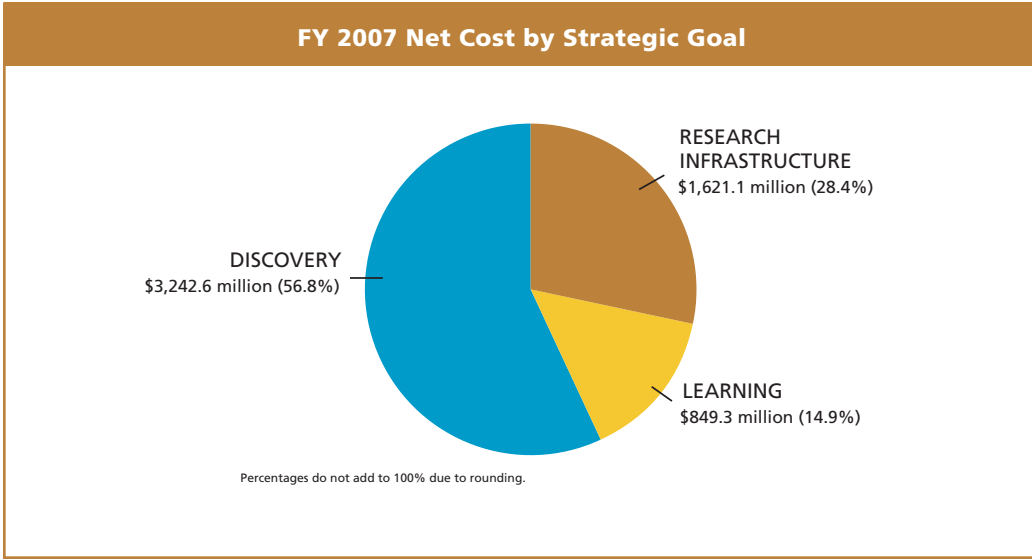
NSF prepares annual financial statements in conformity with generally accepted accounting principles of the United States and subjects them to an independent audit to ensure their reliability in assessing performance. In FY 2007, NSF received its tenth consecutive unqualified "clean" audit opinion. An unqualified audit opinion is a measure of the fair presentation of our financial statements. The Foundation prepares a Balance Sheet, Statement of Net Cost, Statement of Changes in Net Position, and Statement of Budgetary Resources. Supplementary information includes Stewardship Investments, Deferred Maintenance, and Budgetary Resources by Major Budget Accounts. The following pages feature highlights of NSF's FY 2007 financial condition. Stewardship Investments are shown on page 19. A detailed discussion of NSF's financial performance and a complete set of financial statements, accompanying notes, and the audit opinion can be found in NSF's *FY 2007 Annual Financial Report*.

NSF is funded primarily through six congressional appropriations. The *Research and Related Activities* (RRA) appropriation is NSF's largest, accounting for nearly 80 percent of the agency's budget. The RRA appropriation funds the best ideas and most promising people working at the frontiers of science and engineering in fundamental basic research, as well as high risk and transformational research to generate important discoveries and new technology that will enhance the nation's quality of life, competitiveness, and national security. The *Education and Human Resources* appropriation accounts for nearly 14 percent of NSF's budget and supports activities that ensure a diverse, competitive, and globally-engaged U.S. science, technology, engineering, and mathematics workforce as well as scientifically literate citizens. The *Major Research Equipment and Facilities Construction* appropriation supports the construction and procurement of unique national research platforms and major research equipment that enable



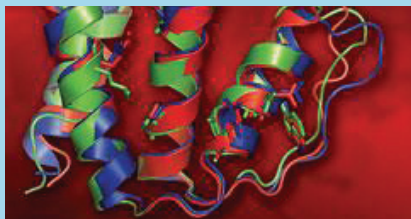
cutting-edge research. The *Agency Operations and Award Management* appropriation accounts for less than 5 percent of NSF’s total budget. Funding for the operation of the Office of Inspector General and for the National Science Board are each provided in a separate appropriation.

Shown in the chart below are the costs incurred in FY 2007 in support of NSF’s strategic outcome goals of *Discovery*, *Learning*, and *Research Infrastructure*. Costs incurred for indirect general operation activities—salaries, training, activities related to the advancement of NSF information technology, and the activities of the National Science Board and the Office of Inspector General—were allocated to the *Discovery*, *Learning*, and *Research Infrastructure* goals and account for about 5 percent of the total current year Net Cost of Operations. These administrative and management activities are the focus of the *Stewardship* strategic goal.



Certain financial data referred to on pages 17–19 were derived from NSF’s audited financial statements; however, such limited data have not been specifically audited as stand-alone information.

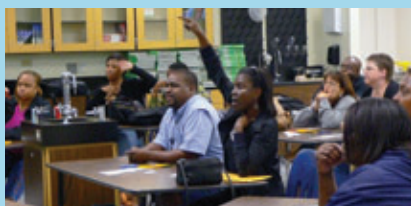
## DESIGNING NEW DRUGS



Proteins are the building blocks of the body, and biologists have learned that the myriad ways they function—from fighting off infection and building new bones to storing a memory—depend on the precise details of their three-dimensional shapes. But determining the shapes of proteins has been a slow and exacting process. To speed up this important science, researchers at the NSF-funded San Diego Supercomputer Center helped biologists from the University of Washington begin to harness the power of massive supercomputers. After working to adapt the computer code, they used a supercomputer to compute a protein structure in just 3 hours, a process that normally takes weeks. By dramatically accelerating scientific research, modern supercomputers are opening the door to medical advances such as rational drug design.

For more information:  
[www.sdsc.edu/discoveries/discoveries.html](http://www.sdsc.edu/discoveries/discoveries.html)

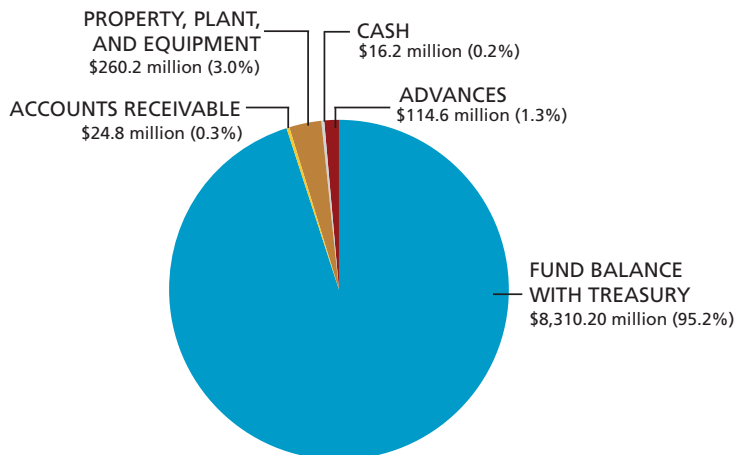
## OVERCOMING BARRIERS TO ACADEMIC ACHIEVEMENT



NSF-supported researchers have found that “stereotype vulnerability” impacts the performance of women and ethnic minorities in science, technology, engineering, and mathematics. It occurs when members of a group believe in negative stereotypes about their abilities, thereby lowering performance. New research identifies situations that give rise to stereotype vulnerability, the factors that moderate it, and its consequences for achievement. When stereotype vulnerability is removed, performance is no longer impaired, and women and ethnic minorities perform at rates comparable to men and majority members. Research on stereotype vulnerability has led to important interventions that have raised the achievement and test scores of low performing women and minority students.

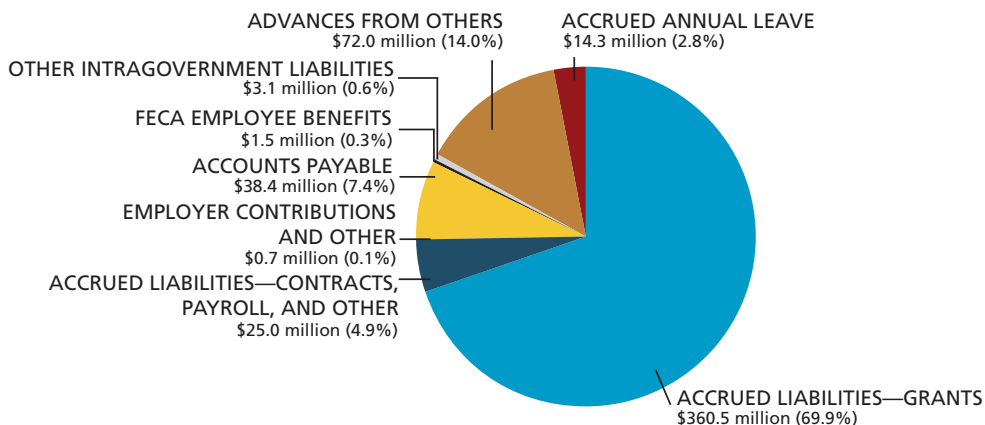
For more information:  
[www.nsf.gov/news/mmg/mmg\\_disp.cfm?med\\_id=59988&from=mmg](http://www.nsf.gov/news/mmg/mmg_disp.cfm?med_id=59988&from=mmg)

### FY 2007 Assets



Three line items—*Fund Balance with Treasury*; *Property, Plant, and Equipment*; and *Advances*—represent 99 percent of NSF’s current year assets. *Fund Balance with Treasury* is funding available through the Department of Treasury accounts from which NSF is authorized to make expenditures and pay amounts due. *Property, Plant, and Equipment* comprises capitalized property located at NSF headquarters and NSF-owned property in New Zealand and Antarctica that supports the U.S. Antarctic Program. *Advances* are funds advanced to NSF grantees, contractors, and other government agencies.

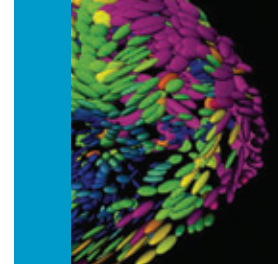
### FY 2007 Liabilities



Three line items—*Accounts Payable*, *Accrued Liabilities—Grants*, and *Advances from Others*—represent 91 percent of NSF’s current year liabilities. *Accounts Payable* includes liabilities to NSF vendors for unpaid goods and services received. *Accrued Liabilities—Grants* are amounts recorded for NSF’s grants for which grantees have incurred costs but have not submitted their Federal Cash Transaction Reports (FCTR). *Advances from Others* represents payments received in advance from other federal agencies through interagency agreements for services that have not been performed.

### Changes in Financial Position in FY 2007 (amounts in thousands)

Net Financial Condition	FY 2007	FY 2006	Increase/ (Decrease)	% Change
Assets	\$8,726,006	\$8,247,611	\$478,395	6%
Liabilities	\$515,430	\$441,720	\$73,710	17%
Net Position	\$8,210,576	\$7,805,891	\$404,685	5%
Net Cost	\$5,636,129	\$5,595,761	\$40,368	1%



## Stewardship Investments: Research and Human Capital (amounts in thousands) (unaudited)

	FY 2007	FY 2006	FY 2005	FY 2004	FY 2003
<b>RESEARCH AND HUMAN CAPITAL ACTIVITIES</b>					
Basic Research	4,195,444	3,682,266	3,564,093	3,494,302	3,519,159
Applied Research	432,820	339,757	291,169	209,225	218,152
Education and Training	808,642	1,378,472	1,386,952	1,224,058	867,489
Non-Investing Activities	275,993	321,085	292,426	268,298	196,363
<b>Total Research and Human Capital Activities</b>	<b>\$ 5,712,899</b>	<b>\$ 5,721,580</b>	<b>\$ 5,534,640</b>	<b>\$ 5,195,883</b>	<b>\$ 4,801,163</b>
<b>INPUTS AND OUTPUTS</b>					
<b>Research and Human Capital Activities</b>					
<u>Investments in:</u>					
Universities	4,016,101	3,994,682	3,970,851	3,705,751	3,310,365
Industry	208,696	199,523	223,563	196,260	178,000
Federal Agencies	203,759	221,002	143,316	107,212	144,792
Small Business	220,602	218,334	193,199	200,995	186,400
Federally Funded R&D Centers	335,731	299,802	278,542	269,968	285,329
Non-Profit Organizations	421,775	428,648	418,209	374,838	360,654
Other	306,235	359,589	306,960	340,859	335,623
	<b>\$ 5,712,899</b>	<b>\$ 5,721,580</b>	<b>\$ 5,534,640</b>	<b>\$ 5,195,883</b>	<b>\$ 4,801,163</b>
<u>Support to:</u>					
Scientists	496,431	473,457	454,053	477,970	427,304
Postdoctoral Programs	163,896	158,528	162,132	175,680	163,239
Graduate Students	585,308	544,513	538,233	546,084	475,315
	<b>\$ 1,245,635</b>	<b>\$ 1,176,498</b>	<b>\$ 1,154,418</b>	<b>\$ 1,199,734</b>	<b>\$ 1,065,858</b>
<b>Outputs</b>					
<u>Number of:</u>					
Award Actions	23,000	22,000	22,000	23,000	23,000
Senior Researchers	41,000	32,000	32,000	31,000	30,000
Other Professionals	13,000	11,000	12,000	15,000	12,000
Postdoctoral Associates	6,000	5,000	6,000	6,000	6,000
Graduate Students	35,000	26,000	27,000	29,000	27,000
Undergraduate Students	23,000	27,000	33,000	35,000	32,000
K-12 Students	11,000	8,000	11,000	14,000	14,000
K-12 Teachers	61,000	59,000	74,000	86,000	85,000

NSF's mission is to support basic scientific research and research fundamental to the engineering process as well as science and engineering education programs. NSF's Stewardship Investments fall principally into the categories of Research and Human Capital. For expenses incurred under the Research category, the majority of NSF funding is devoted to basic research, with a relatively small share going to applied research. This funding supports both the conduct of research and the necessary supporting infrastructure, including state-of-the-art instrumentation, equipment, computing resources, and multi-user facilities such as digital libraries, observatories, and research vessels and aircraft. Basic and applied research expenses are determined by prorating the program costs of NSF's strategic goals Research Infrastructure and Discovery reported on the Statement of Net Cost. The proration uses the basic and applied research percentages of total estimated research and development obligations reported in the current year Budget Request to OMB. The actual numbers are not available until later in the following fiscal year. Education and training costs equate to NSF's third strategic goal, Learning, and the costs related to non-investing activities reflect the fourth strategic goal, Stewardship.

The data provided for Scientists, Postdoctoral Associates, and Graduate Students are obtained from NSF's proposal system and information reported by each Principal Investigator. The number of award actions are actual values from NSF's Enterprise Information System (EIS). The remaining outputs and outcomes are estimates obtained annually from the NSF Directorates. They are reported in the annual Budget Request to OMB.

NSF's Human Capital investments focus principally on education and training, toward a goal of creating a diverse, internationally competitive, and globally engaged workforce of scientists and engineers and well-informed citizens. NSF supports activities to improve formal and informal science, mathematics, engineering, and technology education at all levels, as well as public science literacy projects that engage people of all ages in life-long learning. The incremental decrease in the net costs of Research and Human Capital activities reflects a decrease in education and training activities. The increase in support to scientists, postdoctoral programs, and graduate students and the increase in the number of people directly involved in NSF-supported activities reflect primarily increased funding for basic and applied research.

### STEWARDSHIP INVESTMENTS

Information about stewardship investments is from NSF's FY 2007 Stewardship Investments statement. It can be found in the Required Supplementary Stewardship Information section of NSF's *FY 2007 Annual Financial Report*.

Certain financial data referred to on pages 17-19 were derived from NSF's audited financial statements; however, such limited data have not been specifically audited as stand-alone information.