

OVERVIEW

FY 2007 BUDGET REQUEST TO CONGRESS



Budget Request

The National Science Foundation proposes a FY 2007 investment of \$6.02 billion to advance the frontiers of research and education in science and engineering. The Budget Request includes an increase of \$439 million, or 7.9 percent, over FY 2006. At this level, NSF can boost the momentum of discovery in areas of exceptional promise and move aggressively to capitalize on emerging opportunities.

In pursuing the Administration's research priorities within the larger federal research and development effort, NSF's unique task is to tenaciously search out the frontier – to foster the fundamental research that delivers new knowledge to meet vital national needs and to improve the quality of life for all Americans. Our nation's future depends more and more on the quality of our new ideas, the vitality of our science and engineering workforce, and the innovative use of new knowledge generated through our research and education enterprise. As part of the President's American Competitiveness Initiative, the FY 2007 Budget Request reflects the Administration's firm commitment to doubling the NSF budget over ten-years in order to sustain a robust, competitive, and productive America.

The NSF portfolio for FY 2007 emphasizes four priorities that will strengthen the science and engineering enterprise through investments in frontier research, the workforce, education, and cutting-edge research tools:

- Advancing the Frontier.
- Broadening Participation in the Science and Engineering Enterprise.
- Providing World-Class Facilities and Infrastructure.
- Bolstering K-12 Education.

NSF Funding by Account

(Dollars in Millions)

	FY 2005 Actual	FY 2006 Current Plan	FY 2007 Request	Change over FY 2006	
				Amount	Percent
Research and Related Activities	\$4,234.82	\$4,331.48	\$4,665.95	\$334.47	7.7%
Education and Human Resources	843.54	796.69	816.22	19.53	2.5%
Major Research Equipment and Facilities Construction	165.14	190.88	240.45	49.57	26.0%
Salaries and Expenses	223.45	246.81	281.82	35.01	14.2%
National Science Board	3.65	3.95	3.91	-0.04	-1.0%
Office of Inspector General	10.17	11.36	11.86	0.50	4.4%
Total, NSF	\$5,480.78	\$5,581.17	\$6,020.21	\$439.04	7.9%

Totals may not add due to rounding.

Total funding for FY 2006 MREFC also includes an unobligated balance of \$14.88 million carried over from FY 2005, distributed pro rata to the ALMA, EarthScope, IceCube and SODV projects. Including this amount, the MREFC account total is \$205.76 million in FY 2006.

Why Frontier Research Matters

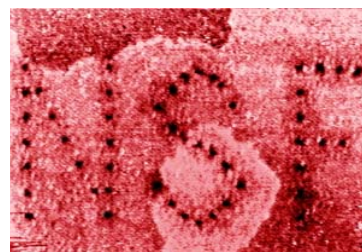
The fruits of research and education in science, engineering, and technology have steadily lifted America's standard of living. In every sector, every community and every region, discovery, learning and innovation are the dynamos driving wealth-producing growth and job creation. Americans rely on new knowledge and cutting-edge technologies to make their lives better. And every American depends on the excellence of U.S. schools and universities to provide students with the skills they require to flourish and to make their own contributions to America's economic future and social well being.

America has always measured her progress not through comparisons with traditional standards, but by setting new standards - pursuing unmet challenges and venturing into unexplored territory. Today, however, this is becoming increasingly difficult, with the prospect of nations like China and India building powerful economic momentum through a burgeoning science and engineering workforce and strong research capacity. There is intense competition for ideas and talent, for comparative advantage and market opportunities worldwide. Robust investments in science and engineering research and education are now more fundamentally critical than ever before to meeting the Nation's challenges: combating terrorism at home and abroad, feeding the fires of industrial innovation, educating world-class knowledge workers, and addressing health and the environment.

Research that Benefits the Nation

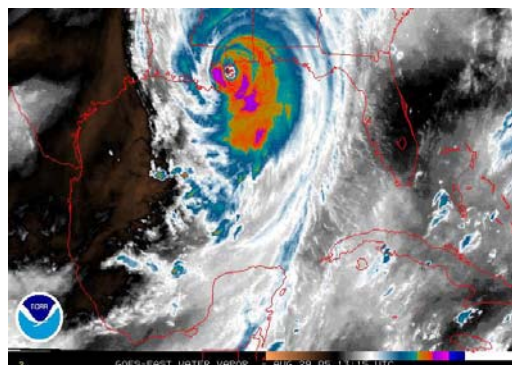
As the pace of discovery and innovation quickens, the lag between frontier research and its application is shrinking, bringing the benefits of frontier research to Americans at lightening speed. Just this past year, researchers funded by NSF reported significant results and launched new research initiatives that will keep those benefits flowing. The following research exemplifies this progress.

► By applying electric current through a thin film of oil molecules, mechanical engineer Arjay Malshe of the University of Arkansas and his students have developed a new method to precisely carve arrays of tiny holes only 10 nanometers wide into sheets of gold. The process may yield minuscule molecular detection devices, semiconducting connectors, molecular sieves for protein sorting and nanojets for fuel or drug delivery. The research is part of the National Nanotechnology Initiative, led by NSF.



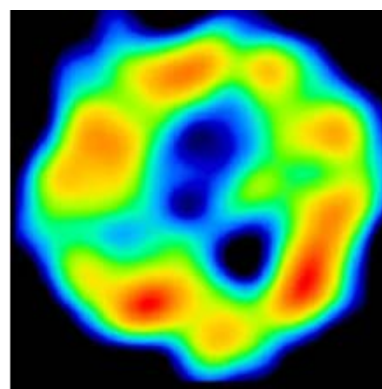
► As part of NSF's Cyber Trust program, Bill Sanders at the University of Illinois and colleagues at four universities are addressing the challenge of designing, building, and validating a secure cyberinfrastructure for the next-generation electric power grid. The project will create technologies that will convey critical information to grid operators despite cyber attacks and accidental failures. The investigators expect that the solutions created will be adaptable for use in other critical infrastructure systems. The research will also help meet a major homeland security challenge.

► Researchers with the International Rice Genome Sequencing Project (IRGSP) have completed the DNA blueprint for a crop that feeds over half the people in the world. Rice is the first crop plant whose genome has been sequenced. Scientists around the world will use the wealth of new information in efforts to improve yields in not only rice, but also in other closely related grass crops such as barley, corn, rye, sugarcane, and wheat. Formally established in 1998, the IRGSP consortium includes Japan, the United States, China, Taiwan, Korea, India, Thailand, France, Brazil, and the United Kingdom.

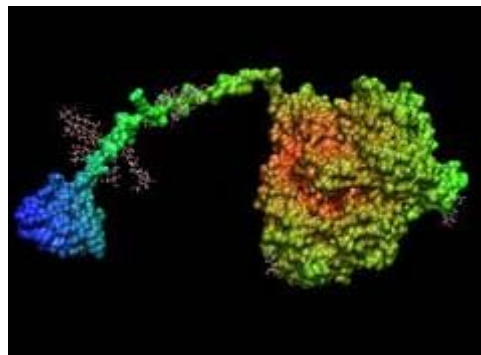


► Real-time radar data and high-tech communications were the keystones to success recently as the Rainband and Intensity Change Experiment (RAINEX) project began its research with Hurricane Katrina. The first hurricane research project to fly planes nearly simultaneously inside and outside a hurricane's principal rainband, RAINEX gathered information that will help scientists to better understand changes in a hurricane's intensity, and to validate state-of-the-art numerical models used in forecasting. Once data are collected and analyzed, the researchers will share this information with hurricane operational centers and national environmental prediction centers throughout the country and the world.

► Scientists funded by NSF and the European Commission have announced the CRONUS project: a new initiative that will use cosmic rays from the distant heavens to reconstruct the history of geologic events here on Earth. The cosmic rays come from galactic explosions known as supernovas, which send billions of the fantastically energetic atomic particles slamming into the Earth's surface every year. These impacts, in turn, blast apart atoms in the rocks to create new elements, which accumulate over time. So by measuring those atoms, scientists can gauge how much time has passed since the rock was disturbed by geological events such as earthquakes, landslides, and glaciers. The new cosmic-ray methods will shed light on Earth's past climate cycles, changes in soil erosion, frequency of floods and landslides, and how weathering of rocks affects global warming and cooling.



► To develop efficient large scale conversion of biomass into ethanol to provide a clean-burning and renewable fuel source, researchers at the National Renewable Energy Laboratory simulated the action of the enzyme cellulase on cellulose using the CHARMM (Chemistry at HARvard Molecular Mechanics) code, a versatile community code for simulating biological reactions. The binding domain is in blue, the glycosylated linker in green, and the catalyst domain in orange and yellow. San Diego Supercomputer Center researchers are working to enhance CHARMM to perform the largest simulation ever of a scientific problem that will yield economic and environmental benefits.





Investment Priorities

Advancing the Frontier

NSF’s unique task is to generate ideas, mark out the creative path, or solve a fundamental research question. Our commitment to excellence in research and education leads us to engage the scientific and engineering communities to identify the most promising directions and the best researchers. NSF proposes to increase investments in Research and Related Activities by \$334 million, or 7.7 percent, in FY 2007.

- **NSTC Priorities.** Activities coordinated by the National Science and Technology Council (NSTC) receive increased support: Networking and Information Technology Research and Development (NITRD) at \$904 million (up \$93 million); the National Nanotechnology Initiative (NNI) at \$373 million (up \$29 million); and the Climate Change Science Program (CCSP) at \$205 million (up \$8 million); Homeland Security activities also increase by \$42 million, to \$384 million. Highlights of FY 2007 activities include:
 - **Cyber Trust and Cybersecurity.** The NITRD investment includes \$35 million (an increase of \$10 million) for Cyber Trust, a cutting-edge research program to ensure that computers and networks underlying national infrastructures, as well as in homes and offices, can be relied on to work, even in the face of cyber attacks. Cyber Trust is part of a larger NSF Cybersecurity and Information Assurance research effort totaling \$97 million, an increase of 26 percent in FY 2007.
 - **Nanoscale Interdisciplinary Research Teams (NIRT).** The NNI investment includes \$65 million for Nanoscale Interdisciplinary Research Teams. These awards encourage team approaches to address nanoscale research and education themes where a synergistic blend of expertise is needed to make significant contributions.



National Science and Technology Council Crosscuts
(Dollars in Millions)

	FY 2005 Actual	FY 2006 Current Plan	FY 2007 Request	Change over FY 2006	
				Amount	Percent
National Nanotechnology Initiative	\$334.99	\$343.77	\$373.18	\$29.41	8.6%
Climate Change Science Program	197.88	196.88	205.25	8.37	4.3%
Networking and Information Technology R&D	810.67	810.33	903.74	93.41	11.5%
Homeland Security	341.40	341.82	384.21	42.39	12.4%

- **Sensors for the Detection of Explosives.** NSF will invest \$20 million in fundamental research on new technologies for sensors and sensor systems to improve the detection of explosives, including Improvised Explosive Devices (IEDs). Related research will target advances in the analysis, interpretation, and evaluation of data gathered from sensors, as well as the integration of this data with information available from a wide variety of other fields and sensing systems. This NSF investment is part of a broader, coordinated interagency effort.
- **International Polar Year.** NSF is the lead agency for U.S. activities recognizing the International Polar Year (IPY), which spans 2007 and 2008. NSF proposes a first-year investment of \$62 million to address major challenges in polar research. Key programs include: Study of Environmental Arctic Change; Polar Ice Sheet Dynamics and Stability; and Life in the Cold and Dark. The investment will also support associated logistics, infrastructure, and education and outreach activities.
- **Elementary Particle Physics.** NSF will expand its investment in elementary particle physics by \$15 million to exploit opportunities for discovery that physicists describe as greater than at any point in the last half-century. Recent advances strongly suggest that we are on the verge of a revolution in our understanding of the nature of matter, energy, space, and time. The investment is coordinated with activities in the interagency plans for research on the Physics of the Universe.
- **Science Metrics.** A new research effort to address policy-relevant Science Metrics is funded initially at \$6.8 million. The goal is to develop the data, tools, and knowledge needed to establish the foundations for an evidence-based “science of science policy.” NSF intends to pursue this research in close cooperation with other agencies.



Broadening Participation in the Science and Engineering Enterprise

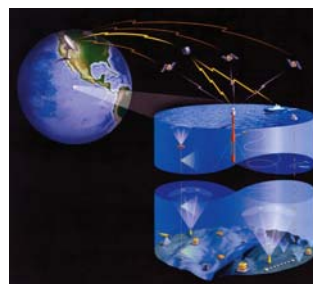
In FY 2007, NSF will continue to emphasize programs aimed at tapping the potential of those underrepresented in the science and engineering workforce – especially minorities, women, and persons with disabilities – and on ensuring that the U.S. enjoys a strong capability in science and engineering across all regions of the country. These investments will total over \$640 million in FY 2007.

- **Principal Investments.** Three highly successful programs form the core of this investment: the Louis Stokes Alliances for Minority Participation, the Alliances for Graduate Education and the Professoriate, and the Centers of Research Excellence in Science and Technology. These programs increase by \$16.15 million or 24 percent in FY 2007.
- **EPSCoR.** Funding for the Experimental Program to Stimulate Competitive Research (EPSCoR) will rise to nearly \$100 million, a \$1.28 million increase over FY 2006.

Providing World-Class Facilities and Infrastructure

The science and engineering enterprise depends increasingly on sophisticated tools to advance the frontiers of knowledge. NSF has a long-established role in providing broadly accessible, state-of-the-art infrastructure to meet major research challenges. NSF's strategy is to invest in tools that promise significant advances in a field of research and to make them widely available to a broad cross-section of investigators.

- **MREFC.** Total funding in the Major Research Equipment and Facilities Construction (MREFC) account is \$240.45 million, an increase of \$49.57 million or 26 percent in FY 2007. The FY 2007 request includes two new starts: the Alaska Region Research Vessel (ARRV) and the Ocean Observatories Initiative (OOI). Both projects will help to fulfill the Administration's 2004 U.S. Ocean Action Plan, developed in response to the U.S. Commission on Ocean Policy.

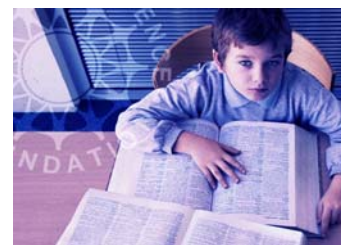


- **Cyberinfrastructure.** Cyberinfrastructure is likely to be a key factor determining research excellence for many years to come. NSF will increase funding for cyberinfrastructure research and development by \$77 million to \$597 million, an increase of 15 percent. NSF proposes to invest \$50 million to begin the acquisition of a leadership-class high performance computing (HPC) system, optimally configured to enable an orderly progression toward petascale level science and engineering computation and data processing. This investment is critical to NSF's multi-year plan to provide and support a world-class computing environment that will make the most powerful HPC assets broadly available to the science and engineering community.

Bolstering K-12 Education

NSF has a long history of building strong research foundations and fostering innovation in K-12 science and mathematics education. Skills in science, technology, engineering and mathematics are increasingly necessary for success in the workforce and for full participation in the life of the Nation.

- **Discovery Research K-12.** In FY 2007, NSF will invest \$104 million in the Discovery Research K-12 (DRK-12) program to strengthen K-12 science, technology, engineering, and mathematics education. The program will support targeted research to advance understanding in three well-defined grand challenges in K-12 education: developing effective science and mathematics assessments for K-12; improving science teaching and learning in the elementary grades; and introducing cutting-edge discoveries into K-12 classrooms.



- **Math and Science Partnership.** The request includes total funding of \$46 million, a decrease of \$17 million, for the Math and Science Partnership (MSP) program. This investment continues support for five Teacher Institutes for the 21st Century to be awarded in FY 2006, designed to develop school-based intellectual leaders, and brings the total number of Teacher Institutes to 13.

- **GK-12.** Funding for the Graduate Teaching Fellowships in K-12 Education (GK-12) program increases by 9.9 percent to \$55.66 million, supporting an estimated 1000 graduate fellows. This program encourages effective partnerships between institutions of higher education and local school districts through a program of outreach that pairs graduate students and K-12 teachers in the classroom.
- **Middle and High School Geosciences Education.** A total of \$3.0 million will fund a new program to improve geosciences education at the middle and high school levels.



Delivering Results

The Nation's economic productivity is enhanced when federal agencies work smarter, producing desired outcomes at acceptable costs. The nature of NSF's programming gives the agency an invaluable level of flexibility and agility. Since only 6 percent of the agency's budget is spent on internal operations – with the remaining 94 percent supporting outside entities working at the frontiers of learning and discovery – NSF has proven time and again that it can respond decisively and

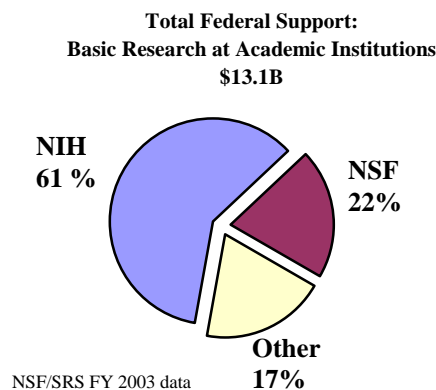
proactively to emerging opportunities and challenges.

For NSF and other federal agencies with significant R&D portfolios, assessment activities are required to draw heavily upon the R&D Investment Criteria. NSF's FY 2007 Budget Request incorporates the Research and Development Investment Criteria established by OMB and the Office of Science and Technology Policy and outlined in the President's Management Agenda. These three criteria, Relevance, Quality, and Performance, are described below and are reflected in each of the directorate and office narratives throughout this Budget Request.

Relevance: R&D programs must be able to articulate *why* this investment is important, relevant, and appropriate.

NSF is the only federal agency with a mandate to strengthen the health and vitality of U.S. science and engineering and support fundamental research and education in all scientific and engineering disciplines. NSF-sponsored activities result in new across-the-board knowledge and technologies and educate a world-class workforce of scientists, engineers, mathematicians, educators, and other technically trained professionals.

Although NSF investments account for only 4 percent of total federal funding for research and development, the agency provides 22 percent of federal support to academic institutions for basic research. NSF investments are especially vital in non-medical fields and disciplines. For over two decades, NSF has been a principal source of federal support for basic research at colleges and universities in such areas as computer science, mathematics, the physical sciences, the social sciences, the environmental sciences, engineering, and non-medical areas of the life sciences. Furthermore, while NSF does not directly support medical research, its investments



benefit the medical sciences and related industries, leading to advances in diagnosis, regenerative medicine, drug delivery, and the design and manufacturing of pharmaceuticals.

The NSF Strategic Plan for FY 2003-2008 is set in the context of the evolving long-term issues that are transforming science and education research. Researchers operate in an increasingly complex environment, in which science and engineering cross the boundaries of disciplines, organizations, and nations. The frontier changes quickly, and discovery requires ever-more-sophisticated skills and methods, as well as technology and instrumentation. Global competition for technical workers and science and education professionals has intensified, and so have the skills expected in today's changing workplace. Leadership and excellence in discovery, innovation, and learning are the most effective means to meet and surpass these new challenges.

Quality: R&D programs must justify *how* funds will be allocated to ensure quality R&D.

Competitive merit review is the recognized “gold standard” in selecting the highest quality research proposals. NSF has a long history of merit review; nearly 90 percent of the agency's research and education funding goes to awards selected through a competitive merit review process.

All proposals for research and education projects are evaluated using two criteria: the *intellectual merit* of the proposed activity and its *broader impacts*, ranging from effects on teaching, training, and learning to improvements in cybersecurity. Reviewers also consider how well the proposed activity fosters the integration of research and education and broadens opportunities to include a diversity of participants, particularly from underrepresented groups.

In FY 2005, NSF awarded nearly 10,000 new grants from about 41,700 competitive proposals, a funding rate of 23 percent. Perhaps the most dramatic indicator of the level of competition for NSF funding is the quality of the proposals that go unfunded every year. In FY 2005, for example, proposals totaling \$1.9 billion were declined even though they were rated as highly as the proposals that received funding. These declined proposals represent a rich portfolio of highly regarded yet unfunded opportunities to advance research and education.

Further, to ensure the highest quality in processing and recommending proposals for awards, NSF convenes Committees of Visitors, composed of qualified external evaluators, to review each program every three years. These experts assess the integrity and efficiency of the processes for proposal review and provide a retrospective assessment of the quality of results of NSF's investments. In addition, NSF directorates also use external Advisory Committees to offer recommendations on such issues as: the mission, programs, and goals that can best serve the scientific community; how to promote quality graduate and undergraduate education; and priority investment areas for NSF-funded research.

Performance: R&D programs must be able to monitor and document *how well* the investment is performing.

Performance assessments are intended to evaluate whether the agency's investments achieve the long-term goals outlined in the NSF FY 2003-2008 Strategic Plan. Specific measures of organizational effectiveness relate to the internal practices, operations, and processes that support the NSF mission. Historically, NSF has relied upon external committees of experts to evaluate the long-term outcomes from research and education. This is appropriate given the broad scope of science and engineering covered by

NSF, and the critical and extensive use of merit review for selecting new awards. Today, these external evaluations provide integral information for the assessments conducted using the Program Assessment Rating Tool (PART).

The NSF Advisory Committee for GPRA Performance Assessment (AC/GPA) leads the annual evaluation of NSF's performance. In FY 2005, the AC/GPA determined that the agency demonstrated significant achievement in meeting its four long-term goals of Ideas, Tools, People, and Organizational Excellence. In its report, the Committee recognized the strength of the agency's portfolio is as a whole rather than in each of the goals separately:

“The Committee also concluded that the four outcome goals are mutually reinforcing and synergistic. They represent an integrated framework that combines research and education in a positive way and also provides the organizational infrastructure to advance the national scientific, technological, engineering, and mathematics enterprise. Thus, all four goals should always be considered as an integrated whole when assessing NSF's performance.”

Another assessment method of NSF's activities is conducted through the government-wide Program Assessment Rating Tool, or PART. The PART process has developed into a central component of NSF's performance framework. Thirteen “Investment Categories” were developed for PART review. These categories are aligned with the long-term goals established in the Strategic Plan. To date, ten of the thirteen investment categories have undergone PART review. All ten have received the highest rating of “Effective”. The remaining three investment categories will be assessed during 2006 and reported in next year's Budget Request. Descriptions of the strategic goals and their associated investment categories are presented below. Further information, including the PART schedule, is included in the Performance Chapter.

Investment Strategy

NSF invests in a rich mix of programs, platforms, and partnerships developed by the research and education community. Funding levels for these programs and activities in the FY 2007 request directly link with the Strategic Outcome Goals and Investment Categories established in the NSF Strategic Plan for FY 2003-2008.

Ideas: *Discovery across the frontier of science and engineering, connected to learning, innovation, and service to society.*

In FY 2007, NSF is requesting \$2.92 billion, an increase of \$166.71 million, or 6.1 percent, over the FY 2006 Current Plan, to support the best ideas generated by the science and engineering community. Through its three investment categories, the Ideas goal promotes research activities in highly promising areas, both disciplinary and interdisciplinary.

NSF Budget by Strategic Outcome Goal and Investment Category

(Dollars in Millions)

		FY 2005	FY 2006	FY 2007	Change over	
		Actual	Current Plan	Request	FY 2006	
					Amount	Percent
Ideas	Fundamental Science and Engineering	\$2,283.43	\$2,270.88	\$2,413.72	\$142.84	6.3%
	Centers Programs	236.67	253.25	259.78	6.53	2.6%
	Capability Enhancement	218.98	224.18	241.52	17.34	7.7%
		2,739.08	2,748.31	2,915.02	166.71	6.1%
Tools	Facilities	475.13	514.32	580.30	65.98	12.8%
	Infrastructure and Instrumentation	464.04	479.40	565.30	85.90	17.9%
	Polar Tools, Facilities and Logistics	278.16	306.95	345.56	38.61	12.6%
	Federally-Funded R&D Centers	182.10	187.45	194.08	6.63	3.5%
	1,399.44	1,488.12	1,685.24	197.12	13.2%	
People	Individuals	522.22	496.36	519.84	23.48	4.7%
	Institutions	145.28	146.92	146.54	-0.38	-0.3%
	Collaborations	394.69	388.37	404.04	15.67	4.0%
	1,062.19	1,031.65	1,070.42	38.77	3.8%	
Organizational Excellence		280.07	313.09	349.53	36.44	11.6%
Total, NSF		\$5,480.78	\$5,581.17	\$6,020.21	\$439.04	7.9%

Totals may not add due to rounding.

Fundamental Science and Engineering. In FY 2007, investments total \$2.41 billion, an increase of \$142.84 million, over the FY 2006 Current Plan. Advancing the frontier in all science and engineering fields is a priority for FY 2007 and will be accomplished through balanced investments across NSF programs. Research under this investment category spans the entire range of disciplines supported by the agency. Specific highlights can be found in each of the individual directorates' or offices' chapters.

Interdisciplinary research is also a key focus of this investment category, including National priorities such as nanotechnology, networking and information technology, climate change, plant genome research, and homeland security. A PART review of the Fundamental Science and Engineering investment category was completed for this Budget Request. The assessment found this set of programs to be "Effective."

Centers Programs. Center investments enable organizations to integrate ideas, tools, and people on scales that are large enough to significantly impact important S&E fields and cross-disciplinary areas. Therefore, Centers play a key role in advancing science and engineering in the U.S., particularly through their encouragement of interdisciplinary research and the integration of research and education. Investments in FY 2007 total \$259.78 million, an increase of \$6.53 million over the FY 2006 Current Plan. NSF plans to initiate four additional Science and Technology Centers (STC) in FY 2006 as well as continue support for two Centers initiated in FY 2005. Funding for all ongoing STCs totals \$67.48 million. Support for Science of Learning Centers (SLC) increases by \$4.29 million to a total of \$27.0 million. In FY 2007, NSF continues the fourth of five initial years of support for four SLCs awarded in the program's first competition. The increased funding will sustain existing SLC investments, supporting

multidisciplinary research that advances fundamental knowledge about the science of learning. A PART review of this investment category will be completed for next year's Budget Request.

Capability Enhancement. In FY 2007, investments totaling \$241.52 million, an increase of \$17.34 million, will build the capability of individuals and institutions to perform high quality, competitive research, education, and technological innovation. A 39 percent increase in Centers of Research Excellence in Science and Technology (CREST), up \$7.04 million to \$24.94 million, will strengthen research and education in minority-serving institutions. Funding is also increased for EPSCoR, up \$1.28 million to \$100 million, and Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR), up \$8.52 million to \$108.88 million. A PART review of this investment category will be completed for next year's Budget Request.

Tools: *Broadly accessible, state-of-the-art S&E facilities, tools and other infrastructure that enable discovery, learning and innovation.*

In FY 2007, NSF proposes to invest \$1.69 billion, an increase of \$197.12 million, in the development and stewardship of a wide variety of facilities, instrumentation and other infrastructure. Leading-edge tools are essential to researchers working at the frontier of science and engineering, and to students who will bring skill in their use into the workplace. NSF is placing a high priority on investments in the development of cyberinfrastructure and in unique national facilities.

Facilities. NSF proposes investments in FY 2007 totaling \$580.30 million, an increase of \$65.98 million, in the development, construction, and operation of state-of-the-art facilities and platforms that enable researchers and educators to work at the frontier of discovery. The \$240.45 million request for the Major Research Equipment and Facilities Construction account, a part of NSF's overall Facilities investment, will support projects of national importance. These include the Atacama Large Millimeter Array (ALMA) (\$47.89 million), EarthScope (\$27.40 million), IceCube (\$28.65 million), the National Ecological Observatory Network (\$12.0 million), and the Scientific Ocean Drilling Vessel (\$42.88 million). Two new starts are requested in FY 2007. In priority order, they are the Alaska Region Research Vessel (\$56.0 million) and the Ocean Observatories Initiative (\$13.50 million). A PART review of the Facilities investment category was completed for the FY 2005 Budget Request. The assessment found this set of programs to be "Effective."

Infrastructure and Instrumentation. FY 2007 investments totaling \$565.30 million, an increase of \$85.90 million, support state-of-the-art instruments, platforms, information technology, databases, and other tools to advance U.S. leadership in science and education, and increase productivity and innovation among researchers, educators, and students working at the frontier. This also includes \$90.0 million to support the Major Research Instrumentation program (MRI). Investments in MRI support a wide variety of mid-sized state-of-the-art research equipment, and reach a broad range of institutions, including non-Ph.D-granting colleges, universities and community colleges. NSF also requests \$50.0 million to begin the acquisition of a leadership-class, high performance computing (HPC) system optimally configured to enable petascale science and engineering. This interagency HPC partnership allows participating agencies to leverage expertise and promising practices, minimizes duplication of effort and ultimately promises to increase the architectural diversity of leadership class systems available to researchers and educators around the country. A PART review of the Infrastructure and Instrumentation investment category will be completed for next year's Budget Request.

Polar Tools, Facilities and Logistics. Investments totaling \$345.56 million, an increase of \$38.61 million, will provide state-of-the-art tools, facilities, and other infrastructure to advance polar research and education. NSF requests \$61.57 million for research and education activities related to the International Polar Year. Activities include Arctic environmental change, polar ice sheet dynamics and stability, and life in the cold and dark. As in FY 2006, NSF has the responsibility for funding the costs of icebreakers that support scientific research in polar regions. NSF will work with OSTP, OMB, and the U.S. Coast Guard to determine the appropriate funding request for this activity in FY 2007, but as a placeholder NSF proposes to fund this activity at a reduced level (-3 percent) in FY 2007. In addition, funding is requested through the MREFC account to complete construction of the South Pole Station (\$9.13 million). A PART review of the Polar Tools investment category was completed for last year's Budget Request. The assessment found this set of programs to be "Effective."

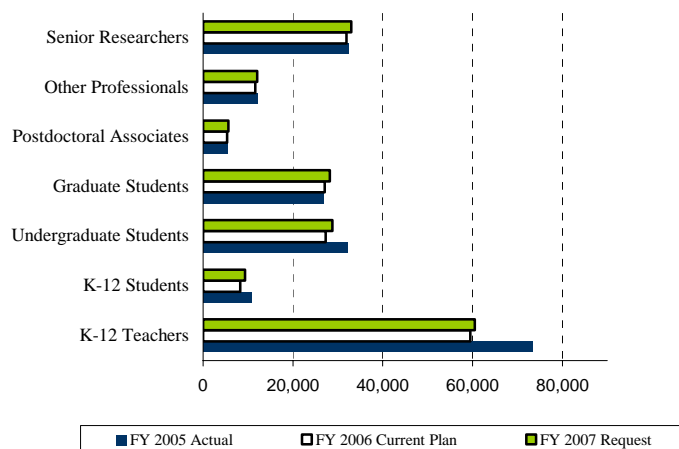
Federally-Funded Research and Development Centers. FY 2007 investments in FFRDCs total \$194.08 million, up \$6.63 million over FY 2006. FFRDCs address research, development, and policy issues that create unique, important, and long-term capabilities for the federal government, in response to law, mandate, or widely recognized need. Funding of \$86.85 million, an increase of \$3.49 million, for the National Center for Atmospheric Research will support continued activities at the Center and provide roughly \$5.0 million to operate the HIAPER (High-Performance Instrumented Airborne Platform for Environmental Research) research aircraft. Funding for the National Optical Astronomy Observatory (NOAO) increases by \$3.14 million to enhance community-based instrumentation activities (the Adaptive Optics Development Program and the Telescope System Instrumentation Program) that NOAO manages; total funding for NOAO is \$40.05 million. A PART review of the FFRDC investment category was completed for this Budget Request. The assessment found this set of programs to be "Effective."

People: *A diverse, competitive, and globally-engaged U.S. workforce of scientists, engineers, technologists and well-prepared citizens.*

The Foundation's FY 2007 budget provides \$1.07 billion, an increase of \$38.77 million, or 3.8 percent, above the FY 2006 Current Plan, to prepare a highly skilled and diverse science and engineering workforce. Within this total, programs that have been successful in broadening participation among groups, communities, regions, and institutions that are underrepresented in science and engineering fields will be increased.

Individuals. Investments totaling \$519.84 million, an increase of \$23.48 million, support the education and training of world-class scientists, engineers, mathematicians, technologists and educators. Among programs targeted for sustained or increased investment are Noyce Scholarships, up \$1.0 million to a total of \$9.77 million and Scholarship for Service/Cybercorp, up \$500,000 to \$10.80 million. NSF's CAREER program, which supports promising college and university faculty early in their careers, increases by \$3.54 million to \$149.46 million. This will support approximately 20 additional awards. Of NSF's three flagship graduate programs – Graduate Research Fellowships (GRF), Integrative Graduate Education and Research Traineeships (IGERT), and Graduate Teaching Fellowships in K-12 Education (GK-12) – support for GRF and IGERT will increase \$4.28 million to \$163.06 million. The GK-12 program, which complements NSF's K-12 efforts, will increase by \$5.01 million to a total of \$55.66 million. Stipends will be maintained at \$30,000 and an estimated 4,665 students will be supported in FY 2007. A PART review of the Individuals investment category was completed for the FY 2005 Budget Request. The assessment found this set of programs to be "Effective."

Number of People Involved in NSF Activities



Institutions. Investments totaling \$146.54 million in FY 2007, roughly level with FY 2006, enable colleges, universities, and other institutions to strengthen the quality of science and engineering education and increase the numbers of students attracted to science and engineering fields at all levels. Programs that enable these institutions to ensure adequate training for a wider portion of the science and engineering workforce include ADVANCE, which increases by \$90,000 to \$19.72 million, STEM Talent Expansion Program at \$26.07 million, an increase of \$50,000, and the Advanced Technological Education program at \$45.92 million, an increase of \$99,000. Engineering Education Reform decreases by \$1.93 million to \$13.02 million. A PART review of the Institutions investment category was completed for last year’s Budget Request. The assessment found this set of programs to be “Effective.”

Collaborations. Investments totaling \$404.04 million, an increase of \$15.67 million, will foster partnerships among colleges, universities, school districts, and other institutions – public, private, state, local, and federal – to strengthen science and engineering education at all levels and broaden participation in science and engineering fields. The FY 2007 budget continues to support a wide range of partnership programs and collaborations. In FY 2007, \$104.07 million is designated for Discovery Research in K-12 (DR-K12). Other programs with significant increases include the Louis Stokes Alliances for Minority Participation (\$39.66 million; an increase of \$4.66 million), Alliances for Graduate Education and the Professoriate (\$18.95 million; an increase of \$4.45 million), Historically Black Colleges and Universities-Undergraduate Program (HBCU-UP) (\$29.71 million; an increase of \$4.53 million), and Informal Science Education (\$66.64 million; an increase of \$3.94 million). The Request includes total funding of \$45.7 million, a decrease of \$ 17.2 million, for the Math and Science Partnership (MSP) program. This investment continues support for five Teacher Institutes for the 21st Century to be awarded in FY 2006, designed to develop school-based intellectual leaders, and brings the total number of Teacher Institutes to 13. A PART review of the Collaborations investment category was completed for last year’s Budget Request. The assessment found this set of programs to be “Effective.”

Organizational Excellence (OE): *An agile, innovative organization that fulfills its mission through leadership in state-of-the-art business practices.*

NSF is committed to excellent, results-oriented management and stewardship. The FY 2007 Budget Request for Organizational Excellence totals \$349.53 million, an increase of \$36.44 million, or 11.6 percent, over the FY 2006 Current Plan of \$313.09 million. In keeping with the President’s Management Agenda, the FY 2007 request maintains NSF’s commitment to providing outstanding customer service and to maintaining leadership in e-Government and state-of-the-art business practices.

The principal drivers of the FY 2007 investment in OE are Information Technology (IT), which increases by 56 percent, and the continued effort to strengthen the NSF workforce. The IT investments include increased spending for IT Security and a near three-fold increase for next-generation grants management capabilities, in keeping with NSF’s designation as a Consortium lead for the Grants Management Line of Business. Other key investments include human capital management, professional development activities, and funding for award monitoring and oversight activities.

President’s Management Agenda Scorecard			
	Baseline	Status	Progress
	(Sep. 30, 2001)	(December 31, 2005)	
Strategic Management of Human Capital	R	G	Y
Competitive Sourcing	R	R	Y
Improving Financial Performance	G	G	G
Expanded E-Gov’t.	Y	G	G
Budget and Performance Integration	R	G	G

A major factor in shaping these investments has been the ongoing NSF Business Analysis, which is addressing the fundamental challenges facing NSF as it becomes a fully integrated organization with increased capabilities for working both within and across traditional disciplinary and organizational boundaries. This analysis concludes in FY 2006, but the implementation of approved recommendations will continue into the foreseeable future as NSF perseveres in redefining excellence in all of its business efforts.