



## **R&D Programs Face Another Rough Year in 2006; Cuts for Many, Gains for Space and Homeland Security**

### AAAS Preliminary Analysis of R&D in the FY 2006 Budget

(All figures in this analysis are **preliminary** and will be revised in later AAAS releases. This analysis is a preview of the forthcoming *AAAS Report XXX: Research and Development FY 2006*, a comprehensive look at the President's budget for R&D in FY 2006. More tables and continually updated supplemental materials on R&D in the FY 2006 budget can be found on the AAAS R&D Web site at [www.aaas.org/spp/rd](http://www.aaas.org/spp/rd).)

On February 7, President Bush released his proposed budget for fiscal year (FY) 2006. Against a backdrop of record-breaking federal budget deficits, a continuing and costly war in Iraq, an expansion of Medicare to pay for prescription drugs, and expensive proposals to introduce private accounts for Social Security in the future, the federal investment in research and development (R&D) would increase only modestly in FY 2006, with cuts to R&D programs outnumbering increases. In order to restrain the budget deficit, the President proposes to hold nondefense discretionary spending flat for the third year in a row; after factoring in increases for international aid and homeland security, domestic non-security spending overall would fall in FY 2006 by 1 percent. Defense spending would increase modestly compared to previous years, but the true picture is uncertain because the budget excludes funding for the Iraq war. Federal R&D investment mirrors these overall trends, with a modest increase in defense development and substantial increases for homeland security and space exploration R&D, offset by cuts for most other R&D programs.

#### **R&D in the FY 2006 Budget: Cuts for Most Areas, Gains for Space and Homeland Security**

The past few years have seen record-breaking totals for the federal investment in R&D because of enormous increases for defense weapons development, the creation of new homeland security R&D programs, and the now-completed campaign to double the National Institutes of Health (NIH) budget. The federal R&D investment hits an all-time high in FY 2005 because of defense and homeland security increases, but in completing FY 2005 appropriations last December Congress went along with the President's proposals to freeze most domestic discretionary spending at FY 2004 levels. As a result, the nondefense, non-homeland security R&D portfolio stagnates in FY 2005, with modest increases in some areas offset by cuts in others. The FY 2006 budget would continue this austerity, and extends it to defense R&D. As a result, growth in the federal R&D portfolio would fail to keep pace with inflation for the first time in a decade, and most R&D programs would suffer cuts in real terms. (All figures in this release are preliminary and will be revised in later AAAS releases with revised agency data.)

- **The proposed federal R&D portfolio in FY 2006 is \$132.3 billion, 0.6 percent or \$733 million above this year's funding level**, far short of the 2.0 percent increase needed to keep pace with expected inflation (see Table 1). In real terms, the total federal R&D portfolio would decline for the first time since 1996. Increases for homeland security R&D in the Department of Homeland Security (DHS; up \$282 million) and space exploration R&D in National Aeronautics and Space Administration (NASA; up \$537 million) would be greater than the overall \$733 million increase, leaving all other R&D programs (including defense) with less money next year. **Total federal support of research (basic and applied) would fall 0.6 percent** to \$54.8 billion, even including DHS' and NASA's expanding research efforts (see Table 2).

- **The nondefense R&D investment would increase 0.7 percent to \$57.1 billion** (see Table 1 and Figure 3). While NASA would continue to receive additional resources for the International Space Station and

moon-and-Mars missions, most other nondefense R&D agencies would see their funding decline or fall well short of inflation.

- **The National Science Foundation (NSF), after a cut in its budget in 2005, would see a modest increase of 2.7 percent to \$4.2 billion for its R&D portfolio**, but most of the increase would go to R&D facilities. As a result, the average NSF research grant would shrink for the second year in a row. NSF's education funding would fall steeply. **The National Institutes of Health (NIH) budget, after doubling in the five years between 1998 and 2003, would see an increase of just 0.5 percent in FY 2006 to \$28.7 billion** (see Table 1 and Figure 1). NIH projects a decline in the number of research project grants for the second year in a row and a decline in the RPG success rate for the fifth year in a row down to 21 percent.

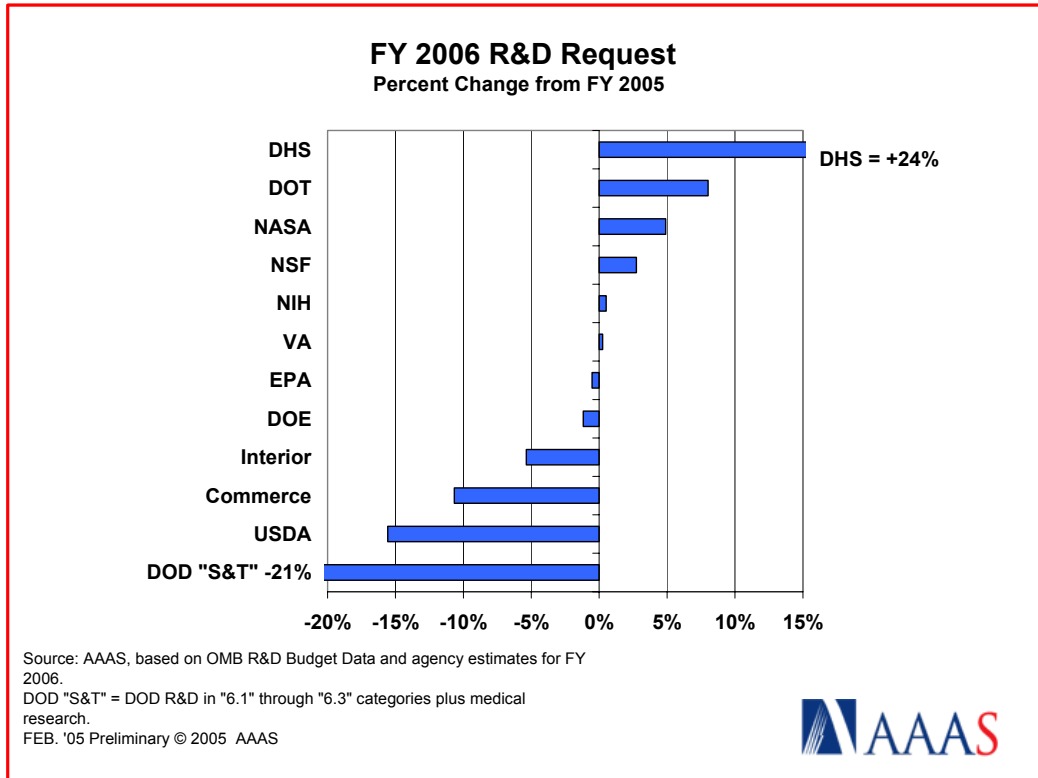


Figure 1. (click on the image for PDF)

- **Other agencies in the federal R&D portfolio would see cuts in 2006, consistent with Administration plans to cut nondefense, non-homeland security spending** (see Figure 1 and Table 1). The Department of Energy's (DOE) Office of Science would see its R&D funding fall 3.8 percent to \$3.2 billion. Environmental R&D would decline across the board, including cuts to R&D in the U.S. Geological Survey (USGS; down 4.6 percent to \$516 million), the National Oceanic and Atmospheric Administration (NOAA; down 11.2 percent to \$565 million), and the Environmental Protection Agency (EPA; down 0.5 percent to \$569 million). The U.S. Department of Agriculture (USDA), enjoying a record R&D portfolio in 2005, would see its R&D funding decline 15.6 percent to \$2.0 billion. Some, but not all, of the cuts would be due to the proposed elimination of congressional earmarks.

- **There would be tough budgetary choices even in agencies with increasing budgets.** At NASA, a 4.9 percent boost in R&D funding to \$11.5 billion would still require steep cuts in aeronautics and earth sciences research and the cancellation of a Hubble servicing mission to pay for NASA's ambitious space exploration plans and resumed construction of the Space Station. Although DOE's energy R&D portfolio would climb 11.3 percent to \$1.3 billion because of increased investments in hydrogen, nuclear energy, fuel cells, and coal, DOE would eliminate R&D on gas and oil technologies and sharply reduce funding for

other areas. R&D at the National Institute of Standards and Technology (NIST) laboratories would climb 12.6 percent to \$357 million, but the budget proposes to eliminate NIST's Advanced Technology Program (ATP) and halve the budget of the Manufacturing Extension Partnership (MEP).

- For the first time in a decade, defense R&D would be subject to fiscal restraints. **Defense R&D would increase just 0.4 percent or \$321 million to \$75.2 billion**, after multi-billion dollar increases for each of the past five years (see Table 1 and Figure 2). Department of Defense (DOD) weapons development would see a modest increase overall, but there would be a \$1.0 billion cut to missile defense. There would be steep cuts to DOD's S&T (DOD "6.1" through "6.3" plus medical research) programs. DOD S&T would plummet 21 percent down to \$10.7 billion, falling well short of the goal of 3 percent of the overall DOD budget at just 2.54 percent. DOE's weapons-related R&D would fall 2.6 percent, including cuts to inertial confinement fusion and advanced computing research.

- Homeland security appears to be the only R&D priority exempt from tough budgetary choices. The Department of Homeland Security (DHS) would continue its dramatic expansion of R&D capabilities with an R&D budget of \$1.5 billion, up \$282 million or 23.8 percent (see Table 1 and Figure 1). **Total homeland security-related R&D, including programs in other departments, would jump 10.7 percent to \$4.6 billion after similar gains over the past several years** (see Table 3, bottom).

- The **total federal investment in research (basic and applied research) would fall 0.6 percent to \$54.8 billion because of cuts in both defense and nondefense research** (see Table 2). Although NASA (up 11.7 percent to \$5.4 billion) and DHS (up 18.6 percent to \$511 million) plan large increases in their research portfolios, other agencies would face steep cuts. DOD support of basic and applied research would fall 14.2 percent down to \$5.5 billion because of the proposed elimination of earmarks and cuts in core research. USDA, DOE, Interior, and Commerce support of research would all fall. NIH would support the majority of the federal research effort for the first time in FY 2006, but its research portfolio of \$27.8 billion would increase only 1.2 percent, far below increases in previous years. NSF research funding would increase 1.2 percent to \$3.8 billion next year, but would remain below FY 2004 funding levels.

- **Funding for all three multi-agency R&D initiatives would decline in FY 2006** (see Table 4). After a nearly \$100 million increase this year, funding for the **National Nanotechnology Initiative** would fall 2.5 percent to \$1.1 billion, well short of amounts authorized in the Nanotechnology R&D Act signed into law in December 2003. Funding for the **Networking and Information Technology R&D** initiative would decline 6.8 percent to \$2.1 billion. The **Climate Change Science Program (CCSP)** would see its funding fall 1.4 percent to \$1.9 billion, primarily because of steep cuts in NASA's contributions in space-based observations of the environment.

### **The FY 2006 R&D Budget in Historical Context**

**The FY 2006 budget would cut funding for key R&D programs and leave federal R&D investments in several areas with flat or declining funding for the last 15 years.** As Figure 2 and Figure 3 show, both the defense and nondefense R&D investments are at record levels in 2005 (in inflation-adjusted terms), but both defense and nondefense would fall behind inflation in FY 2006. For many areas, however, budget cuts would follow cuts in previous years.

For defense R&D, Figure 2 shows that nearly all of the increases in the past few years have been in weapons systems development, "6.4" or higher in the DOD classification system. DOD's S&T investments ("6.1" through "6.3"), comprising basic and applied research and technology development, barely hit a record high in 2005 after taking 16 years to return to Cold War funding levels. But the FY 2006 budget proposes to cut these S&T investments 21 percent in just one year, and reverse four years' worth of increases. The S&T accounts fund all of DOD's investments in research, including key federal contributions to the support of the physical sciences, engineering, and other research fields.

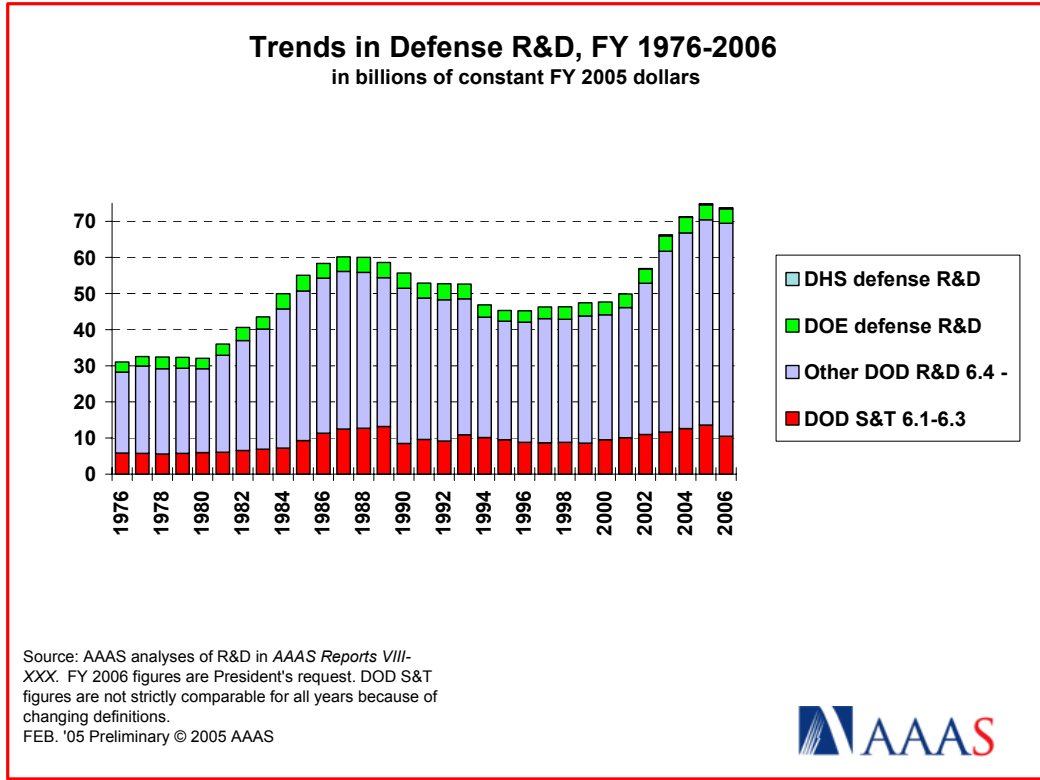


Figure 2. (click on the image for PDF)

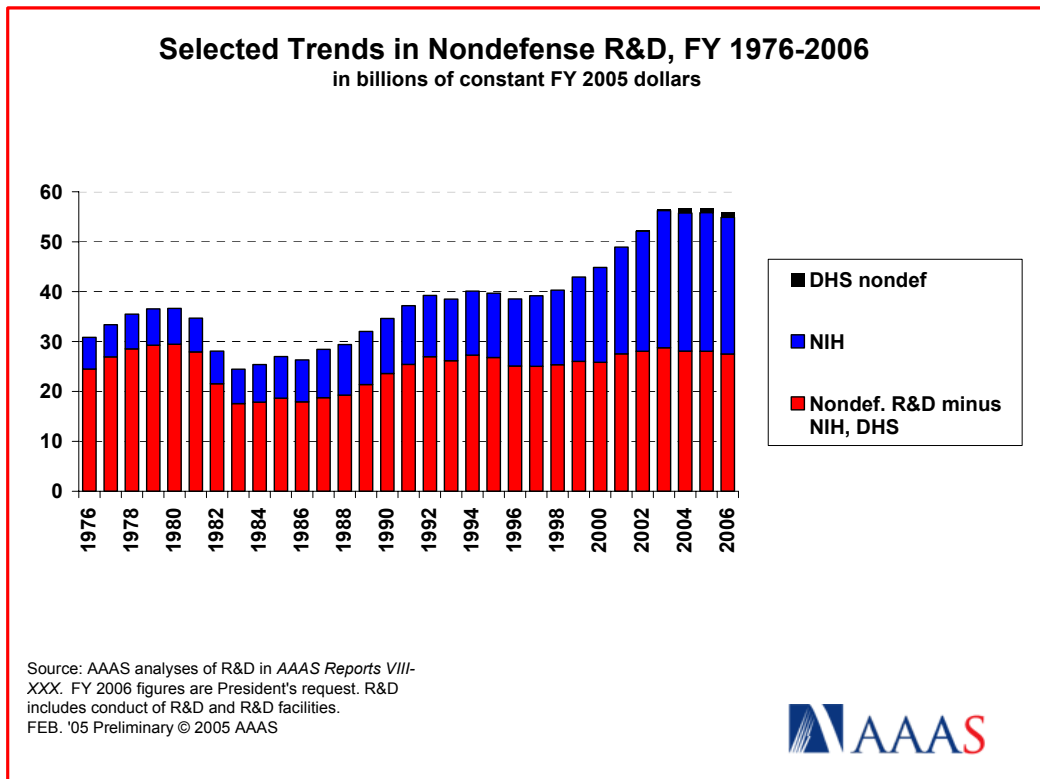


Figure 3. (click on the image for PDF)

In nondefense R&D, the record investment of 2005 is primarily a legacy of the recently completed campaign to double the NIH budget between 1998 and 2003, as shown in Figure 3. Both NIH and non-NIH R&D funding have stagnated since then. The FY 2006 budget would be the first time in 24 years that NIH R&D funding would fail to keep pace with inflation. All the other nondefense R&D funding agencies collectively have seen their budgets remain flat over the past 15 years, after factoring out the recent creation of the DHS. For these nondefense agencies, the FY 2006 budget would be the third year in a row of real cuts. These non-NIH agencies, combined with DOD's research, fund nearly all of the federal investment in the non-biomedical sciences, including the physical sciences, non-medical life sciences, environmental sciences, engineering, mathematics, computer sciences, and social sciences. Federal support for these disciplines has remained stagnant for 15 years, and would decline further in FY 2006.

### Highlights of the Major R&D Funding Agencies

(Complete coverage of the major R&D funding agencies will be available in the forthcoming *AAAS Report XXX: R&D FY 2006* and on the AAAS R&D web site in agency updates.)

- The **National Institutes of Health (NIH)** would receive \$28.7 billion for its total budget in FY 2006, an increase of \$146 million or 0.5 percent. NIH R&D would rise 0.5 percent to \$27.9 billion, failing to keep pace with economy-wide inflation for the first time in 24 years. NIH has already fallen behind its own calculations of biomedical research inflation, estimated at 3.3 percent this year and 3.2 percent in 2006. Most NIH institutes would receive increases in a narrow range between 0.3 and 0.7 percent. The National Institute of Allergy and Infectious Diseases (NIAID), home to NIH's biodefense effort, would do only slightly better with a 1.3 percent boost to \$4.5 billion. The largest percentage increase would go to the Office of the Director (OD; up 7.6 percent) to boost OD funding for clinical research, high-risk basic research, and collaborative research in the NIH Roadmap for Biomedical Research. The Roadmap would receive \$333 million in FY 2006 (up 41 percent), with \$250 million coming from institute budgets. NIH projects a decline in the number of Research Project Grants (RPGs) for the second year in a row, no inflation adjustment for most new or continuing grants, and a decline in the RPG success rate for the fifth year in a row down to 21 percent. Biodefense research grants would be a bright spot with an 8 percent boost in FY 2006. [Roadmap figure corrected 2/18 from '\$333 billion' to '\$333 MILLION'.]

- **The Department of Defense (DOD)** would see its R&D budget grow only slightly by 0.6 percent to \$70.8 billion, an increase of \$417 million compared to multi-billion dollar increases the past five years. DOD weapons development would see a modest increase overall, but Missile Defense Agency (MDA) funding for the development of missile defense systems would fall \$1 billion or 11.5 percent to \$7.8 billion. On the research side, there would be steep cuts to DOD's future-oriented investments: "Science and Technology" (S&T), which includes research, medical research, and technology development, would fall 21 percent to \$10.7 billion (see Table 1 and Figure 2); at 2.54 percent of the regular DOD budget, this falls far short of the Pentagon-endorsed target of 3 percent and the 3.39 percent ratio Congress appropriated in 2005. Within S&T, basic research ("6.1") funding would fall 12.9 percent, while applied research ("6.2") would fall 14.7 percent. The Defense Advanced Research Projects Agency (DARPA) would be a lone winner among research-oriented programs with a request of \$3.1 billion, a 3.6 percent increase.

- The **National Science Foundation (NSF)** budget, after declining in 2005, would receive a modest increase of 2.4 percent to \$5.6 billion, far short of the \$8.5 billion authorized in law. NSF R&D would increase 2.7 percent to \$4.2 billion (see Table 1 and Figure 1), but most of the increase would go to R&D facilities funding. Most research directorates would receive modest increases of about 1 percent, but coming after 2005 cuts this would leave NSF research programs at or below 2004 funding levels. NSF's education and training programs would suffer steep cuts for the second year in a row, especially pre-college education programs. The Major Research Equipment and Facilities Construction account would enjoy a sizeable increase, going from \$174 million to \$250 million despite the lack of new starts.

- The **National Aeronautics and Space Administration (NASA)** continues to face daunting challenges, even as it receives favored treatment in the federal budget. The total NASA budget of \$16.5 billion would be a 1.6 percent increase after a much larger boost in 2005, but NASA's R&D would increase 4.9 percent

to \$11.5 billion in FY 2006 because of money freed up by the Space Shuttle's expected return to flight in 2005. While the agency would receive additional resources for its ambitious plans to finish construction of the International Space Station, explore the solar system, and develop the technologies needed for planned moon and Mars missions, the FY 2006 request would still require tough budget choices. NASA would cancel a previously proposed robotic servicing mission for the Hubble Space Telescope and continue to rule out a human servicing mission. The FY 2006 budget also proposes to cut aeronautics research by 5.9 percent down to \$852 million, and proposes steep cuts in environmental, biological, and physical sciences research in order to shift resources toward solar system exploration and R&D on moon and Mars mission technologies. There would be large boosts for robotic moon and Mars exploration (up 17 percent to \$858 million) and development of a Crew Exploration Vehicle within a new Constellation Systems program (up 113 percent to \$1.1 billion). The International Space Station would receive \$1.9 billion, up 10.8 percent, in anticipation of the Space Shuttle's return to flight.

- The **Department of Energy (DOE)** would see its R&D funding decline 1.2 percent to \$8.5 billion in FY 2006, after a similar cut in 2005. On the nondefense side, R&D funding for the Office of Science (OS) would decline 3.8 percent to \$3.2 billion, leaving OS R&D funding at levels not seen since 2000. The cuts would be spread across a broad portfolio of programs in physics, fusion, biology, and energy sciences. Operation times would be reduced at scientific user facilities supported by OS. DOE's energy-related R&D would climb 11.3 percent to \$1.3 billion because of increased investments in hydrogen, nuclear energy, fuel cells, and coal. DOE would invest \$257 million (up from \$224 million) in a Hydrogen Fuel Initiative to develop technologies for hydrogen-powered cars. But DOE would eliminate R&D on gas and oil technologies and sharply reduce funding for several renewable energy technologies. DOE's defense R&D funding would fall 2.6 percent down to \$4.0 billion, including cuts to advanced scientific computing (down 5 percent to \$660 million) and inertial confinement fusion (down 16 percent to \$460 million). Although Congress eliminated the controversial Robust Nuclear Earth Penetrator program in FY 2005, DOE would try again in FY 2006 with a request of \$4 million, supplemented by a related \$4.5 million request in DOD.

- The **Department of Homeland Security (DHS)** appears immune from budgetary pressures affecting the other agencies. DHS is once again the big winner in the R&D budget with a proposed 23.8 percent increase to \$1.5 billion. The FY 2006 budget would consolidate the department's R&D in the Directorate of Science and Technology. Within the S&T Directorate, the largest boost would come from the establishment of a Domestic Nuclear Detection Office (DNDO) funded at \$227 million in FY 2006 to develop technologies to counter radiological and nuclear threats. DHS would also boost funding to \$110 million (up \$49 million) for R&D to counter the threat of shoulder-fired anti-aircraft missiles. There would also be \$20 million in new funds to develop a Low Volatility Agent Warning System against hard-to-detect chemical threats.

- The **U.S. Department of Agriculture (USDA)**, enjoying a record R&D portfolio in 2005, would see its R&D funding decline 15.6 percent in 2006 down to \$2.0 billion. Most of the decline is due to the proposed elimination of R&D earmarks. USDA would dramatically restructure its extramural research portfolio: the National Research Initiative (NRI) of competitively awarded research grants would increase \$70 million to a record \$250 million, while earmarked Special Research Grants would plummet from \$120 million down to \$3 million. Hatch Act formula funding for land-grant colleges would be cut in half to \$89 million, but USDA would create a new \$75 million competitive research grants program for these institutions. USDA intramural research would decline 10 percent, but the proposed elimination of earmarks would make room for an increase in homeland security-related agricultural research. There would be \$59 million to complete the construction of the National Centers for Animal Health in Ames, Iowa.

- Once again, the Bush Administration proposes to eliminate the Advanced Technology Program (ATP) at the **Department of Commerce**. The ATP has a budget of \$140 million in FY 2005. The budget would also reduce funding for the non-R&D Hollings Manufacturing Extension Partnership by 57 percent down to \$47 million. The savings would allow for a 12.6 percent boost for intramural research at the **National Institute of Standards and Technology (NIST) laboratories** and a doubling of Construction of Research Facilities (CRF) investments in NIST laboratory facilities. **National Oceanic and Atmospheric Administration (NOAA)** R&D would decline by 11.2 percent to \$565 million, mostly from the

elimination of FY 2005 congressional earmarks. Most NOAA research programs would stay at or slightly below current funding levels.

- The **Department of Veterans Affairs (VA)** once again proposes to reorganize its budget to fully report all costs associated with its R&D portfolio, including support and personnel costs. VA federal R&D would be \$786 million in FY 2006, up slightly by 0.3 percent, but planned increases in funding from other sources would result in an increase in the overall VA R&D portfolio to \$1.7 billion.

- R&D in the **Department of the Interior** would fall 5.4 percent to \$582 million, with a similar 4.6 percent cut to \$516 million for R&D in Interior's lead science agency, the **U.S. Geological Survey (USGS)**. The cuts would be concentrated in USGS' mineral resources and water resources R&D, with modest increases or flat funding for other R&D priorities.

- The **Environmental Protection Agency (EPA)** overall budget would fall a steep 6 percent down to \$7.6 billion in FY 2006. EPA R&D would fare better with a 0.5 percent cut to \$569 million. The proposed elimination of R&D earmarks would allow for modest increases to core EPA R&D programs in areas such as global change, particulate matter, drinking water, and water quality.

- **Department of Transportation (DOT)** R&D funding would rise 8.0 percent to \$808 million. There would be a big boost in highway R&D, due in part to a perennial proposal to shift some resources away from state highway grants to highway research; similar proposals have been rejected by Congress in past years. R&D in the Federal Aviation Administration (FAA) would decline 11.4 percent to \$233 million.

#### **The Budgetary Context for FY 2006: Tough Times for Domestic Programs**

The FY 2006 Bush budget proposes **discretionary spending of \$840 billion** in FY 2006, a 2.1 percent increase over FY 2005. But regular defense spending would get a 4.2 percent boost, leaving nondefense discretionary spending exactly even at \$402 billion. Factoring out increases for homeland security and international aid would leave other domestic programs collectively with a nearly 1 percent cut, after similar austerity in the just-completed 2005 budget.

The FY 2006 budget is as notable for what is left out as for what is included. The budget allots nothing for future war costs in Iraq and Afghanistan. The budget also excludes any costs for the transition to Social Security private accounts beginning in 2009, although the transition would require borrowing \$750 billion or so just in the first five years. The budget also excludes the costs of making expiring tax cuts permanent or extending fixes in the Alternative Minimum Tax. All were high priorities for the Bush Administration in the 2005 State of the Union address. Excluding these costs allows the FY 2006 budget to project a record-breaking \$427 billion FY 2005 deficit shrinking in half to \$207 billion in FY 2010, but including these costs would see future deficits matching or exceeding current levels into the future.

For discretionary programs, however, the budget includes proposals for a future of shrinking resources. Figure 4 shows that over the past several years, there have been dramatic increases in both defense and nondefense discretionary spending after nearly a decade of relative restraint in the 1990s. On the defense side, there have been large increases in the regular DOD budget topped off in the last four years by Iraq and Afghanistan costs. The FY 2006 budget proposes a sharp drop in defense spending beginning in FY 2006 by assuming war spending will end this year. On the nondefense side, there have been large increases in homeland security spending and reconstruction support for Iraq and Afghanistan over the past four years along with increases in domestic spending until 2003; the FY 2006 budget assumes that non-homeland security domestic spending will be frozen at the FY 2004 level through FY 2010, resulting in dramatic erosions in purchasing power after inflation.

**While discretionary spending would shrink, spending on entitlement programs would increase dramatically.** The real growth in federal spending has been in entitlement and other mandatory programs, now two-thirds of the federal budget. A prescription-drug benefit for Medicare begins in 2006, with recent estimates pegging this new benefit's costs at \$720 billion over its first decade. The current Medicare

entitlement program also continues to grow far faster than inflation. Although details of Social Security reform are not outlined in the budget, President Bush's proposals for introducing private accounts to the program would require trillions of dollars in additional borrowing to finance transition costs beginning in 2009. In addition, mandatory payments of interest on the national debt would also climb because the national debt is growing rapidly from the accumulation of record annual deficits.

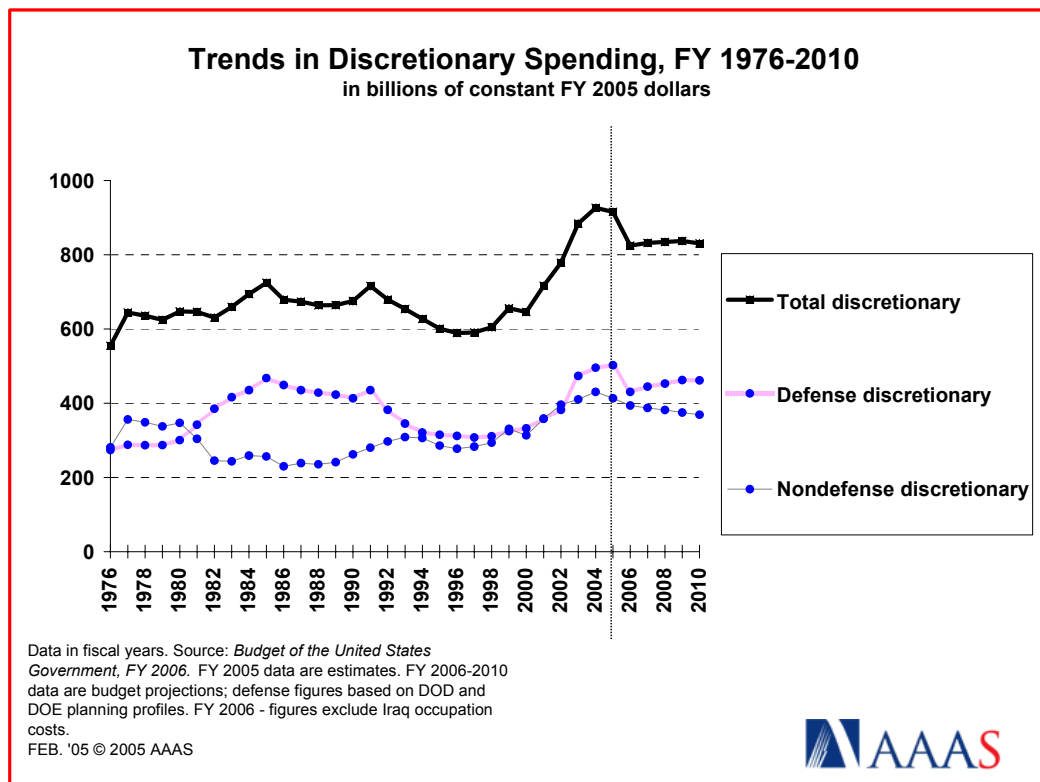


Figure 4. (click on the image for PDF)

These broader trends have a dramatic impact on the federal R&D portfolio. The trends in Figure 4 for overall discretionary spending mirror the trends in Figure 2 and Figure 3 for federal R&D, with steady growth to 2003 giving away to restraint in 2004 and 2005 and further restraint in 2006. Federal R&D investments have always tracked discretionary spending. Thus, the proposals to trim discretionary spending over the next five years could result in similar cuts to most agencies in the federal R&D portfolio.

- February 10, 2005

(More materials on R&D in the FY 2006 budget, historical data and charts, and more information on *AAAS Report XXX: Research and Development FY 2006*, can be found on the AAAS R&D Web site at [www.aaas.org/spp/rd](http://www.aaas.org/spp/rd). The information in this preliminary analysis will be continually updated with revised agency data, and revisions.)

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(202) 326-6607  
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AAAS Preliminary Analysis of R&D in the FY 2006 Budget

**Table 1. R&D in the FY 2006 Budget by Agency**

(budget authority in millions of dollars)

	FY 2004	FY 2005	FY 2006	Change FY 05-06	
	Actual	Estimate	Budget	Amount	Percent
<b>Total R&amp;D (Conduct and Facilities)</b>					
Defense (military)	65,462	70,422	<b>70,839</b>	417	0.6%
<i>S&amp;T (6.1-6.3 + medical)</i>	12,377	13,578	<b>10,691</b>	-2,886	-21.3%
<i>All Other DOD R&amp;D</i>	53,085	56,844	<b>60,148</b>	3,303	5.8%
Health and Human Services	28,047	28,752	<b>28,807</b>	55	0.2%
<i>Nat'l Institutes of Health</i>	27,107	27,800	<b>27,941</b>	141	0.5%
NASA	10,574	10,990	<b>11,527</b>	537	4.9%
Energy	8,779	8,629	<b>8,528</b>	-101	-1.2%
<i>Atomic Energy Defense R&amp;D</i>	4,200	4,137	<b>4,030</b>	-107	-2.6%
<i>Office of Science</i>	3,236	3,322	<b>3,196</b>	-126	-3.8%
<i>Energy R&amp;D</i>	1,343	1,170	<b>1,302</b>	132	11.3%
Nat'l Science Foundation	4,160	4,082	<b>4,194</b>	112	2.7%
Agriculture	2,222	2,415	<b>2,039</b>	-376	-15.6%
Commerce	1,137	1,134	<b>1,013</b>	-121	-10.7%
NOAA	640	636	<b>565</b>	-71	-11.2%
NIST	455	461	<b>416</b>	-45	-9.8%
Interior	627	615	<b>582</b>	-33	-5.4%
<i>U.S. Geological Survey</i>	553	541	<b>516</b>	-25	-4.6%
Transportation	661	748	<b>808</b>	60	8.0%
Environ. Protection Agency	661	572	<b>569</b>	-3	-0.5%
Veterans Affairs	866	784	<b>786</b>	2	0.3%
Education	299	297	<b>261</b>	-36	-12.1%
Homeland Security	1,053	1,185	<b>1,467</b>	282	23.8%
All Other	790	946	<b>884</b>	-62	-6.6%
<b>Total R&amp;D</b>	125,338	131,571	<b>132,304</b>	733	0.6%
Defense R&D	69,859	74,887	<b>75,208</b>	321	0.4%
Nondefense R&D	55,479	56,684	<b>57,096</b>	412	0.7%
<i>Nondefense R&amp;D excluding NIH</i>	28,372	28,884	<b>29,155</b>	271	0.9%
Basic Research	26,588	26,928	<b>26,608</b>	-320	-1.2%
Applied Research	27,838	28,235	<b>28,232</b>	-3	0.0%
Total Research	54,426	55,163	<b>54,840</b>	-323	-0.6%
Development	66,535	71,425	<b>72,666</b>	1,241	1.7%
R&D Facilities and Equipment	4,377	4,983	<b>4,798</b>	-185	-3.7%

Source: AAAS, based on OMB data for R&D for FY 2006, agency budget justifications, and information from agency budget offices.

Note: The projected inflation rate between FY 2005 and FY 2006 is 2.0 percent.

**AAAS Preliminary February 10, 2005 - will be revised**

AAAS Preliminary Analysis of R&D in the FY 2006 Budget

**Table 2. Research in the FY 2006 Budget**

(budget authority in millions of dollars)

	FY 2004	FY 2005	FY 2006	Change FY 05-06	
	Actual	Estimate	Budget	Amount	Percent
<b>BASIC RESEARCH</b>					
Defense (military)	1,358	1,513	<b>1,319</b>	-194	-12.8%
Health and Human Services	14,780	15,124	<b>15,246</b>	122	0.8%
<i>Nat'l Institutes of Health</i>	14,772	15,121	<b>15,246</b>	125	0.8%
NASA	2,473	2,368	<b>2,199</b>	-169	-7.1%
Energy	2,847	2,887	<b>2,762</b>	-125	-4.3%
Nat'l Science Foundation	3,524	3,432	<b>3,480</b>	48	1.4%
Agriculture	829	851	<b>788</b>	-63	-7.4%
Commerce	43	58	<b>71</b>	13	22.4%
NOAA	0	0	<b>0</b>	0	--
NIST	42	57	<b>70</b>	13	22.8%
Interior	37	36	<b>30</b>	-6	-16.7%
Transportation	20	38	<b>41</b>	3	7.9%
Environ. Protection Agency	113	66	<b>70</b>	4	6.1%
Smithsonian	114	115	<b>121</b>	6	5.2%
Veterans Affairs	347	315	<b>315</b>	0	0.0%
Homeland Security	68	85	<b>112</b>	27	31.8%
All Other	35	40	<b>54</b>	14	35.0%
<b>Total Basic Research</b>	26,588	26,928	<b>26,608</b>	-320	-1.2%
<i>Basic research excluding NIH</i>	11,816	11,807	<b>11,362</b>	-445	-3.8%
<b>RESEARCH (basic + applied)</b>					
Defense (military)	5,709	6,364	<b>5,458</b>	-906	-14.2%
Health and Human Services	27,787	28,398	<b>28,656</b>	258	0.9%
<i>Nat'l Institutes of Health</i>	26,900	27,503	<b>27,821</b>	318	1.2%
NASA	5,479	4,865	<b>5,432</b>	567	11.7%
Energy	5,540	5,647	<b>5,471</b>	-176	-3.1%
Nat'l Science Foundation	3,790	3,711	<b>3,756</b>	45	1.2%
Agriculture	1,884	1,944	<b>1,730</b>	-214	-11.0%
Commerce	871	883	<b>834</b>	-49	-5.5%
NOAA	537	522	<b>487</b>	-35	-6.7%
NIST	326	353	<b>336</b>	-17	-4.8%
Interior	575	566	<b>525</b>	-41	-7.2%
Transportation	369	461	<b>535</b>	74	16.1%
Environ. Protection Agency	536	431	<b>456</b>	25	5.8%
Veterans Affairs	823	745	<b>748</b>	3	0.4%
Education	207	186	<b>176</b>	-10	-5.4%
Homeland Security	315	431	<b>511</b>	80	18.6%
Agency for Int'l Develop.	219	215	<b>215</b>	0	0.0%
Smithsonian	114	115	<b>121</b>	6	5.2%
All Other	208	201	<b>216</b>	15	7.5%
<b>Total Research</b>	54,426	55,163	<b>54,840</b>	-323	-0.6%
<i>Total research excluding NIH</i>	27,526	27,660	<b>27,019</b>	-641	-2.3%

Source: AAAS, based on OMB data for R&D for FY 2006, agency budget justifications, and information from agency budget offices.

Note: The projected inflation rate between FY 2005 and FY 2006 is 2.0 percent.

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AAAS Preliminary Analysis of R&D in the FY 2006 Budget

**Table 3. Major Functional Categories of R&D**

(budget authority in millions of dollars)

	FY 2004	FY 2005	FY 2006	Change FY 05-06		% of Total ('06)
	Actual	Estimate	Budget	Amount	Percent	
Defense 1/	69,859	74,887	<b>75,208</b>	321	0.4%	56.8%
Nondefense 2/	55,479	56,684	<b>57,096</b>	412	0.7%	43.2%
Space	9,517	10,084	<b>10,675</b>	591	5.9%	8.1%
Health	28,869	29,495	<b>29,558</b>	63	0.2%	22.3%
Energy	1,427	1,252	<b>1,363</b>	111	8.9%	1.0%
General Science	7,396	7,404	<b>7,390</b>	-14	-0.2%	5.6%
Environment 3/	2,262	2,158	<b>2,045</b>	-113	-5.2%	1.5%
Agriculture	1,910	2,101	<b>1,721</b>	-380	-18.1%	1.3%
Transportation	1,887	1,850	<b>1,660</b>	-190	-10.3%	1.3%
Commerce	497	498	<b>448</b>	-50	-10.0%	0.3%
International	271	262	<b>255</b>	-7	-2.7%	0.2%
Justice 4/	767	755	<b>1,237</b>	482	63.8%	0.9%
All Other	676	825	<b>744</b>	-81	-9.8%	0.6%
<b>Total R&amp;D</b>	<b>125,338</b>	<b>131,571</b>	<b>132,304</b>	<b>733</b>	<b>0.6%</b>	<b>100.0%</b>

Source: AAAS estimates based on data from OMB and agency budget justifications.

Classifications generally follow the government's budget function categories except health (which here includes health R&D in HHS and VA).

All figures are rounded to the nearest million. Changes calculated from unrounded figures.

1/ Includes DOD, defense R&D in DOE, and defense-related R&D in Dept. of Homeland Security.

2/ Includes all R&D not in defense.

3/ Includes natural resources R&D.

4/ Includes most nondefense homeland security programs in DHS.

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**Supplemental Table. Federal Homeland Security R&D by Agency**

(budget authority in millions of dollars)

	FY 2003	FY 2004	FY 2005	FY 2006	Change FY 05-06	
	Actual	Actual	Estimate	Budget	Amount	Percent
Agriculture	155	40	161	<b>172</b>	11	6.8%
Commerce	16	23	73	<b>82</b>	9	11.9%
Defense	212	267	362	<b>394</b>	32	8.7%
Energy	48	47	92	<b>81</b>	-12	-12.5%
Homeland Security	737	1,053	1,185	<b>1,467</b>	282	23.8%
Environ. Protection Agcy.	70	52	33	<b>94</b>	61	185.1%
Health and Human Service	1,653	1,724	1,796	<b>1,802</b>	6	0.4%
- NIH	1,633	1,703	1,774	<b>1,781</b>	6	0.4%
NASA	73	88	88	<b>92</b>	4	4.5%
Natl. Science Foundation	271	321	326	<b>329</b>	3	1.0%
Transportation	7	3	0	<b>0</b>	0	--
All Other	47	32	42	<b>92</b>	50	118.8%
<b>Total HS R&amp;D</b>	<b>3,290</b>	<b>3,650</b>	<b>4,158</b>	<b>4,605</b>	<b>446</b>	<b>10.7%</b>
<i>(Total HS Spending)</i>	<i>42,447</i>	<i>40,834</i>	<i>46,015</i>	<i>49,943</i>	<i>3,928</i>	<i>8.5%</i>

AAAS, based on Office of Management and Budget data from OMB's 2004 Report to Congress on *Combating Terrorism and Budget of the U.S. Government FY 2006*. Figures adjusted from OMB data by AAAS to include conduct of R&D and R&D facilities, and revised estimates of DHS R&D.

Figures do not include non-R&D homeland security activities, nor do they include DOD R&D investments in overseas combating terrorism.

Funding for all years includes regular appropriations and emergency supplemental appropriations.

## AAAS Preliminary Analysis of R&amp;D in the FY 2006 Budget

**Table 4. Interagency Science and Technology Initiatives**  
(budget authority in millions)

	FY 2004	FY 2005	FY 2006	Change FY 05-06	
	Actual	Estimate	Budget	Amount	Percent
<b>National Nanotechnology Initiative</b>					
National Science Foundation	256	338	<b>344</b>	6	1.8%
Defense	291	257	<b>230</b>	-27	-10.5%
Energy	202	210	<b>207</b>	-3	-1.4%
NASA	47	45	<b>35</b>	-10	-22.2%
Commerce (NIST)	77	75	<b>75</b>	0	0.0%
HHS - National Institutes of Health / CDC	108	145	<b>147</b>	2	1.4%
Agriculture	2	3	<b>8</b>	5	166.7%
Other (EPA, DHS, Justice)	8	8	<b>8</b>	0	0.0%
<b>Total Nanotechnology</b>	<u>991</u>	<u>1,081</u>	<u><b>1,054</b></u>	-27	-2.5%
<b>Networking and Information Technology R&amp;D</b>					
Commerce	47	58	<b>61</b>	3	5.2%
Defense	241	277	<b>294</b>	17	6.1%
Energy	343	383	<b>355</b>	-28	-7.3%
Environ. Protection Agency	2	4	<b>6</b>	2	50.0%
Health and Human Services	542	573	<b>551</b>	-22	-3.8%
NASA	258	192	<b>57</b>	-135	-70.3%
National Science Foundation	773	795	<b>803</b>	8	1.0%
<b>Total IT R&amp;D</b>	<u>2,206</u>	<u>2,282</u>	<u><b>2,127</b></u>	-155	-6.8%
<b>Climate Change Science Program *</b>					
National Science Foundation	215	198	<b>197</b>	-1	-0.5%
Energy	133	129	<b>132</b>	3	2.3%
Commerce (NOAA)	116	124	<b>181</b>	57	46.0%
Agriculture	70	73	<b>88</b>	15	20.5%
Interior (USGS)	28	24	<b>24</b>	0	0.0%
Environ. Protection Agency	22	20	<b>21</b>	1	5.0%
National Institutes of Health	61	65	<b>65</b>	0	0.0%
NASA	1,321	1,264	<b>1,162</b>	-102	-8.1%
All Other (Smith., AID, DOT, State)	14	16	<b>16</b>	0	0.0%
<b>Total CCSP</b>	<u>1,980</u>	<u>1,913</u>	<u><b>1,886</b></u>	-27	-1.4%

Source: OMB supporting data for FY 2006 Budget.

**FY 2006 data are President's request.****AAAS - February 10, 2005 - Preliminary - will be revised.**

\* Includes U.S. Global Change Research Program and Climate Change Research Initiative.