

**A Preview of**  
***AAAS Report XXIV:***  
***Research and Development FY 2000***

March 23, 1999

The full report will be released at  
the 24<sup>th</sup> Annual AAAS Colloquium on  
Science and Technology Policy  
“Science, Technology and the Knowledge Economy”  
Renaissance Hotel  
Washington, DC April 14-16, 1999

This document, ordering information for AAAS Report XXIV, the Colloquium program and registration materials, and other information on federal funding for research and development are available on the World Wide Web at:  
<http://www.aaas.org/spp/R&D>

(This AAAS document supersedes previous preliminary analyses of R&D in the FY 2000 budget (Feb. 4, March 9) and incorporates **final** AAAS estimates of R&D, based on agency data obtained after the release of the President’s budget)

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## Highlights

- The total request for federal R&D in FY 2000 is \$77.9 billion, \$1.4 billion or 1.7 percent less than FY 1999 (see Table 1).
- Federal R&D accounts for 14.0 percent of the proposed discretionary budget of \$558 billion in FY 2000. However, it is a higher percentage of discretionary appropriations in several key appropriations subcommittees (see Table 6). The \$558 billion total discretionary request is well above the \$537 billion cap on discretionary spending in FY 2000; the President's budget proposes several offsets to spending above the caps, including a new tax on tobacco.
- Nondefense R&D would exceed defense R&D for the first time since the Carter Administration, fulfilling a Clinton Administration goal. Nondefense R&D would increase by 3.6 percent to \$39.4 billion, or 50.6 percent of total R&D (see Table 2). The increase would be slightly ahead of the expected 2.0 percent inflation rate. Although spending on military weapons and military personnel would increase, defense R&D would fall \$2.7 billion to \$38.5 billion, a decline of 6.6 percent.
- Among mission areas, R&D in general science, energy, transportation, agriculture, and commerce are priorities in the FY 2000 request (see Table 2).
- Basic research continues to be a high priority for both branches of government. Basic research would total \$18.1 billion, an increase of \$816 million or 4.7 percent, following an even larger increase of \$1.8 billion in FY 1999 appropriations (see Table 3).
- Federal support for R&D at colleges and universities would increase 2.3 percent to \$15.5 billion (see Table 4). The largest agency sponsor of academic research would continue to be the Department of Health and Human Services (HHS; \$9.6 billion), providing 62 percent of federal support. Nearly all HHS support comes from the National Institutes of Health (NIH).
- The AAAS analysis of the outyear projections in the FY 2000 budget shows that nondefense R&D would increase from \$38.1 billion in FY 1999 to \$39.4 billion in FY 2004, but this gain becomes a 6.7 percent decline after adjusting for expected inflation (see Table 5). Defense R&D would fall 14.3 percent in inflation-adjusted terms.
- Industry support for R&D continues to grow far faster than federal R&D or the U.S. economy as a whole. U.S. industrial R&D is expected to increase by 9.3 percent in 1999, following similar increases in the past three years. Total U.S. R&D is expected to reach \$236 billion in 1999.

## R&D in the FY 2000 Budget

Federal funding for research and development (R&D) has had its ups and downs in the past several years. In the FY 1999 budget process, which wrapped up last October, Congress provided substantial increases above the President's request for the R&D programs of several federal agencies, despite tight caps on discretionary spending. The outlook for FY 2000 and beyond is mixed. The President's FY 2000 budget is constrained by a cap on discretionary spending, put into place two years ago to help eliminate the federal deficit. This cap remains in force, even though the government ran a \$70 billion surplus in FY 1998 and is projected to run surpluses in FY 1999 and

2000 as well. Adding to the budgetary pressures are demands for increased funding for many priority areas, including national defense and education.

As a result, many agencies' R&D programs are slated for cuts in the FY 2000 budget, and future projections are grim. The budget proposal does, however, find room for significant increases for a few priority programs and some new initiatives in FY 2000.

The President's FY 2000 budget would provide \$77.9 billion for the federal investment in R&D, a cut of \$1.4 billion or 1.7 percent from the current FY 1999 estimate of \$79.3 billion (see Table 1). With 2.0 percent inflation projected over the next year, the total federal R&D portfolio would lose nearly 4 percent in purchasing power.

Most of the federal government's R&D is mission-oriented; that is, it is intended to serve the larger goals and objectives of the agency that provides the funds. The only exception is the National Science Foundation (NSF), whose mission is to support basic and applied research and education across a wide range of science and engineering disciplines. As Table 2 shows, the federal R&D investment supports a variety of national missions.

R&D for nondefense missions would exceed defense R&D for the first time since the Carter Administration, fulfilling a Clinton Administration goal. Nondefense R&D would increase by \$1.4 billion or 3.6 percent to \$39.4 billion, or 50.6 percent of total R&D (see Table 2). Defense R&D, however, would fall 6.6 percent or \$2.7 billion to \$38.5 billion.

In the nondefense mission areas, R&D in general science, energy, transportation, agriculture, and commerce are priorities in FY 2000. Energy-related R&D in the Department of Energy (DOE) would receive a 15.3 percent increase to \$1.4 billion because of additional funding for renewable energy technologies and energy conservation. These increases are part of the Administration's effort to reduce U.S. greenhouse gas emissions, and reflect the importance that technological solutions will have in this effort. General science R&D would increase 5.6 percent to \$5.7 billion because of large increases for selected programs in NSF and DOE, especially those involved in a new, multi-agency Information Technology for the 21<sup>st</sup> Century (IT<sup>2</sup>) initiative.

Transportation R&D would increase (up 5.7 percent to \$1.9 billion). The Department of Transportation (DOT) would use some of the extra revenues generated by last year's expansion of transportation funding to provide increases for highway R&D. DOT's R&D would increase 38.7 percent to \$836 million. Agriculture R&D would increase because the U.S. Department of Agriculture (USDA) would increase funds for competitively awarded research grants in the National Research Initiative (NRI; \$200 million, up from \$119 million) and would also provide \$120 million in new money for competitively awarded grants from the Initiative for Future Agricultural Systems. Commerce R&D would increase by more than 20 percent because of increases for the Advanced Technology Program and the Advanced Measurement Laboratory.

Cutting across mission areas, information technology (IT) is a high priority in the request. The FY 2000 budget proposes \$366 million for the IT<sup>2</sup> initiative, for long-term fundamental research in computing and communications, development of a new generation of powerful supercomputers and infrastructure for civilian applications, and research on the economic and social implications of information technology. NSF (\$146 million), DOE (\$70 million), and the Department of Defense (DOD; \$100 million) would be the lead agencies in this effort. There would also be substantial increases for existing IT programs such as the Accelerated Strategic Computing Initiative in DOE.

Basic research, which supports nearly all of the national missions, would be a high priority in the FY 2000 budget, climbing 4.7 percent to \$18.1 billion (see Table 3). Basic research funding would jump significantly at NSF (\$2.5 billion, up 7.8 percent), the National Aeronautics and Space Administration (NASA; \$2.5 billion, up 15.2 percent), and USDA (\$776 million, up 12.7 percent). NIH would continue to be the dominant supporter of basic research, with \$8.6 billion in FY 2000 (up 1.9 percent), making up 47 percent of the total.

Despite their comparatively small share of federal R&D funding, colleges and universities have long played a key role in the nation's R&D effort. Academia serves as a primary site for the performance of basic research and for the training of future scientists and engineers. 60 percent of the R&D performed by universities is funded by the federal government, with the majority of the remainder coming from the institutions' own funds. Universities still receive relatively little support from industrial firms for R&D (\$1.7 billion in FY 1997).

Table 4 shows agencies' estimates for their support of R&D in colleges and universities. Total federal support of academic R&D is expected to increase 2.3 percent to \$15.5 billion. NIH, which is responsible for nearly 60 percent of all federal support of academic R&D, would account for nearly all of the \$9.6 billion total for the Department of Health and Human Services (HHS). NSF, the next largest federal sponsor with 15 percent of the federal total, would boost its support by 7.9 percent to \$2.3 billion. USDA would increase its support for R&D at colleges and universities by 17.9 percent to \$493 million because of a planned expansion in competitively awarded research grants, most of which are expected to go to universities.

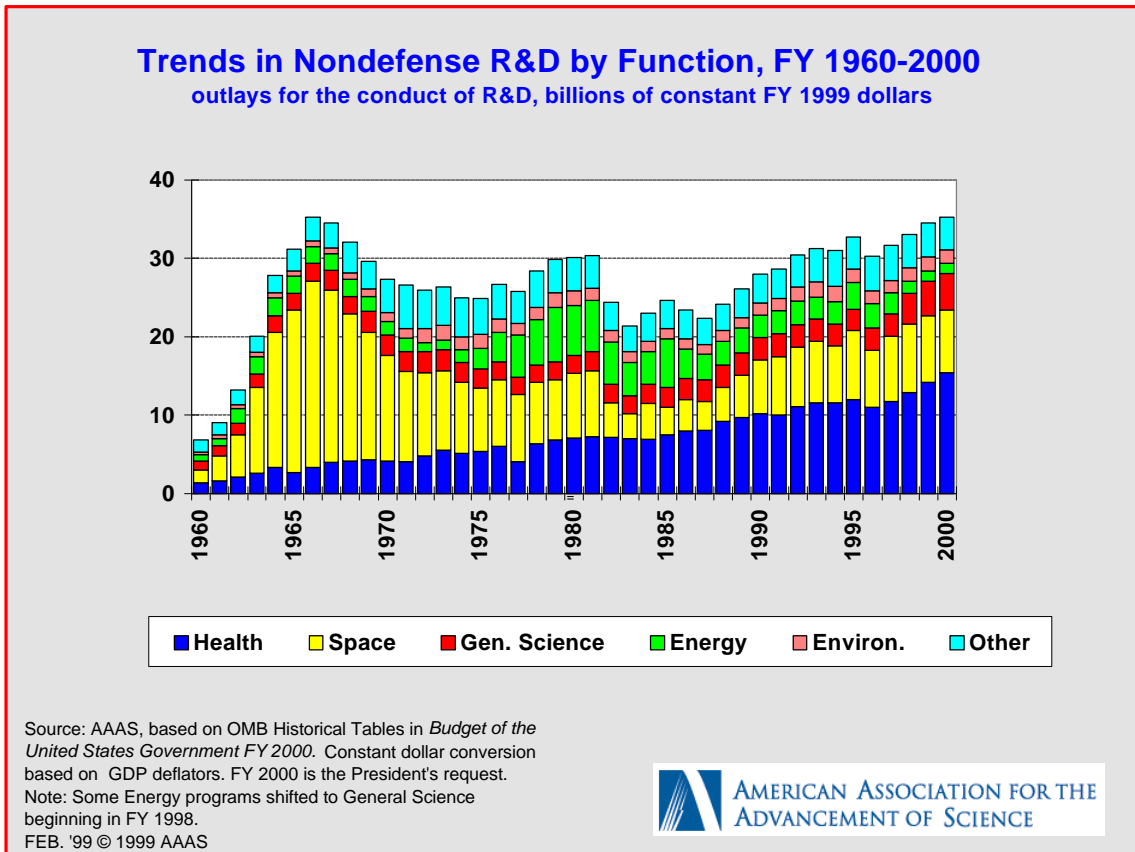


Figure 1.

### Recent Funding Trends in R&D

The relative priority of different areas of R&D has varied over the years, reflecting changing national priorities and the role of R&D within them. Spending on defense R&D has exceeded all other R&D spending for most of the past four decades, although the relative size of the two sectors has varied considerably over the years. Figure 1 shows how priorities in nondefense R&D have shifted over the same period. Civilian R&D expenditures reached their high point in the mid-1960s, declining for several years thereafter. After several years of significant growth in the late 1980s and the late 1990s, these expenditures, in constant dollars, are just now returning to the levels of the 1960s. The FY 2000 budget would continue this expansion.

Priorities, however, are different now than they were in the 1960s. Space exploration was the dominant function in the 1960s, driven mainly by the Apollo Program. Energy R&D gained priority following the oil shortages of the 1970s and then fell back as national attention turned elsewhere. Health R&D, meanwhile, has shown practically uninterrupted growth over the past four decades and now represents the largest single share of the civilian R&D portfolio. The FY 2000 budget would increase the investment in health R&D only modestly (up 1.7 percent), including a 2.1 percent increase for NIH, but this follows a nearly 14 percent increase in health R&D in FY 1999.

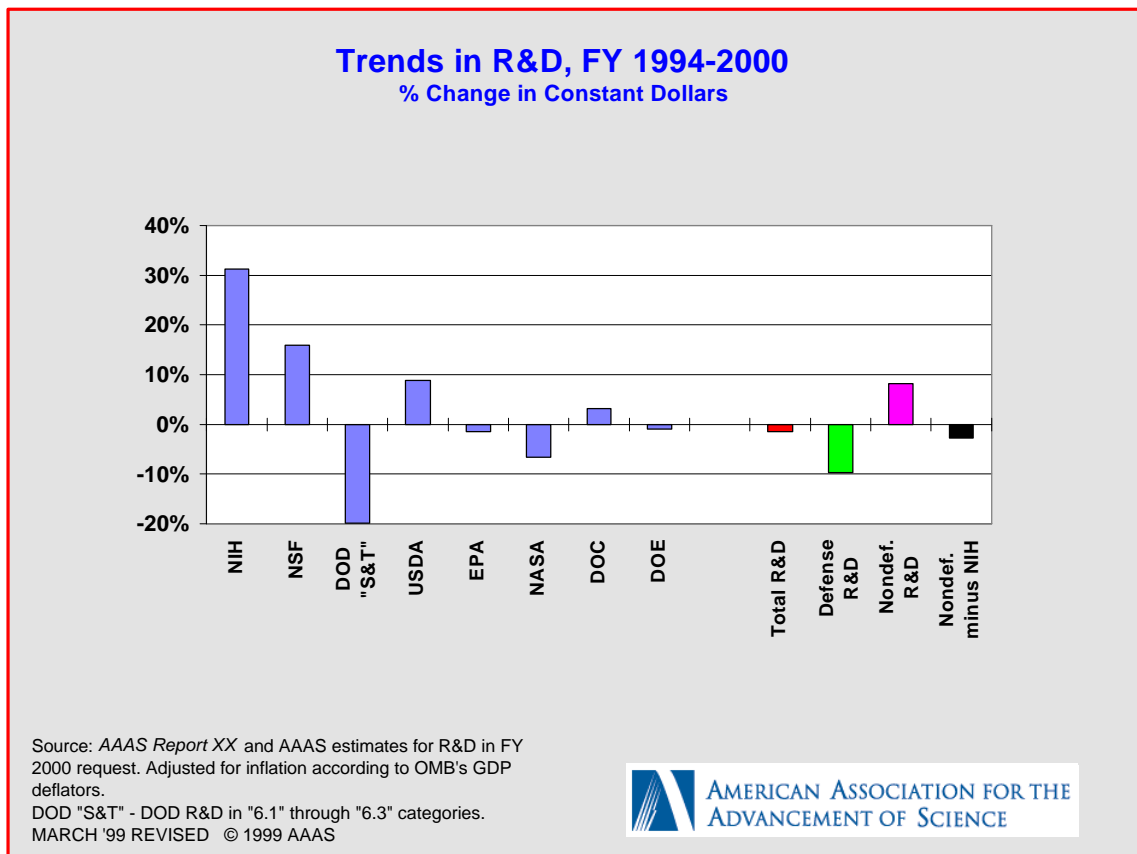


Figure 2.

Turning to more recent funding trends, between FY 1994 (the year prior to the first round of budget reductions initiated by the 104<sup>th</sup> Congress) and FY 1999, total federal R&D funding increased 2.3 percent in constant, inflation-adjusted dollars. Nondefense R&D is up 6.5 percent, while defense R&D has fallen 1 percentage point. In fact, every federal agency except NIH, NSF, and the Environmental Protection Agency (EPA) has less to spend on R&D in FY 1999 than it did four years ago.

Figure 2 shows the impact of the FY 2000 budget on these trends. Total R&D would show a decline relative to inflation and lose 1.5 percent compared to FY 1994, the net of a further decline in defense R&D (down 9.7 percent from FY 1994 to FY 2000) and 8.2 percent growth in nondefense R&D.

NIH, despite only a token increase in FY 2000, would remain well ahead of the pack, showing a greater than 30 percent increase between FY 1994 and FY 2000. NSF would benefit from a strong FY 2000 budget proposed by the Administration and would be up 15.8 percent over the past five years. As Figure 2 shows, however, constant dollar R&D funding levels in many other federal agencies would remain level or lower in FY 2000 compared to FY 1994 despite increases for selected programs.

### **The Outlook for Federal R&D to FY 2004**

The FY 2000 budget also contains detailed projections for federal spending to FY 2004. The AAAS analysis of these outyear projections reveals that, despite the expectation of growing surpluses, the Clinton Administration is anticipating declines in both defense and nondefense R&D after FY 2000. Most of the projected future surpluses would be dedicated to Medicare and Social Security, with relatively little left over for discretionary programs. And, even among discretionary programs, R&D has been accorded lower priority this year relative to other areas, namely defense and education. This is in contrast to last year's (FY 1999) budget which projected increases for nondefense R&D in future years.

Federal support for R&D is projected to fall from \$79.3 billion in FY 1999 to \$78.5 billion in FY 2004, a decline of 10.7 percent after adjusting for expected inflation (see Table 5). Most of the decline is due to a sharp cut in defense R&D in FY 2000. By FY 2004, defense R&D would fall 14.3 percent in inflation-adjusted terms even as total defense spending would rise.

Nondefense R&D would increase under the President's proposals from \$38.1 billion in FY 1999 to \$39.4 billion in FY 2004, but this gain becomes a 6.7 percent decline after adjusting for inflation. Total nondefense discretionary spending is projected to face similar declines. Total nondefense R&D would increase in FY 2000 but would remain level thereafter because any planned increases for nondefense discretionary would go to non-R&D programs.

In contrast to last year, when many nondefense R&D agencies were projected to receive outyear increases, only a few programs are projected to stay ahead of expected inflation in this year's budget. NASA's non-aeronautics research, DOE's fossil energy and energy conservation programs, the Department of Commerce's Advanced Technology Program (ATP), and DOT's

highway and aviation R&D programs would receive real increases; nearly all other R&D programs would see their budgets lose ground to inflation over the next several years.

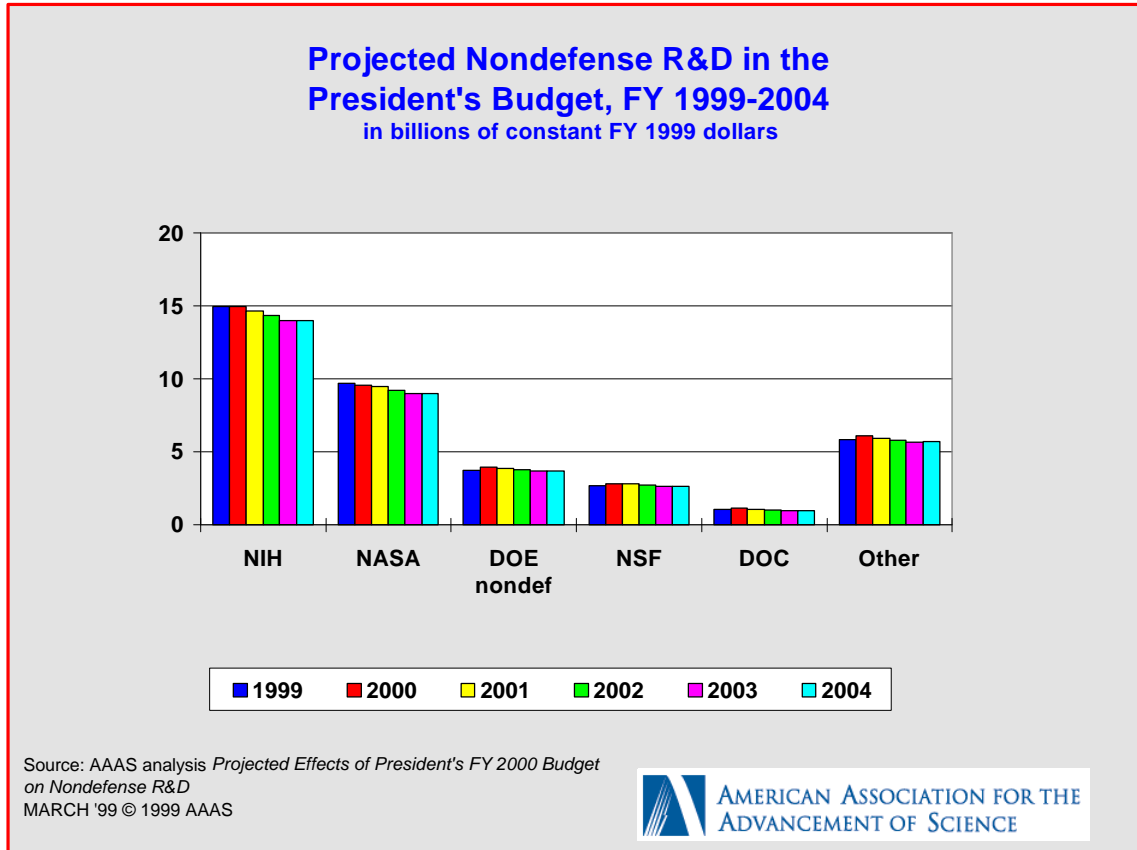


Figure 3.

On an agency level, only DOT (up 34.9 percent after inflation), the Department of Education (up 11.2 percent), and the Department of the Interior (up 6.7 percent) would see their R&D increase to FY 2004. Other agencies would see cuts, including NSF (down 3.4 percent after inflation), NIH (down 7.9 percent), DOE (down 3.5 percent), NASA (down 8.7 percent), and USDA (down 5.0 percent). (See Figure 3.)

For defense R&D, the long post-Cold War slide in R&D funding would continue. DOD's priorities for the next few years include military personnel pay, operational readiness, and procurement of new weapons systems. While DOD's basic research (down 3.5 percent) and applied research (down 7.4 percent) programs would fare better than development, total DOD R&D would fall 15.1 percent after inflation to \$35.7 billion in FY 2004.

### The Budgetary Context

To understand these projections, they must be seen in the context of the entire federal budget.<sup>2</sup> Nearly all federal R&D is funded through the discretionary one-third of the budget subject to

<sup>1</sup> For a program-by-program look at the out-year projections, please see the detailed analyses of projected defense R&D and nondefense R&D, available on the AAAS Web site at <http://www.aaas.org/spp/R&D> in the "Guide to R&D Funding Data" section.

annual appropriations. The FY 2000 budget proposes to increase total discretionary spending over the next five years at a rate just enough to keep pace with expected inflation. Most of these increases, however, would go to DOD, resulting in inflation-adjusted cuts for nondefense discretionary programs.

The Administration's proposals are constrained by discretionary spending caps enacted in 1997. In order to fit discretionary spending under the FY 2000 and future caps, the outyear projections assume as much as \$63 billion a year in new revenue streams that are currently not available because of the tight caps. The budget proposes several offsets to additional discretionary spending, including as much as \$11 billion a year from tobacco-related sources. The budget also assumes that a Social Security reform package will be enacted that will enable up to \$51 billion a year in projected future budget surpluses to be used for discretionary spending. The availability of these revenue streams is already assumed in the outyear spending projections, but even these additional sources are insufficient to provide inflation-adjusted increases for most nondefense programs because Social Security, Medicare, targeted tax cuts, and individual savings accounts would have far larger claims to future surpluses in the President's plan.

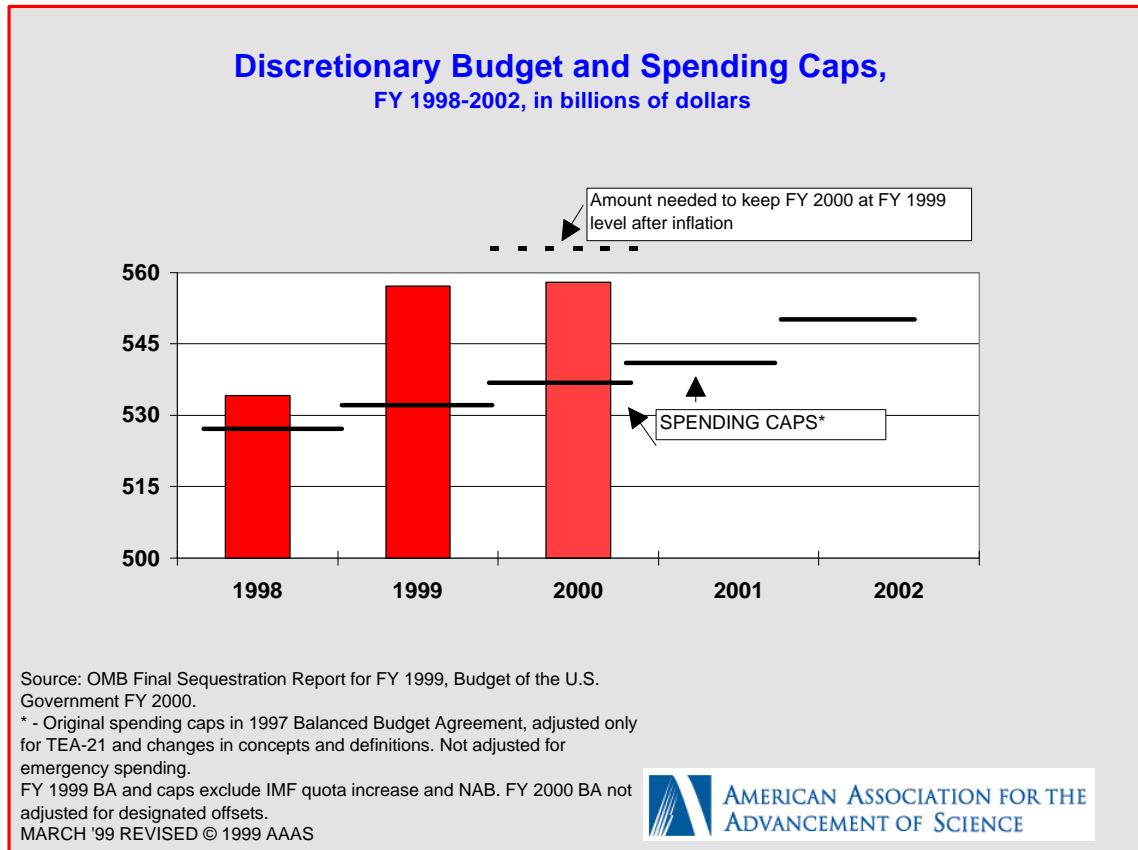


Figure 4.

<sup>2</sup> For a more detailed discussion of the outyear projections for R&D in the context of the larger federal budget, please see the "AAAS Analysis of Outyear Projections for Federal R&D in the FY 2000 Budget," available on the AAAS Web site at <http://www.aaas.org/spp/R&D> in the "FY 2000 R&D" section.

A more immediate problem for the FY 2000 budget is that the President proposes \$558 billion in discretionary budget authority for FY 2000 (defense and nondefense; see Figure 4). This amount is only slightly above the FY 1999 level, but within this total the Administration proposes increases for defense (non-R&D) and education spending. The \$558 billion total request is well above the \$537 billion cap on discretionary spending in FY 2000 (see Figure 4).

In order to fit discretionary spending under the cap in FY 2000, the President proposes an \$18 billion package of offsets. For FY 2000, the largest offset would come from tobacco: the President proposes a new 55-cent-a-pack tobacco tax, and an accelerated phase-in of an existing tobacco tax increase. These proposed revenues or program savings would be credited toward discretionary spending above the cap.

If Congress fails to approve these offsets, then it would be forced either to make steep cuts, find alternate offsets to stay within the cap, or raise the cap in order to fund discretionary programs at levels anywhere near the request. Congress would face the same problem if it wanted to provide increases above the President's request for its own high-priority programs such as DOD.

Recently, the House and Senate Budget Committees approved separate budget resolutions setting congressional spending targets for FY 2000; both chambers drafted plans calling for discretionary spending to be limited to the \$537 billion cap, while promising to increase education and defense spending. The result is that under the proposed budget resolutions, steep cuts to nondefense programs (including R&D) would be necessary<sup>3</sup>.

Because of the growing consensus that discretionary spending should stay within the caps to the extent possible, thus reserving surpluses for Social Security, Medicare, and tax cuts, appropriators will soon face tough choices in drafting the 13 appropriations bills which control discretionary spending. As Table 6 shows, R&D accounts for 14.0 percent of total discretionary spending, but R&D is a higher percentage of discretionary appropriations in several key appropriations subcommittees, including those which fund NIH, NSF, NASA, and DOE. Table 6 also shows that R&D would face an extraordinary funding squeeze if Congress follows through on its plan to squeeze the FY 2000 request of \$558 billion in discretionary spending down to \$537 billion while still providing increases above the request for defense and education.

### **U.S. Industry Support of R&D**

While recent trends in federal R&D are a mixed bag of increases and cuts, with tough budgetary times still ahead, industry support for R&D is a substantial and growing enterprise in the United States. The U.S. invested an estimated \$221 billion in R&D in 1998 (see Figure 5). Nearly two-thirds of this money (about 65 percent) came from industrial firms. A majority of the balance (30 percent) came from the federal government. Colleges and universities, other nonprofit institutions, and state and local governments provided the remainder. As Figure 5 shows, industry's share of national R&D funding has been growing steadily for several decades.

These increases appear to be continuing at near double-digit levels into 1999. A forecast by the Industrial Research Institute for 1999 indicates that growth trends in industry R&D will continue this year. This forecast is supported by the Battelle Memorial Institute's forecast that industry

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<sup>3</sup> The AAAS analysis of the congressional budget resolutions and their potential impacts on federal R&D will be available shortly on the AAAS R&D Web site.

R&D will increase 9.3 percent in 1999 to reach \$157 billion, out of a total national effort of \$236 billion.

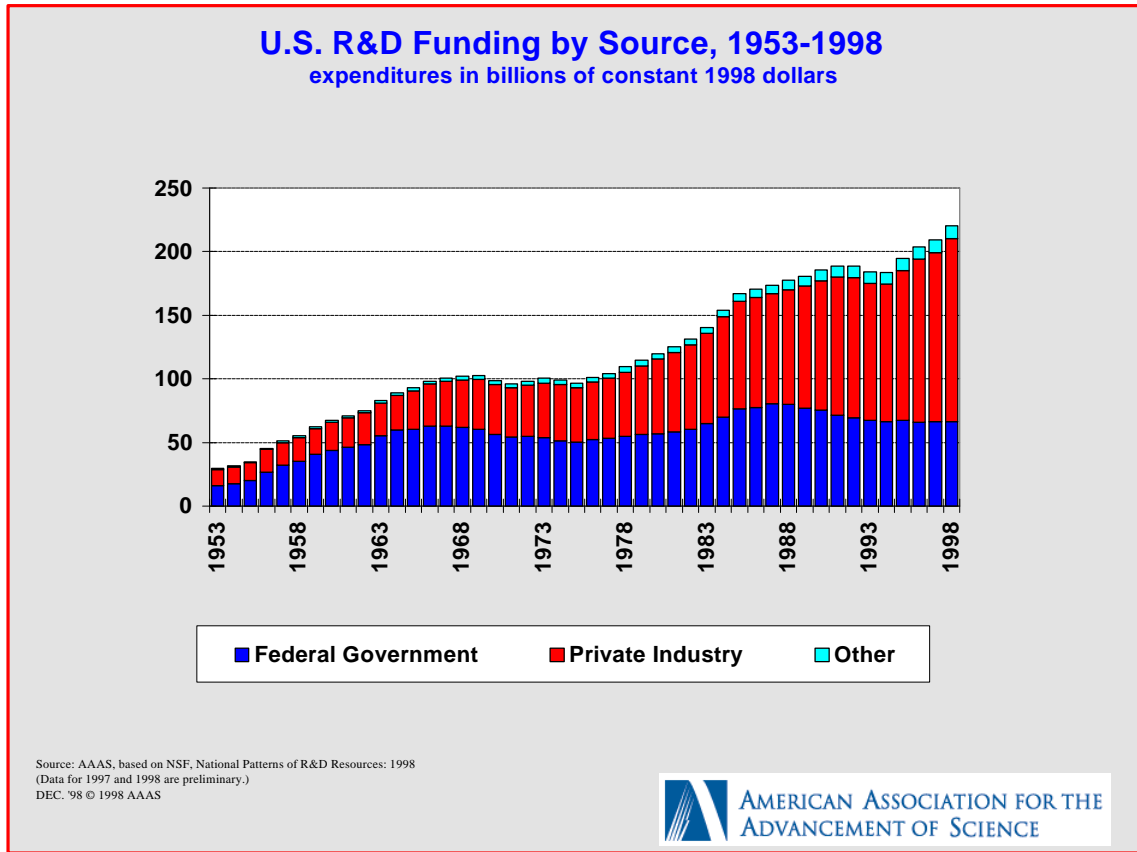


Figure 5.

## Conclusion

The budget increases of the past two years have raised both hopes and expectations in the research community, but it is essential not to forget the reality of the overall budget situation and the stringent limitations on discretionary spending that policymakers are facing. The Administration and Congress both plan to use projected budget surpluses to shore up Social Security and Medicare, provide tax cuts, and boost funding for defense and education. This suggests that R&D programs will face at least as much competition in the era of surpluses as they did in the days (not very long ago) when the deficit ruled.

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**Table 1.** R&D in the FY 2000 Budget by Agency  
(budget authority in millions of dollars)

	FY 1998 Actual	FY 1999 Estimate	FY 2000 Budget	Change FY 99-00	
				Amount	Percent
<b>Total R&amp;D (Conduct and Facilities)</b>					
Defense (military)	37,569	37,975	<b>35,065</b>	-2,909	-7.7%
<i>S&amp;T (6.1-6.3)</i>	7,712	7,791	<b>7,386</b>	-405	-5.2%
<i>All Other DOD R&amp;D</i>	29,857	30,184	<b>27,679</b>	-2,505	-8.3%
Health and Human Services	13,842	15,750	<b>16,047</b>	297	1.9%
<i>Nat'l Institutes of Health</i>	13,110	14,971	<b>15,289</b>	318	2.1%
NASA	9,751	9,715	<b>9,770</b>	55	0.6%
Energy	6,351	6,974	<b>7,467</b>	493	7.1%
Nat'l Science Foundation	2,501	2,714	<b>2,890</b>	176	6.5%
Agriculture	1,561	1,660	<b>1,850</b>	190	11.4%
Commerce	1,091	1,075	<b>1,172</b>	97	9.0%
<i>NOAA</i>	581	600	<b>600</b>	0	0.0%
<i>NIST</i>	503	468	<b>565</b>	97	20.8%
Interior	472	499	<b>590</b>	91	18.2%
Transportation	590	603	<b>836</b>	233	38.7%
Environ. Protection Agency	637	669	<b>645</b>	-24	-3.5%
All Other	1,515	1,648	<b>1,579</b>	-69	-4.2%
<b>Total R&amp;D</b>	<b>75,879</b>	<b>79,282</b>	<b>77,910</b>	<b>-1,371</b>	<b>-1.7%</b>
Defense	40,571	41,208	<b>38,483</b>	-2,726	-6.6%
Nondefense	35,307	38,073	<b>39,428</b>	1,354	3.6%
Basic Research	15,522	17,286	<b>18,102</b>	816	4.7%
Applied Research	15,461	16,559	<b>16,649</b>	90	0.5%
Development	42,600	43,051	<b>40,749</b>	-2,302	-5.3%
R&D Facilities and Equipment	2,296	2,386	<b>2,411</b>	25	1.0%
"FS&T" <sup>1</sup>	45,191	48,257	<b>49,410</b>	1,152	2.4%

Source: AAAS, based on OMB data for R&D for FY 2000, agency budget justifications, and information from agency budget offices.

<sup>1</sup> An alternative measure for the federal investment in science and technology proposed by the National Academy of Sciences. This measure includes all federal R&D except for advanced development, testing and evaluation work in DOD and DOE.

**March 23, 1999 - Revised - FINAL**

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**Table 2.** Major Functional Categories of R&D <sup>1</sup>  
(budget authority in millions of dollars)

	FY 1998	FY 1999	FY 2000	Change FY 99-00		% Share of Total ('00)
	Actual	Estimate	Budget	Amount	Percent	
Defense	40,571	41,208	<b>38,483</b>	-2,726	-6.6%	49.4%
Nondefense <sup>2</sup>	35,307	38,073	<b>39,428</b>	1,354	3.6%	50.6%
Space	8,428	8,518	<b>8,704</b>	185	2.2%	11.2%
Health	14,389	16,379	<b>16,664</b>	285	1.7%	21.4%
Energy <sup>3</sup>	957	1,173	<b>1,353</b>	180	15.3%	1.7%
General Science	4,980	5,365	<b>5,668</b>	303	5.6%	7.3%
Environment <sup>4</sup>	1,925	2,020	<b>2,110</b>	90	4.5%	2.7%
Agriculture	1,369	1,449	<b>1,608</b>	159	10.9%	2.1%
Transportation	1,913	1,799	<b>1,902</b>	102	5.7%	2.4%
Commerce	509	474	<b>571</b>	97	20.5%	0.7%
International	169	171	<b>123</b>	-48	-28.1%	0.2%
All Other	670	724	<b>725</b>	1	0.1%	0.9%
<b>Total R&amp;D</b>	<b>75,879</b>	<b>79,282</b>	<b>77,910</b>	<b>-1,371</b>	<b>-1.7%</b>	<b>100.0%</b>

Source: Authors' 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.

<sup>1</sup> Includes conduct of R&D and R&D facilities.

<sup>2</sup> Includes all R&D not in defense.

<sup>3</sup> Does not reflect proposed deferral of Clean Coal Technology resources.

<sup>4</sup> Includes natural resources R&D.

**March 23, 1999 Revised - FINAL**

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**Table 3.** Research in the FY 2000 Budget  
(budget authority in millions of dollars)

	FY 1998 Actual	FY 1999 Estimate	FY 2000 Budget	Change FY 99-00	
				Amount	Percent
<b>BASIC RESEARCH</b>					
Defense (military)	1,012	1,108	<b>1,113</b>	5	0.5%
Health and Human Services	7,356	8,429	<b>8,590</b>	160	1.9%
<i>Nat'l Institutes of Health</i>	7,355	8,427	<b>8,588</b>	160	1.9%
NASA	2,013	2,140	<b>2,466</b>	326	15.2%
Energy	2,094	2,225	<b>2,281</b>	55	2.5%
Nat'l Science Foundation	2,115	2,333	<b>2,514</b>	181	7.8%
Agriculture	607	689	<b>776</b>	87	12.7%
Commerce (NIST)	35	36	<b>38</b>	2	6.5%
Interior	48	50	<b>54</b>	4	8.0%
Transportation	8	16	<b>9</b>	-7	-44.4%
Environ. Protection Agency	57	83	<b>79</b>	-4	-4.8%
Smithsonian	126	128	<b>136</b>	8	6.3%
Veterans Affairs	23	20	<b>19</b>	0	-1.7%
All Other	27	29	<b>27</b>	-2	-6.9%
<b>Total Basic Research</b>	<b>15,522</b>	<b>17,286</b>	<b>18,102</b>	<b>816</b>	<b>4.7%</b>
<b>RESEARCH (basic + applied)</b>					
Defense (military)	3,922	4,259	<b>4,072</b>	-187	-4.4%
Health and Human Services	11,983	13,657	<b>13,899</b>	242	1.8%
<i>Nat'l Institutes of Health</i>	11,289	12,915	<b>13,171</b>	256	2.0%
NASA	4,405	4,468	<b>4,424</b>	-44	-1.0%
Energy	3,828	4,103	<b>4,379</b>	276	6.7%
Nat'l Science Foundation	2,286	2,513	<b>2,699</b>	185	7.4%
Agriculture	1,335	1,436	<b>1,643</b>	206	14.4%
Commerce	799	846	<b>878</b>	32	3.8%
NOAA	497	544	<b>543</b>	-1	-0.2%
NIST	296	296	<b>329</b>	33	11.2%
Interior	442	468	<b>560</b>	92	19.7%
Transportation	386	397	<b>576</b>	179	45.0%
Environ. Protection Agency	477	470	<b>447</b>	-23	-4.9%
Veterans Affairs	534	608	<b>597</b>	-11	-1.8%
Education	153	157	<b>174</b>	17	10.8%
Agency for Int'l Develop.	124	116	<b>86</b>	-30	-25.9%
Smithsonian	126	128	<b>136</b>	8	6.3%
All Other	183	218	<b>181</b>	-37	-17.0%
<b>Total Research</b>	<b>30,983</b>	<b>33,845</b>	<b>34,751</b>	<b>906</b>	<b>2.7%</b>

Source: AAAS, based on OMB data for R&D for FY 2000, agency budget justifications, and information from agency budget offices.

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**Table 4.** Federal Support for Conduct of R&D at Colleges and Universities  
(budget authority in millions of dollars)

	FY 1998	FY 1999	FY 2000	Change FY 99-00		% of
	Actual	Estimate	Budget	Amount	Percent	Total ('00)
Health & Human Services	8,194	9,480	<b>9,566</b>	86	0.9%	61.8%
Nat'l Science Foundation	1,952	2,156	<b>2,325</b>	169	7.9%	15.0%
Defense (Military)	1,053	931	<b>936</b>	5	0.5%	6.0%
NASA	910	954	<b>914</b>	-40	-4.2%	5.9%
Energy	660	661	<b>685</b>	24	3.6%	4.4%
Agriculture	442	418	<b>493</b>	75	17.9%	3.2%
Environ. Protection Agency	170	178	<b>169</b>	-9	-5.1%	1.1%
Interior	24	24	<b>44</b>	20	83.3%	0.3%
Transportation	76	67	<b>76</b>	9	13.4%	0.5%
Commerce	86	82	<b>82</b>	0	0.0%	0.5%
Education	128	137	<b>164</b>	27	19.7%	1.1%
Nuclear Reg. Comm.	5	4	<b>4</b>	0	0.0%	0.0%
Postal Service	5	5	<b>5</b>	0	0.0%	0.0%
Social Security	5	36	<b>23</b>	-13	-36.1%	0.1%
<b>Total Federal R&amp;D at Colleges and Universities</b>	<b>13,710</b>	<b>15,133</b>	<b>15,486</b>	<b>354</b>	<b>2.3%</b>	<b>100.0%</b>

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

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**Table 5.** AAAS Analysis of the Outyear Projections for R&D in the FY 2000 Budget  
(budget authority in millions of dollars)

	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	% Change FY 99-04	
	Estimate	Budget	Projected	Projected	Projected	Projected	current \$	constant \$
<b>Total R&amp;D (Conduct and Facilities)</b>								
Defense (military)	37,975	35,065	34,980	35,377	35,212	35,719	-5.9%	<b>-15.1%</b>
Health & Human Services	15,750	16,047	16,047	16,047	16,047	16,047	1.9%	<b>-8.1%</b>
<i>Nat'l Institutes of Health</i>	14,971	15,289	15,289	15,289	15,289	15,289	2.1%	<b>-7.9%</b>
NASA	9,715	9,770	9,873	9,860	9,848	9,834	1.2%	<b>-8.7%</b>
Energy	6,974	7,467	7,472	7,472	7,457	7,457	6.9%	<b>-3.5%</b>
<i>Defense</i>	3,234	3,417	3,417	3,417	3,417	3,417	5.7%	<b>-4.7%</b>
<i>Nondefense</i>	3,740	4,049	4,054	4,054	4,039	4,039	8.0%	<b>-2.6%</b>
Nat'l Science Foundation	2,714	2,890	2,948	2,931	2,905	2,907	7.1%	<b>-3.4%</b>
Agriculture	1,660	1,850	1,749	1,749	1,749	1,749	5.3%	<b>-5.0%</b>
Commerce	1,075	1,172	1,101	1,084	1,083	1,085	0.9%	<b>-8.9%</b>
Interior	499	590	590	590	590	590	18.2%	<b>6.7%</b>
Transportation	603	836	854	868	887	901	49.5%	<b>34.9%</b>
Environ. Protection Agcy.	669	645	645	645	645	645	-3.5%	<b>-13.0%</b>
All Other	1,648	1,579	1,579	1,579	1,579	1,579	-4.2%	<b>-13.6%</b>
<b>Total R&amp;D</b>	<b>79,282</b>	<b>77,910</b>	<b>77,836</b>	<b>78,203</b>	<b>78,002</b>	<b>78,512</b>	<b>-1.0%</b>	<b>-10.7%</b>
Defense R&D	41,208	38,483	38,397	38,795	38,630	39,137	-5.0%	<b>-14.3%</b>
Nondefense R&D	38,073	39,428	39,439	39,408	39,372	39,376	3.4%	<b>-6.7%</b>
"FS&T"	48,257	49,410	49,350	49,409	49,522	49,766	3.1%	<b>-7.0%</b>

Source: AAAS analyses of defense and nondefense R&D, based on detailed budget account projections in the Public Budget Database of the *Budget of the United States Government FY 2000* .

FY 1999 figures represent latest agency estimates of R&D. FY 2000 figures represent latest revised agency requests. Constant dollar conversions based on GDP deflators from OMB.

**The two detailed analyses (one for defense R&D and one for nondefense R&D) containing agency details and methodology, and other data on federal R&D are available on the World Wide Web at <http://www.aaas.org/spp/R&D/> in the "Guide to R&D Funding Data" section.**

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**Table 6.** R&D Funding by Congressional Appropriations Subcommittee  
(budget authority in millions of dollars)

	FY 1998	FY 1999	FY 2000	Change FY 99-00	
	Actual	Estimate	Budget	Amount	Percent
Defense <sup>1</sup>	37,569	37,975	<b>35,065</b>	-2,909	-7.7%
VA, HUD, Independent Agencies	13,513	13,820	<b>14,017</b>	197	1.4%
Labor, HHS, Education	14,040	15,977	<b>16,279</b>	302	1.9%
Energy & Water	5,978	6,453	<b>6,814</b>	361	5.6%
Interior	1,303	1,493	<b>1,745</b>	251	16.8%
Agriculture	1,475	1,553	<b>1,719</b>	166	10.7%
Commerce, Justice, State	1,153	1,147	<b>1,221</b>	74	6.5%
Transportation	590	603	<b>836</b>	233	38.7%
Foreign Operations	169	171	<b>123</b>	-48	-28.1%
Treasury, Postal, Gen. Gov't.	90	90	<b>91</b>	1	1.1%
<b>Total R&amp;D</b>	<b>75,879</b>	<b>79,282</b>	<b>77,910</b>	<b>-1,371</b>	<b>-1.7%</b>

Source: AAAS, based on estimates for R&D from OMB and agency data.

<sup>1</sup> Some DOD R&D may be funded in Military Construction.

**R&D as Percent of Discretionary Appropriations by Appropriations Subcommittee for FY 2000** (budget authority in billions of dollars)  
(President's FY 2000 request)

	FY 2000 R&D	FY 2000 Discr. <sup>3</sup>	R&D as % of Discr.	Agencies and Programs
Defense <sup>1</sup>	35.1	262.9	13.3%	Most DOD
VA, HUD, Independent Agencies	14.0	69.6	20.1%	VA, HUD, NSF, NASA, EPA
Labor, HHS, Education	16.3	89.4	18.2%	Labor, HHS, Education
Energy & Water	6.8	21.5	31.7%	Most of DOE, Corps of Eng., NRC
Interior	1.7	15.0	11.6%	Interior, some DOE, FS, Smithsonian
Agriculture	1.7	13.7	12.5%	Most of USDA (except Forest Serv.)
Commerce, Justice, State	1.2	36.9	3.3%	Commerce, Justice, State
Transportation	0.8	12.8	6.5%	Department of Transportation
Foreign Operations	0.1	14.6	0.8%	Agcy. for Int'l Development; Int'l Orgs.
Treasury, Postal, Gen. Gov't.	0.1	13.4	0.7%	Treasury, Executive Branch
All Other <sup>2</sup>	0.0	8.3	0.0%	Congress, some DOD, DC
<b>Total</b>	<b>77.9</b>	<b>558.1</b>	<b>14.0%</b>	
Defense Discretionary	38.5	281.6	13.7%	DOD and DOE nuclear weapons
Nondefense Discretionary	39.4	276.5	14.3%	All other discretionary

Source: AAAS, based on estimates of R&D and *Budget of the U.S. Government FY 2000*.

<sup>1</sup> Some DOD R&D may be funded in Military Construction (in "All Other").

<sup>2</sup> District of Columbia, Legislative Branch, and Military Construction.

<sup>3</sup> Includes discretionary spending from the Violent Crime Reduction Trust Fund.

NOTE: Discretionary budget authority does not include limitations on obligations from transportation trust funds. Discretionary totals are not reduced by offsets.

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