Federal R&D Funding by Budget Function

Fiscal Years 1994-96

An SRS Special Report

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NOTES TO THE READER

This annual report contains information on Federal funding of the research and development (R&D) components of agency programs, as proposed by the administration for fiscal year (FY) 1996. R&D data in this report are classified into the same Federal budget function categories used in the *Budget of the United States Government, Fiscal Year 1996*. Proposed FY 1996 funding levels are for budget authority (defined below), which is the basis for initial congressional action. Detailed data are also included on actual Federal funding of R&D in FY 1994 and on estimated funding of R&D in FY 1995.

REPORT ORGANIZATION

These notes introduce the basic budget terms and concepts used in this report. The rest of the report is divided into three sections:

Research and Development in the 1996 Budget: An Overview provides an overview of Federal Funding of R&D within the context of requested total Federal budget authority. This section consists of five tables. Tables 1, 2, 4, and 5 provide an overview of Federal R&D funding within the context of requested total Federal budget authority. Table 3 details Federal R&D funding for national defense and civilian programs in current and constant 1987 dollars for FYs 1955-96.

R&D by Specific Budget Function summarizes activities conducted within each budget function. Programs within the five functional categories that account for 90 percent of the R&D sponsored by the Federal Government are discussed briefly; data on R&D activities within the remaining functional categories are presented in tabular form only. This section consists of 19 tables (tables 6 through 24) which provide a summary of R&D activities conducted within each Federal budget function.

Historical Tables presents two historical data series: (1) Federal R&D funding by function for fiscal years 1955-96 (tables 25a through 25g) and (2) Federal funding of basic research for fiscal years 1978-96 (tables 26a through 26c).

DEFINITIONS

Research and Development

As used in this report, R&D refers to research—both basic and applied—and development activities in the sciences and engineering.

Research is systematic study directed toward fuller scientific knowledge or understanding of the subject studied. Research is classified as either basic or applied according to the objective of the sponsoring agency.

- In **basic research** the objective of the sponsoring agency is to gain fuller knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications toward processes or products in mind.

- In **applied research** the objective of the sponsoring agency is to gain knowledge or understanding necessary for determining means by which a recognized and specific need may be met.

Development is the systematic use of the knowledge or understanding gained from research directed toward the production of useful materials, devices, systems, or methods, including design, development, and improvement of prototypes and new processes. It excludes quality control, routine product testing, and production.

Funds for conducting R&D include those for personnel, program supervision, and administrative support directly associated with R&D activities. Expendable or movable equipment needed to conduct R&D—e.g., microscopes or spectrometers—is also included.

This report does not include data on R&D plant funds—i.e., funds for R&D facilities such as reactors, wind tunnels, or particle accelerators or for the construction, repair, or alteration of such facilities. Also excluded are all non-R&D activities performed within budget functions that conduct R&D and all functions in which no R&D is conducted.

Budget Authority, Obligations, and Outlays

The Federal R&D funding data presented here are, with a few noted exceptions, provided in budget authority. Budget authority is used because it is the initial budget parameter for congressional action on the President's proposed budget. Budget authority imposes a ceiling on obligations and outlays; obligations and outlays flow from budget authority.

- **"Budget authority"** is the primary source of legal authorization to enter into obligations that will result in outlays. Budget authority is most commonly granted in the form of appropriations by the congressional committees assigned to determine the budget for each function.

- **"Obligations"** represents the amounts for orders placed, contracts awarded, services received, and similar transactions during a given period, regardless of when the funds were appropriated and when the future payment of money is required.

- **"Outlays"** represents the amounts for checks issued and cash payments made during a given period, regardless of when the funds were appropriated or obligated.

BUDGET FUNCTIONS

All activities covered by the Federal budget, including R&D, are classified into 20 broad functional categories. The Federal budget total comprises funding for these 20 functions. An agency's activities are not necessarily included in only one function. Instead, the programs of one agency typically are distributed across functions, and each function often includes programs from multiple agencies. No overlap occurs between functions or between the various agency programs within those functions. In a few cases components of a major national effort are funded through multiple functions, such as the Human Genome mapping effort (health and energy).

Notably, each specific R&D activity is assigned to only one function area, consistent with the official codes used in budget documents, even though the R&D activity may address several functional concerns. For example, except for those of the Army Corps of Engineers, all R&D activities sponsored by the Department of Defense (DOD) are classified as defense, even though some activities have secondary objectives such as space or health. Moreover, only R&D funded by the Department of Health and Human Services and the Department of Labor is classified in the "health" function category. Yet some R&D funding, from at least three agencies—DOD and the Departments of Energy and Veterans Affairs—has a major health component.

The functional categories and definitions used in this report are the same as those used in the Federal budget, with one exception. R&D activities categorized as "general science, space, and technology" (function 250) are reported separately here. Subfunction 251 contains R&D activities for general science and basic research, and subfunction 252 contains R&D activities for space research and technology. Not all federally sponsored basic research is categorized in function 251, however; some basic research is included in the remaining 19 functional categories.

Five Federal budget functions—Medicare (function 570), social security (function 650), net interest (function 900), allowances (function 920), and undistributed offsetting receipts (function 950)—have no R&D components. Consequently, they are not discussed in this report, except where R&D is described as a proportion of total Federal budget authority. (There is no R&D in the "general Government" (800) function for fiscal years 1994 through 1996, but the historical data include past R&D funding under this function).

The Agency/Function Crosswalk on the following page lists—by name and function code—the 16 individual R&D functions funded by agencies.

DATA SOURCES

Within the overall Federal Budget there is no separately identified R&D budget as such; nor are most appropriations for R&D so labeled except in the case of certain program areas, such as in defense, energy, health, and environment. Consequently, most funds for R&D are not line items in an agency's budget submission but are included within general program funding. To determine funding for Federal R&D, the Office of Management and Budget (OMB) requires agencies whose annual R&D funding is greater than $10 million to submit data on their R&D programs as part of their annual budget submissions. Specifically, the agencies provide data—reported, in accordance with OMB Circular A-11, on an Exhibit 44A, "Research and Development Activities"—on funding levels for basic research, applied research, development, R&D facilities, and R&D support to universities and colleges.

The data in this report represent agencies' best estimates of actual and proposed Federal funding for R&D collected during the period February 7 through May 15, 1995. These data are based primarily on information provided to OMB by 21 agencies and account for more than 99 percent of all federally sponsored R&D activities. Also incorporated in this report is R&D information that became available from the individual agencies after the administration's budget was prepared and reported in the *Budget of the United States Government.* Such information consists of agency budget justification documents submitted to Congress and supplemental, program-specific information obtained from agency budget and program staff through mid-May 1995. Therefore, budget numbers for individual activities, programs, or agencies may differ slightly from those published in the President's budget or agency budget documents.

AGENCY/FUNCTION CROSSWALK

AGENCIES	National Defense (050)	Health (550)	Space Research and Technology (252)	General Science (251)	Energy (270)	Transportation (400)	Natural Resources and Environment (300)	Agriculture (35)	Education, Training, Employment, and Social Services (500)	Veterans Benefits and Services (700)	International Affairs(150)	Commerce and Housing Credit (370)	Community and Regional Development (450)	Administration of Justice (750)	Income Security (600)	General Government (800)
	FUNCTIONS															
Dept. of Defense (Military)	●															
Dept. of Health and Human Services		●							●						●	
National Aeronautics and Space Adm.			●			●										
Dept. of Energy	●			●	●											
Nat'l Science Foundation				●												
Dept. of Agriculture							●	●								
Department of the Interior							●									
Environmental Protection Agency							●									
Dept. of Transportation						●										
Dept. of Commerce							●					●	●			
Dept. of Veterans Affairs										●						
Agency for International Development											●					
Department of Education									●							
Nuclear Regulatory Commission					●											
Smithsonian Institution									●							
Tennessee Valley Authority					●								●			
Department of Treasury														●		●
Corps of Engineers (Civil)							●									
Department of Justice														●		
Department of Labor		●							●						●	
Dept. of Housing and Urban Development													●			

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

RESEARCH AND DEVELOPMENT IN THE 1996 BUDGET: AN OVERVIEW

INTRODUCTION

The information presented here highlights Federal agencies' submissions to the Office of Management and Budget as of May 1995 for fiscal years (FY) 1994 through 1996. Much work is currently ongoing in the Congress, as of this writing, that could result in significantly different FY 1996 totals than those proposed by the administration. A strength of this report is that it documents the overall distribution and growth patterns of Federal funding of the research and development (R&D) components of agency programs as proposed by the administration. Furthermore, historical data shown in this report will not be affected by current legislation, so that this report can be used for tracking historical data trends.

TOTAL R&D

In the first half of 1995, the administration had proposed total budget authority of $70.5 billion for FY 1996 for all Federal R&D programs, a slight 0.3 percent more than the estimated 1995 R&D total of $70.3 billion (table 1). After adjustment for expected

Table 1. Federal R&D budget authority, by budget function: Fiscal years 1994-96

1996 rank	Budget function	1994 actual	1995 estimated 1/	1996 proposed	Percent change 1994-95	Percent change 1995-96
		[Millions of dollars]				
	Total	68,331	70,309	70,503	2.9	0.3
1	National defense	37,764	38,518	37,571	2.0	-2.5
2	Health	10,993	11,356	11,785	3.3	3.8
3	Space research and technology	7,414	7,874	7,863	6.2	-0.1
5	General science	2,712	2,843	3,011	4.8	5.9
4	Energy	2,873	2,856	3,069	-0.6	7.4
7	Transportation	1,888	1,865	1,984	-1.3	6.4
6	Natural resources and environment	2,062	2,067	2,208	0.2	6.8
8	Agriculture	1,193	1,179	1,187	-1.2	0.7
9	Commerce and housing credit	380	633	729	66.5	15.2
10	Education, training, employment, and social services	373	371	415	-0.5	11.6
12	International affairs	254	288	224	13.4	-22.3
11	Veterans benefits and services	265	265	271	0.0	2.1
13	Community & regional development	68	74	83	9.0	12.6
14	Administration of justice	46	54	55	17.2	2.7
15	Income security	45	67	49	48.1	-27.0
16	General government	0	0	0	NA	NA

1/ Fiscal year 1995 data do not reflect rescissions enacted in Public Laws 104-6 and 104-19. There is a rescission of $1,027 million from National defense, $200 million from Energy, and $86 million from Commerce and housing credit in FY 1995.

KEY: NA = Not applicable

NOTE: Because of rounding, components may not add to the totals shown. Percentage change is derived from unrounded data.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

inflation, R&D budget authority is proposed to decrease by about 3 percent. Budget authority for R&D grew by 3 percent between 1994 and 1995 (0.2 percent in constant dollars).

Among individual functions the largest R&D decrease ($0.9 billion) is slated for defense (budget function code 050) which includes military programs of the Department of Defense (DOD) and the atomic energy defense activities of the Department of Energy (DOE). Defense-related R&D funding is proposed to be $37.6 billion in 1996, 2.5 percent lower than estimated 1995 levels. This proposed decrease reverses the rise of 2 percent in budget authority for defense-related R&D between 1994 and 1995. However, R&D funding within the "national defense" function has continued to decrease in real terms since 1993. The proposed real decrease in defense-related R&D budget authority is offset by a real increase in proposed funding of civilian R&D in 1996. Nondefense R&D funding is anticipated to grow by about 4 percent, to $32.9 billion in 1996 (less than 1 percent in constant dollars). Civilian-related activities represent 47 percent of Federal funding for the conduct of R&D. The proportion of R&D funds proposed for defense-related activities has declined 1.5 percentage points from 1995, from 54.8 percent to 53.3 percent.

The five largest budget functions with respect to R&D expenditures—national defense, health, space research and technology, energy, and general science—together account for 90 percent of all proposed Federal R&D funding. Three of the top five functions are proposed to receive increased funding for R&D in 1996; funding for national defense and space research and technology R&D are slated to decrease. Highlights of proposed R&D funding by function in the 1996 budget follow.

- National defense R&D funding is proposed to drop by $0.9 billion, or to 2.5 percent below 1995 levels. Army would experience major decreases in funding, losing 19 percent of its research, development, test, and evaluation (RDT&E) funds. Navy RDT&E would decline 5 percent, from $8.7 billion in FY 1995 to $8.2 billion in FY 1996. Among the defense agencies, the Advanced Research Projects Agency (ARPA) funding is proposed to decline 3 percent between FY 1995 and FY 1996. The Ballistic Missile Defense Organization (BMDO) would drop 1 percent. While much of DOE's defense-related R&D programs will gain funding over 1995 levels, nuclear materials support will get no R&D funding, and decreases are expected in naval reactors development. No R&D growth is expected for threat assessment.

- The administration proposes a 4-percent increase ($0.4 billion) in health-related R&D (function 550) to $11.8 billion in 1996. Most of this proposed growth is for the basic and applied biomedical and behavioral research programs of the National Institutes of Health (NIH), which will account for 94 percent of all Federal health R&D. R&D programs for all except two components of NIH will receive greater support in FY 1996 than in FY 1995. Women's health study under NIH's Office of the Director and the cooperative research and development agreements programs are slated for funding at 1995 levels. Over $1 billion is proposed for R&D on AIDS/HIV within the Office of AIDS Research. A 10-percent increase is proposed for NIH's Human Genome Project. The National Library of Medicine's R&D funding would grow over 15 percent in 1996.

- R&D budget authority for space research and technology activities (subfunction 252) of the National Aeronautics and Space Administration (NASA) is proposed to remain nearly the same as in FY 1995. It will drop only $11 million (0.1 percent), to $7.9 billion. A total of $2.8 billion is proposed for space science, NASA's largest R&D program. The space station program, NASA's second-largest R&D program, is proposed to receive $2 billion, down 2 percent from l995. Major increases are scheduled for R&D activities related to planetary exploration (funded under space science), which will receive an increase of $0.1 billion in 1996. The budget also proposes that NASA receive increases for physics and astronomy (funded under space science), space access and technology, and Mission to Planet Earth.

- Research funding for general science (subfunction

251) is proposed to increase by 6 percent, or $0.2 billion in 1996, to $3 billion. Most of these dollars are slated for the National Science Foundation (NSF); the remaining funds are for DOE general science programs. Increases of at least $20 million or more are directed toward mathematics and physical sciences ($50 million increase), geosciences ($30 million), engineering ($20 million), and biological sciences ($20 million). DOE's research budget is proposed to grow by only 1 percent, with increases in high energy physics programs. Nuclear physics will fall 5 percent.

- A 7-percent increase ($0.2 billion) is proposed for energy R&D (function 270) to $3.1 billion in 1996. Energy R&D will comprise 4 percent of total Federal R&D budget authority. The increase in funding is attributable to greater support for energy supply and energy conservation programs at DOE. The Tennessee Valley Authority is expected to get $3 million more over FY 1995 funding levels, a 4-percent gain. Slight reductions in the energy-related R&D programs are planned at the Nuclear Regulatory Commission and for DOE's energy information, policy, and regulation programs.

- Natural resources and the environment R&D funding (function 300) is proposed to increase by 7 percent, to $2.2 billion in 1996. Within this functional category the largest gain is proposed for the Environmental Protection Agency's multimedia (i.e., interdisciplinary) research efforts. Despite expected funding declines of several programs, EPA is proposed to receive an increase of $90 million, a 16-percent increase over 1995. Moderate increases are planned for the National Oceanic and Atmospheric Administration (NOAA), including its oceanic and atmospheric research programs and initiatives performed by the National Marine Fisheries Services. The National Biological Service, in the Department of the Interior, which now performs most R&D activities of the Fish and Wildlife Service, National Park Service, and Bureau of Land Management, is slated to get nearly $200 million in R&D funding, almost a 3-percent gain over FY 1995.

- Transportation R&D funding (function 400) is proposed to increase by 6 percent, to $2 billion. Most of the increase (up about $70 million from 1995) is slated for aviation research by NASA. Funding for ground transportation R&D, however, also is proposed to increase significantly, by $30 million.

- Funding for agricultural R&D (subfunction 352) is proposed to increase in 1996 by less than 1 percent, to $1.2 billion, and would account for under 2 percent of the total Federal R&D budget authority. Over half of the Department of Agriculture's (USDA) R&D funding is for the Agricultural Research Service (ARS), an intramural research agency whose primary responsibility includes providing initiative and leadership in agricultural research. Several initiatives, including the research on plant sciences, commodity conversion and delivery, and animal sciences are all major recipients of ARS funds. Another USDA program, the National Research Initiative, increased 26 percent, to $130 million in FY 1996.

- The remaining eight functions each have less than $0.8 billion in proposed 1996 R&D budget authority. Overall, R&D for these functions will increase by 4 percent ($70 million), to $1.8 billion.

  - R&D for commerce and housing credit (subfunction 376) will increase by 15 percent ($0.1 billion), to $0.7 billion. This total reflects increased support for the generic applied research and technology development programs of the National Institute of Standards and Technology. Funding for general education programs (subfunctions 501-3) of the Department of Education and Smithsonian Institution will increase by 4 percent (over $10 million), to $268 million.

  - R&D increases (13 percent) also are proposed for programs in community and regional development (function 450). Major funders to this budget function are the Tennessee Valley Authority and the Department of Housing and Urban Development. Small growth is also

slated for veterans benefits and services (function 700) and for administration of justice (function 750).

- R&D funding will decrease 22 percent in international affairs (function 150) and 27 percent in income security (function 600). No R&D funding is proposed for general government (function 800).

Distribution of Total R&D Budget Authority Among Functions

The five largest R&D functions in 1996—defense, health, space, energy, and general science—account for 90 percent of all proposed Federal R&D budget authority. Transportation, natural resources and the environment, agriculture, and commerce and housing credit each account for between 1 and 3 percent of Federal funding of R&D. The remaining seven functions each account for less than 1 percent of the total 1996 proposed R&D budget authority (table 2).

During the early and mid-1980s, practically all growth in Federal R&D support was defense related (chart 1). Since 1986, however, defense R&D has dropped significantly from its peak 69-percent share of the Federal total to the proposed 53-percent share for 1996 (table 3). Despite this decline, defense is proposed to receive over three times the budget authority for R&D than the next largest function, health.

Proportions of seven functions to the total R&D budget authority will be larger in 1996 than in 1995—Health; energy; general science; transportation; natural resources and environment; commerce and housing credit; and education, training, employment, and social services. Proportions for space research and technology, agriculture, veterans benefits and services, community and regional development, administration of justice, income security, and general government will stay the same as in 1995. Besides defense, only the international affairs' proportion will drop in FY 1996.

Table 2. Distribution of total R&D budget authority, by function: Fiscal years 1994-96

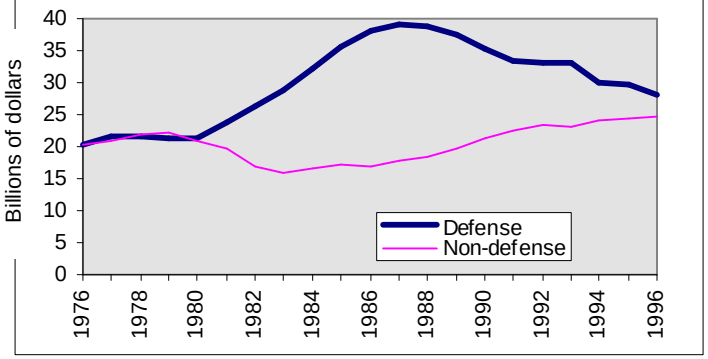
[In percentages]

1996 rank	Budget function	1994 actual	1995 estimated	1996 proposed
	Total	100.0	100.0	100.0
1	National defense	55.3	54.8	53.3
2	Health	16.1	16.2	16.7
3	Space research and technology	10.9	11.2	11.2
5	General science	4.0	4.0	4.3
4	Energy	4.2	4.1	4.4
7	Transportation	2.8	2.7	2.8
6	Natural resources and environment	3.0	2.9	3.1
8	Agriculture	1.7	1.7	1.7
9	Commerce and housing credit	0.6	0.9	1.0
10	Education, training, employment, and social services	0.5	0.5	0.6
12	International affairs	0.4	0.4	0.3
11	Veterans benefits and services	0.4	0.4	0.4
13	Community & regional development	0.1	0.1	0.1
14	Administration of justice	0.1	0.1	0.1
15	Income security	0.1	0.1	0.1
16	General government	0.0	0.0	0.0

NOTE: Because of rounding, components may not add to totals.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

Chart 1. Federal budget authority fo defense and nondefense R&D: Fiscal years 1976-96 (Billions of constant 1987 dollars)



SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

Table 3. Federally funded R&D for national defense and civilian functions: Fiscal years 1955-96

Fiscal year	Current dollars			Constant 1987 dollars 1/			Percent of total	
	Total	National defense	Civilian functions	Total	National defense	Civilian functions	National defense	Civilian functions
	[Millions of dollars]							
1955	2,533	2,151	382	11,208	9,518	1,690	84.9	15.1
1956	2,988	2,535	453	12,769	10,833	1,936	84.8	15.2
1957	3,932	3,327	605	16,181	13,691	2,490	84.6	15.4
1958	4,570	3,801	769	18,353	15,265	3,088	83.2	16.8
1959	6,694	5,556	1,138	26,251	21,788	4,463	83.0	17.0
1960	7,552	6,107	1,445	28,935	23,398	5,536	80.9	19.1
1961	9,059	7,005	2,054	34,445	26,635	7,810	77.3	22.7
1962	10,290	7,238	3,052	38,396	27,007	11,388	70.3	29.7
1963	12,495	7,764	4,731	45,938	28,544	17,393	62.1	37.9
1964	14,225	7,829	6,396	51,540	28,366	23,174	55.0	45.0
1965	14,614	7,342	7,272	51,640	25,943	25,696	50.2	49.8
1966	15,320	7,536	7,784	52,646	25,897	26,749	49.2	50.8
1967	16,529	8,566	7,963	54,914	28,458	26,455	51.8	48.2
1968	15,921	8,275	7,646	51,029	26,522	24,506	52.0	48.0
1969	15,641	8,356	7,285	47,686	25,476	22,210	53.4	46.6
1970	15,339	7,981	7,358	44,332	23,066	21,266	52.0	48.0
1971	15,543	8,110	7,433	42,818	22,342	20,477	52.2	47.8
1972	16,496	8,902	7,594	43,183	23,304	19,880	54.0	46.0
1973	16,800	9,002	7,798	41,791	22,393	19,398	53.6	46.4
1974	17,410	9,016	8,394	40,208	20,822	19,386	51.8	48.2
1975	19,039	9,679	9,360	39,998	20,334	19,664	50.8	49.2
1976	20,780	10,430	10,350	40,586	20,371	20,215	50.2	49.8
1977	23,450	11,864	11,586	42,329	21,415	20,913	50.6	49.4
1978	25,976	12,899	13,077	43,584	21,643	21,941	49.7	50.3
1979	28,208	13,791	14,417	43,598	21,315	22,283	48.9	51.1
1980	29,739	14,946	14,793	42,123	21,170	20,953	50.3	49.7
1981	33,735	18,413	15,322	43,361	23,667	19,694	54.6	45.4
1982	36,115	22,070	14,045	43,200	26,400	16,800	61.1	38.9
1983	38,768	24,936	13,832	44,561	28,662	15,899	64.3	35.7
1984	44,214	29,287	14,927	48,640	32,219	16,421	66.2	33.8

See explanatory notes and SOURCE at end of table.

Table 3. Federally funded R&D for national defense and civilian functions: Fiscal years 1955-96

Fiscal year	Current dollars			Constant 1987 dollars 1/			Percent of total	
	Total	National defense	Civilian functions	Total	National defense	Civilian functions	National defense	Civilian functions
	[Millions of dollars]							
1985.....	49,887	33,698	16,189	52,902	35,735	17,168	67.5	32.5
1986.....	53,249	36,926	16,323	54,839	38,029	16,811	69.3	30.7
1987.....	57,069	39,152	17,917	57,069	39,152	17,917	68.6	31.4
1988.....	59,106	40,099	19,007	57,052	38,706	18,347	67.8	32.2
1989.....	62,115	40,665	21,450	57,355	37,548	19,806	65.5	34.5
1990.....	63,781	39,925	23,856	56,468	35,347	21,121	62.6	37.4
1991.....	65,898	39,328	26,570	56,017	33,431	22,586	59.7	40.3
1992.....	68,398	40,083	28,315	56,471	33,094	23,378	58.6	41.4
1993	69,884	41,249	28,635	56,358	33,265	23,093	59.0	41.0
1994	68,331	37,764	30,566	54,046	29,870	24,177	55.3	44.7
1995 2/....	70,309	38,518	31,791	54,151	29,666	24,485	54.8	45.2
1996.....	70,503	37,571	32,932	52,717	28,093	24,624	53.3	46.7

1/ Calculated using fiscal year GDP implicit price deflators with 1987 as the base year.
2/ Fiscal year 1995 data do not reflect rescissions enacted in Public Laws 104-6 and 104-19.

NOTES: The national defense function includes Department of Defense's military activities and Department of Energy's atomic energy defense programs. Civilian functions include all other Federally funded R&D activities. Data for 1955-77 are obligations. Data for 1978-94 are actual budget authority. Data for FY 1995 are estimates of budget authority. Data for 1996 are budget authority proposed by the administration.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

BASIC RESEARCH

The administration proposes to increase budget authority for basic research by 4 percent in 1996, to $14.3 billion (table 4). When adjusted for expected inflation, this would be about a 1-percent increase from the estimated 1995 level. The basic research share of total R&D budget authority has slowly increased from 15 percent in 1986 to the proposed 20 percent in 1996 (chart 2).

The largest five R&D functions—defense, health, space, energy, and general science—are also the largest basic research functions; they account for 92 percent of the basic research total. Health ($6.3 billion) accounts for the largest share (44 percent) of the requested 1996 basic research total, followed by general science ($2.8 billion) and space research and technology ($1.7 billion). Defense accounts for $1.2 billion—or 9 percent—of the proposed basic research total, but only 3 percent of the defense R&D total is basic research. Of the nondefense R&D total, 40 percent is basic research (chart 3).

Table 4. Budget authority for basic research, by budget function, fiscal years 1994-96

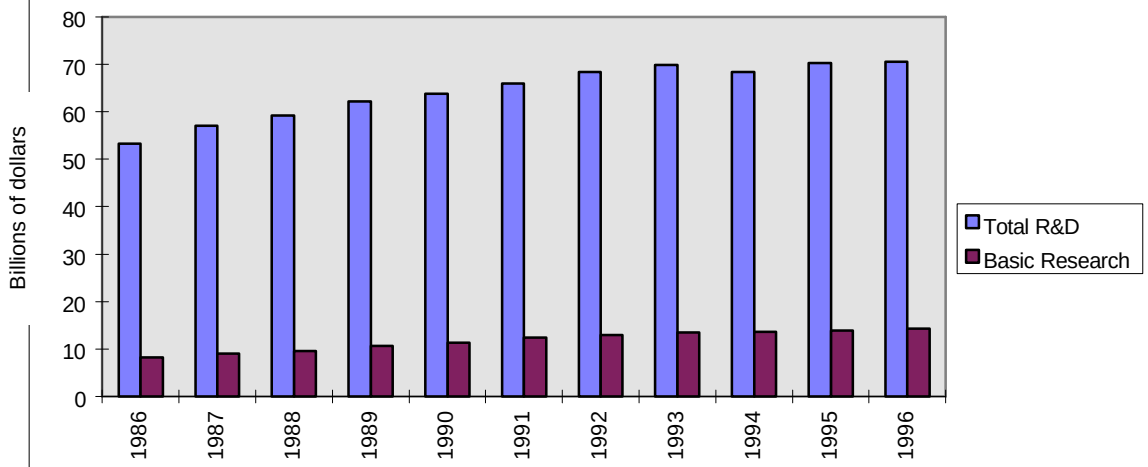
1996 rank	Budget function	1994 actual	1995 estimated 1/	1996 proposed	Percent change	
					1994-95	1995-96
		[In millions of dollars]				
	Total	13,548	13,807	14,308	1.9	3.6
4	National defense	1,174	1,234	1,221	5.1	-1.0
1	Health	5,889	6,088	6,312	3.4	3.7
3	Space research and technology	1,796	1,697	1,682	-5.5	-0.9
2	General science	2,542	2,658	2,816	4.6	5.9
5	Energy	921	967	1,069	5.0	10.6
8	Transportation	220	156	161	-29.2	3.8
7	Natural resources and environment	224	222	237	-1.0	6.8
6	Agriculture	567	559	569	-1.4	1.8
10	Commerce and housing credit	38	44	49	14.2	11.1
9	Education, training, employment, and social services	145	152	156	4.9	2.6
14	International affairs	2	1	1	-60.7	88.2
11	Veterans benefits and services	16	16	17	0.0	2.2
12	Community & regional development	9	9	12	1.4	31.1
13	Administration of justice	5	6	6	5.8	6.2
15	Income security	0	0	0	NA	NA
16	General government	0	0	0	NA	NA

1/ Fiscal year 1995 data do not reflect rescissions enacted in Public Laws 104-6 and 104-19.

KEY: NA = Not applicable

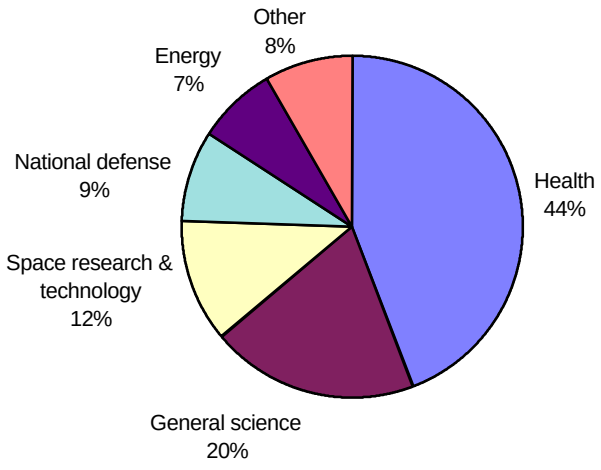
SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

Chart 2. Federal budget authority for basic research compared with total R&D budget authority: Fiscal years 1986-96 (Billions of current dollars)



SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

Chart 3. Federal R&D budget authority for basic research by budget function: Fiscal year 1996 (In percentages)



SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

SHARE OF TOTAL BUDGET AUTHORITY FOR R&D

For functions that include R&D activities, the proportion of total budget authority requested for R&D varies considerably, from a high of 83 percent for energy to less than 0.1 percent for income security (general government had no R&D activities slated for FY 1996) (table 5). While remaining steady as a proportion of total Federal budget, R&D funding will continue to grow slowly as a proportion of total funding for the functions in which R&D is conducted, rising from 8.0 percent in FY 1995 to 8.1 percent in FY 1996.

Besides energy, only general science (69 percent) and space research and technology (61 percent) have one-half or more of their total funds proposed for 1996 directed toward R&D. Fifteen percent of defense related funding, 11 percent of funding for the health function, and 10 percent of natural resources and environment funding are proposed for R&D. Each of the remaining 10 functions has less than 10 percent of its total budget allocated for R&D: in five of these functions, R&D accounts for less than 1 percent of total funds. General government will have no R&D funding in FY 1996.

Table 5. R&D budget authority as a percentage of each function's total budget authority: Fiscal years 1994-96

1996 rank	Budget function	1994 actual	1995 estimated	1996 proposed
	All functions conducting R&D	7.8	8.0	8.1
4	National defense	14.3	14.6	14.6
5	Health	9.4	9.7	10.7
3	Space research and technology	56.9	61.8	60.9
2	General science	59.0	68.0	69.2
1	Energy	60.8	65.9	82.8
9	Transportation	4.3	4.4	5.1
6	Natural resources and environment	9.1	9.4	9.8
7	Agriculture	7.0	8.9	9.1
8	Commerce and housing credit	1.4	6.7	8.8
12	Education, training, employment, and social services	0.7	0.6	0.7
10	International affairs	1.4	1.5	1.2
13	Veterans benefits and services	0.7	0.7	0.7
11	Community & regional development	0.4	0.5	0.9
14	Administration of justice	0.3	0.3	0.3
15	Income security	(1/)	(1/)	(1/)
16	General government	0.0	0.0	0.0

1/ Less than one-tenth of 1 percent

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44-A,"Research and Development Activities"; agency budget justification documents; supplemental data obtained from the agencies' budget offices; Office of Management and Budget, *Budget of the United States Government, Fiscal Year 1996* , "Analytical Perspectives," Washington, DC: Feb. 1995 (table 6-1).

R&D BY SPECIFIC BUDGET FUNCTION

NATIONAL DEFENSE

The total R&D budget authority request for national defense (function 050) in 1996 is $37.6 billion, which would be a decrease of $0.9 billion—or 2.5 percent—from estimated 1995 levels. This function consists of the DOD research, development, test, and evaluation (RDT&E) programs and the atomic energy defense activities of DOE (table 6). The defense function accounts for 53 percent of the total Federal proposed R&D funding in 1996—16 percentage points less than in 1986 (chart 4). As of this writing, congressional action on DOD appears to support an increase in R&D funding. Selected defense changes proposed for R&D funding in FY 1996 are highlighted below.

- R&D funds for all DOD mission areas are proposed to decrease by 3 percent, to $35.1 billion, and account for 93 percent of 1996 defense R&D budget authority. DOE defense R&D programs are proposed to rise by 6 percent, to $2.5 billion.

- Proposed budget authority for defense basic research is $1.2 billion, 1 percent below the 1995 level. As it did in FY 1990, defense accounts for 8.5 percent of the basic research total in FY 1996.

- Of the three armed services, only Air Force will receive an increase in RDT&E funding. Air Force is slated to increase 4.5 percent, while Navy and Army will drop 5 percent and 19 percent, respectively. Hardest hit are Army's programs for exploratory development (down 31.5 percent, or $0.2 billion), advanced technology development (38 percent, or $0.3 billion), and engineering manufacturing development (34.5 percent, or $0.6 billion) (table 7).

- R&D programs within DOD's 13 Defense Agencies are proposed to decrease by 2 percent, to $8.8 billion, reversing the 1995 gain of 3 percent over 1994 levels. The Ballistic Missile Defense Organization (BMDO) and the Advanced Research Projects Agency (ARPA) will account for 58 percent of the R&D programs within the Defense

Table 6. R&D budget authority for national defense (050), Fiscal years 1994-96

Agency	1994 actual	1995 estimated 2/	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total	37,764	38,518	37,571	-2.5
Department of Defense--military (051)	35,296	36,200	35,106	-3.0
Research, development, test, and evaluation (RDT&E)	34,567	35,438	34,332	-3.1
Department of the Army	5,402	5,481	4,444	-18.9
Department of the Navy	8,206	8,653	8,205	-5.2
Department of the Air Force	12,021	12,057	12,598	4.5
Defense agencies	8,694	8,990	8,803	-2.1
Ballistic Missile Defense Org	2,605	2,468	2,442	-1.0
Advanced Research Projects Agency	2,649	2,732	2,639	-3.4
Other defense agencies	3,440	3,791	3,721	-1.8
Developmental test & evaluation	232	233	259	11.2
Operational test & evaluation	11	23	23	-1.6
Other military funding 1/	729	762	774	1.6
Department of Energy--atomic energy defense activities (053)	2,469	2,318	2,465	6.4
Weapons research, development, and testing	1,379	1,223	1,392	13.8
Naval reactors development	602	625	590	-5.5
Nuclear materials support	33	24	0	-100.0
Environmental restoration and waste management	222	215	246	14.3
Threat assessment	4	4	4	0.0
Nonproliferation	206	207	211	1.8
Nuclear safeguards and security	23	20	22	8.7
Office of Intelligence	0	0	0	NA

1/ Adjustment to R&D budget to exclude major construction and add appropriate personnel costs in direct support of conduct of R&D, and other appropriations.

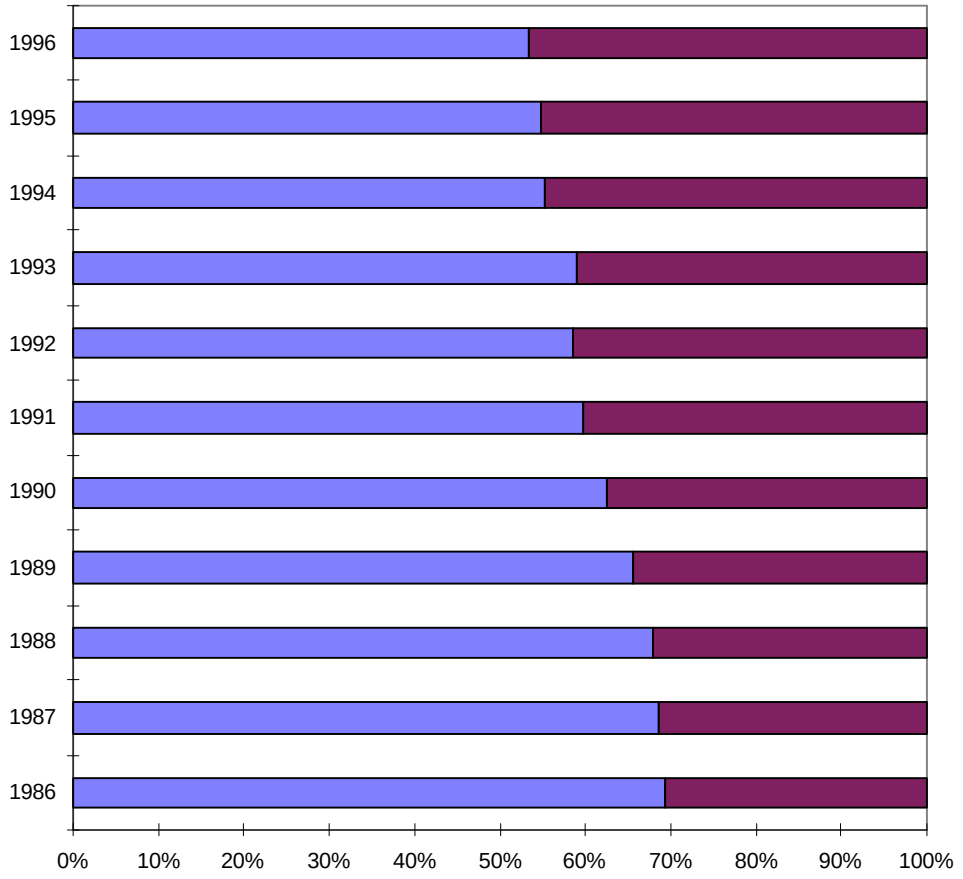
2/ Fiscal year 1995 data do not reflect rescissions enacted in Public Laws 104-6 and 104-19. These rescissions, allocated throughout the Dept. of Defense, total $1,021 million for research and development activities. There is also a rescission of approximately $6 million from Environmental restoration R&D in DOE.

KEY: NA = Not applicable

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

SOURCE: Departments of Defense (DoD) and Energy (DOE) submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; DoD's "RDT&E Programs (R-1): " Budget of the United States Government and supplemental data obtained from the DOE budget office.

Chart 4. Distribution of federally funded R&D; by defense and civilia functions: Fiscal years 1986-96



SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

Table 7. Total obligational authority (TOA) for Department of Defense (DOD) research, development, test, and evaluation (RDT&E) budget, fiscal years 1994-96

Funding category and agency	1994 actual	1995 estimated 1/	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total RDT&E (budget authority)	34,567	35,439	34,332	-3.1
Total RDT&E (TOA)	34,706	35,515	34,332	-3.3
Basic research	1,167	1,227	1,214	-1.1
Department of the Army	199	224	205	-8.6
Department of the Navy	402	418	402	-3.8
Department of the Air Force	225	240	240	0.1
Defense agencies	340	346	367	6.3
Exploratory development	2,691	3,070	2,816	-8.3
Department of the Army	621	634	434	-31.5
Department of the Navy	446	511	479	-6.4
Department of the Air Force	601	693	672	-3.1
Defense agencies	1,023	1,232	1,231	0.0
Advanced technology development	6,208	4,339	3,801	-12.4
Department of the Army	516	791	488	-38.3
Department of the Navy	418	539	500	-7.2
Department of the Air Force	470	566	495	-12.5
Defense agencies	4,804	2,444	2,318	-5.1
Demonstration/validation	2,697	4,325	4,229	-2.2
Department of the Army	541	451	477	5.9
Department of the Navy	1,689	1,527	1,587	4.0
Department of the Air Force	235	420	431	2.7
Defense agencies	231	1,928	1,733	-10.1
Engineering manufacturing development	7,334	8,930	8,759	-1.9
Department of the Army	1,679	1,618	1,059	-34.5
Department of the Navy	1,711	2,290	2,379	3.9
Department of the Air Force	3,896	4,572	4,641	1.5
Defense agencies	48	451	679	50.7

See explanatory information and SOURCE at end of table.

Table 7. Total obligational authority (TOA) for Department of Defense (DOD) research, development, test, and evaluation (RDT&E) budget, fiscal years 1994-96

Funding category and agency	1994 actual	1995 estimated 1/	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Management support	3,368	3,436	3,305	-3.8
Department of the Army	1,228	1,194	1,173	-1.8
Department of the Navy	759	752	588	-21.8
Department of the Air Force	924	797	846	6.2
Defense agencies	213	437	416	-4.8
Developmental test & evaluation	232	233	259	11.2
Operational test & evaluation	11	23	23	-1.6
Operational system development	11,242	10,188	10,208	0.2
Department of the Army	629	571	609	6.7
Department of the Navy	2,766	2,658	2,268	-14.7
Department of the Air Force	5,825	4,771	5,274	10.5
Defense agencies	2,021	2,189	2,057	-6.0
Adjustment for RDT&E budget authority	-140	-77	0	NA

1/ Fiscal year 1995 data do not reflect rescissions enacted in Public Laws 104-6 and 104-19. These rescissions, allocated throughout the Dept. of Defense, total $1,021 million for research and development activities.

NOTES: Detailed budget information on DOD's RDT&E activities is available only in total obligational authority (TOA), which is the sum of new budget authority, unobligated budget authority from previous years, and other authorized credits. Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

KEY: NA = Not applicable

SOURCE: Data from DOD, "RDT&E Programs (R-1)." Total RDT&E budget authority data from "Budget of the United States Government," appendix pp. 311-316.

agencies. The budget request for the R&D portion of ARPA will decrease 3 percent, to $2.6 billion. ARPA's Technology Reinvestment Project (TRP) is a key DOD conversion program that promotes dual-use technologies through competitively selected projects supported jointly by ARPA and the private sector. However, congressional action has proposed to close out TRP. BMDO will show a modest 1-percent drop in funds to $2.4 billion.

- Among DOE atomic energy defense activities, the largest reduction is proposed for nuclear materials support, whose R&D funding will be zeroed out. Other reductions are planned for naval reactors development, down $35 million, to $590 million. Increases are proposed for R&D related to weapons research, development, and testing (up $170 million, to $1.4 billion), much of which is performed by the three DOE National Laboratories: Los Alamos, Sandia, and Lawrence Livermore. The administration also slated gains for environmental restoration and waste management, nuclear safeguards and security, and nonproliferation initiatives. Threat assessment programs would remain at 1995 funding levels, and the Office of Intelligence would not be funded for R&D activities.

HEALTH

The administration proposes a 4-percent increase for R&D health programs (function 550). The proposed $11.8 billion 1996 health total accounts for 36 percent of all Federal nondefense R&D. The health share has been fairly stable over the last 10 years, staying above one-third of the total nondefense R&D (chart 5). The Department of Health and Human Services (HHS) funds all R&D classified for health care services and health research (subfunctions 551 and 552); R&D funding for consumer and occupational health and safety (subfunction 554) is provided by HHS and the Department of Labor's Occupational Safety and Health Administration. R&D funding proposed in the 1996 budget for health provides growth for almost all agencies performing R&D health programs (table 8). Funding decreases are slated for the Health Care Financing Administration (7 percent drop) and Health Resources and Services Administration (0.2 percent). Selected health R&D funding changes are highlighted below.

- The health function accounts for 44 percent of all Federal basic research support. The $6 billion proposed for health-related basic research is 4 percent more than the 1995 level.

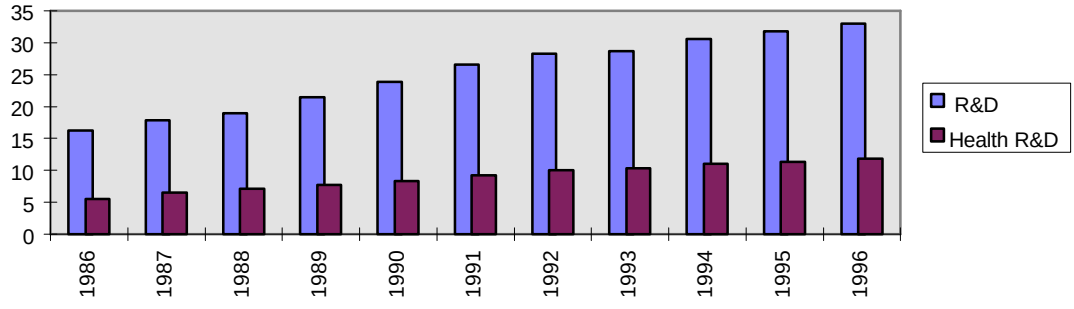
Table 8. R&D budget authority for health (550), Fiscal years 1994-96

Agency	1994 actual	1995 estimated	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total	10,993	11,356	11,785	3.8
Health care services and health research (551, 552)	10,807	11,164	11,591	3.8
Department of Health and Human Services (DHHS):				
National Institutes of Health	10,338	10,698	11,126	4.0
Centers for Disease Control	207	217	217	0.1
Agency for Health Care Policy and Research	135	139	142	2.8
Health Care Financing Administration	86	69	65	-6.9
Health Resources and Services Administration	41	41	40	-0.2
Indian Health Services	0	0	1	4.7
Consumer and occupational health and safety (554)	186	192	194	1.1
Food and Drug Administration (DHHS)	182	188	190	1.1
Occupational and Safety Health Administration (Dept. of Labor)	3	4	4	0.8

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Chart 5. Federal budget authority for health R&D compared wit total nondefense R&D budget authority: Fiscal years 1986-96 (Billions of current dollars)



SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

- A 4-percent increase—$0.4 billion—is proposed for R&D support to be provided by the National Institutes of Health (table 9). Totaling $11.1 billion, these programs would account for 94 percent of all health R&D funding. Congressional House action proposes an even larger increase in NIH R&D funding for FY 1996. The primary mission of NIH is to advance national capabilities for prevention, diagnosis, and treatment of disease through biomedical and behavioral research.

Table 9. R&D budget authority for the National Institutes of Health (NIH), Fiscal years 1994-96

Agency	1994 actual	1995 estimated	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total	10,338	10,698	11,126	4.0
National Cancer Institute	1,808	1,869	1,950	4.3
National Heart, Lung, and Blood Institute	1,172	1,208	1,243	2.9
National Institute of Allergy and Infectious Diseases	503	518	539	4.0
National Institute of General Medical Sciences	754	781	805	3.1
National Institute of Diabetes and Digestive and Kidney Diseases	677	698	719	3.0
National Institute of Neurological Disorders and Stroke	594	613	633	3.3
National Institute of Mental Health	498	514	529	2.9
National Institute of Child Health and Development	480	493	507	2.7
National Institute on Drug Abuse	275	282	291	2.9
National Institute on Aging	406	419	432	3.0
National Center for Research Resources	261	272	294	8.0
National Eye Institute	274	283	293	3.2
National Institute of Environmental Health Sciences	247	256	268	4.6
National Institute of Arthritis and Musculoskeletal and Skin Diseases	214	220	227	3.1
National Institute on Alcohol Abuse and Alcoholism	171	176	180	2.4
National Institute of Dental Research	151	156	161	3.5
National Institute of Deafness and Other Communicative Diseases	156	161	167	3.4
National Center for Human Genome Research	122	149	163	10.0
National Library of Medicine	48	54	62	15.4
National Center for Nursing Research	42	44	45	4.2
John E. Fogarty International Center	13	15	15	4.1
Office of AIDS Research 1/	1,273	1,312	1,383	5.5
Office of the Director	190	201	216	7.3
Women's Health Study	59	57	57	0.0
Minority Health Study	55	58	63	8.6
Other research expenses	76	86	96	11.3
Cooperative Research and Development Agreements	7	5	5	0.0

1/ The Office of AIDS Research was created in FY 1995 to consolidate NIH-wide AIDS research. OAR funds AIDS research in other institutes. AIDS research funded in individual institutes for FY 1994 has been consolidated in the OAR account for comparison purposes.

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

KEY: NA = Not applicable

SOURCE: Departmental submission to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the NIH budget office.

- Within NIH, the largest share of R&D funding is proposed for the National Cancer Institute ($2.0 billion), followed by the Office of AIDS Research (OAR) ($1.4 billion). All AIDS-related funds are contained in the single appropriation account for OAR, and these funds are transferred to other NIH Institutes as needed. National Heart, Lung, and Blood Institute will receive the third-largest funding, slated for $1.2 billion (3 percent over 1995 levels).

- With few exceptions, 3- to 6-percent increases are proposed for each of the 18 Institutes and Centers comprising NIH. R&D for the NIH Director's Office is proposed to increase by 7 percent, to $216 million, primarily to continue funding the Women's Health Study and the Minority Health Study. In addition, HHS R&D support for the Human Genome mapping effort is proposed to increase 10 percent, to $163 million in 1996. Funding for the National Library of Medicine will rise 15 percent.

- A 1-percent increase, to $194 million, is proposed for consumer and occupational health and safety in 1996. The Food and Drug Administration accounts for 98 percent of these funds.

Space Research and Technology

The National Aeronautics and Space Administration (NASA) funds all R&D that is specifically budgeted in space flight, research, and supporting activities (subfunction 252). R&D budget authority is proposed to decrease slightly, by 0.1 percent, in 1996, to $7.9 billion, and account for 11 percent of total Federal R&D funds. As recently as 1986, space accounted for a 5-percent share of the R&D total. NASA R&D programs reflect priorities set by the National Space Policy, under which NASA is charged with conducting a balanced program of manned and unmanned exploration, accelerating the pace of scientific investigations in space, and developing space technologies to meet the long-range goal of expanding human presence in the solar system. Selected space research and technology R&D funding changes are highlighted below.

- Three of NASA's science programs—Space Science, Space Station, and Mission to Planet Earth—will comprise 80 percent, or $6.3 billion of the total space R&D budget authority in FY 1996 (table 10).

Table 10. R&D budget authority for space research and technology (252), Fiscal years 1994-96

Funding Category	1994 actual 1/	1995 estimated	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total	7,414	7,874	7,863	-0.1
National Aeronautics and Space Administration (NASA):				
Space Station	2,034	2,026	1,981	-2.2
Other Human Space Flight		71	71	0.1
Space transportation capability development programs	906	NA	NA	NA
Space science	2,483	2,641	2,849	7.9
Physics and astronomy	1,212	1,267	1,306	3.0
Planetary exploration	671	719	865	20.4
Life and microgravity sciences	600	655	678	3.5
Mission to Planet Earth	1,204	1,394	1,464	5.1
Advanced concepts and technology	614	NA	NA	NA
Space access and technology	NA	783	873	11.5
Safety, reliability and quality assurance	56	NA	NA	NA
Tracking and data acquisition	22	NA	NA	NA
Academic programs	96	117	134	14.3
Launch services	NA	334	NA	NA
Mission communication services	NA	508	491	-3.3

1/ NASA restructured its budget beginning in FY 1995. Because the activities classified as R&D differ, the fiscal year 1994 totals are not comparable with 1995 and 1996 figures.

NOTES: Includes funds for research and research program management, but excludes fixed capital equipment costs. Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

KEY: NA = Not applicable

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; budget justification documents; and supplemental data obtained from the NASA budget.

- Space Science, having the largest budget ($2.8 billion) of the three categories, is composed of physics and astronomy programs ($1.3 billion), planetary exploration ($0.9 billion), and life and microgravity sciences and applications ($0.7 billion). Physics and astronomy programs are designed to expand our understanding of the origins of the universe, the laws of physics, and the formation of stars and planets. The budget request includes funds to continue development of the Advanced X-Ray Astrophysics Facility. Planetary exploration includes the exploration of the solar system. General funding in this area includes appropriations for the Cassini mission to Saturn and the Mars Surveyor Program. The major program goal of life and microgravity sciences and applications is to understand the role of gravity in biological, physical, and chemical systems. This goal is achieved through experiments and research conducted aboard the Space Shuttle and Russian Mir Space Station.

- The Space Station program (which now includes Russia as a partner) is slated for a 2-percent decrease in R&D, to $2 billion in FY 1996, but would account for 25 percent of total space R&D budget authority. In August congressional House action funded the Space Station program at the same level as the administration's proposal.

- The Mission to Planet Earth will receive a 5-percent increase in funding, to $1.5 billion in FY 1996. However, the House proposal would cut the program 25 percent below the administration's request.

General Science

Research activities in general science (subfunction 251), of which 94 percent are basic research, are funded by the National Science Foundation and the Department of Energy. These activities are seen as contributing more broadly to the Nation's scientific and engineering base than are basic research programs that support agency missions. Total research support in general science is proposed to increase by 6 percent in 1996, to $3 billion. Of this research total, 76 percent is slated for NSF and 24 percent is for DOE.

Congressional action as of this writing proposes to cut NSF's research account below the administration's request: the House, by $200 million and the Senate, by $160 million. Selected general science changes proposed for R&D funding in FY 1996 are highlighted below.

- NSF is to receive $2.3 billion in research budget authority, $160 million, or 8 percent, over 1995 funding levels. Funding increases are proposed for six of NSF's seven research directorates and for the U.S. Polar Research Programs for which NSF has primary responsibility (table 11). The Education and Human Resources Directorate will show a drop (about 3 percent) in R&D funding.

Table 11. R&D budget authority for general science and basic research (251), Fiscal years 1994-96

Funding category	1994 actual	1995 estimated	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total	2,712	2,843	3,011	5.9
National Science Foundation (NSF)	2,036	2,143	2,303	7.5
Mathematical and physical sciences	609	629	681	8.2
Geosciences	394	403	431	7.0
Biological sciences	288	301	324	7.6
Engineering	297	320	344	7.7
Computer and information science and engineering	212	231	248	7.5
U.S. polar research programs	54	55	63	15.5
Social, behavioral, and economic sciences	86	100	107	7.2
Education and human resources	101	107	104	-2.7
Budget authority adjustment	(4)	(3)	0	NA
Department of Energy	675	700	708	1.1
High energy physics	464	475	495	4.2
Nuclear physics	211	225	213	-5.4
Superconducting Super Collider 1/	0	0	0	NA

1/ None of the funding provided for the termination of the SSC in fiscal years 1994 and 1995 is classified as support for R&D.

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

KEY: NA = Not applicable

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; budget justification documents; and supplemental data obtained from the agencies' budget offices.

- Funds for mathematics and physical sciences will increase by 8 percent (a $50 million increase over 1995) and will account for 30 percent—$681 million—of the proposed NSF research budget authority. Through this directorate, NSF provides over 70 percent of academic research support for ground-based astronomy and nearly 60 percent for core mathematics.

- The Geosciences Directorate is proposed to receive the second-largest absolute increase, $30 million, to $431 million. This total will provide about 70 percent of Federal support for academic research in atmospheric, geological, and oceanographic science.

- An 8-percent increase is proposed for NSF's Engineering Directorate, bringing its funding to $344 million in 1996. Of this total, $65 million is proposed for the 21 Engineering Research Centers and over 50 State Industry/University Cooperative Research Centers for which NSF provides funding.

- NSF's Computer and Information Science and Engineering Directorate is to receive $17 million more for research in 1996, a 7.5-percent increase. This directorate provides over 50 percent of all Federal support for basic research in computer science and includes the NSF Supercomputer Centers and NSFNet, a communications network.

- General science programs at DOE are to decrease by only 1 percent, to $708 million. Research in other high energy physics programs is to increase by 4 percent, or $20 million. Nuclear physics research is to fall by 5 percent, or over $10 million.

ENERGY

Three agencies provide support for R&D activities in energy (function 270): the Department of Energy (DOE), which provides 95 percent of the funding in this area; the Tennessee Valley Authority (TVA); and the Nuclear Regulatory Commission (NRC). Total energy R&D budget authority is proposed to be $3.1 billion in 1996, a 7-percent increase. However, congressional House action proposes funding energy at 27 percent below the administration's request. Selected energy R&D funding changes are highlighted below.

- DOE's energy budget is proposed to increase 8 percent, to $2.9 billion in 1996. Energy budgets for TVA will increase 4 percent, to $57 million. NRC is slated for a slight drop (0.3 percent) in funding, which will keep the agency close to its FY 1995 level but $9 million below its FY 1995 level (table 12). Overall funding for energy-related basic research is proposed to reach $1.1 billion, after an 11-percent gain.

- Proposed 1996 R&D budget authority for DOE's fossil fuel programs—including the Clean Coal Technology Demonstration Program—is expected to decrease 3 percent in 1996.

- R&D on energy conservation is proposed to increase 26 percent, or $100 million, to $490 million. Programs under this subfunction category include building, industrial, and transportation technologies.

- An 8-percent increase is proposed for solar and renewable energy (includes solar energy, hydrogen research, geothermal energy, and hydropower) research—to $252 million in 1996. However, proposals from both the House and Senate would reduce this significantly below the administration's request.

- Magnetic fusion R&D is to decrease 16 percent, from $345 million to $290 million, completely reversing the 17-percent growth shown between FY 1994 and FY 1995.

- Basic energy sciences, which support both research and scientific facilities, are to receive a $110 million, or 19-percent, increase, to $720 million. Included in this funding category is the Scientific Facilities Utilization Initiative, a new program geared to make use of DOE's large capital investment in major facilities.

- DOE's biological and environmental research programs promote the development and application of biotechnology for purposes of health and environment. Proposed R&D in this area is to increase 1 percent, to $333 million. Research on the Human Genome is to account for 21 percent of this total.

Table 12. R&D budget authority for energy (270), Fiscal years 1994-96

Funding category	1994 actual	1995 estimated 2/	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total	2,873	2,856	3,069	7.4
Department of Energy	2,717	2,719	2,930	7.7
Fossil energy (271)	554	383	370	-3.4
Clean coal technology 2/	222	37	27	-27.3
Cooperative R&D	10	9	0	-100.0
Petroleum, coal, and gas program	323	336	343	1.9
Energy supply (271)	1,822	1,945	2,064	6.1
Nuclear fission	181	172	229	32.9
Civilian nuclear waste	7	1	0	-49.8
Magnetic fusion	296	345	290	-15.9
Solar energy	185	233	252	8.2
Energy storage systems	16	15	13	-12.9
Electric energy systems	25	28	33	18.2
Hydrogen	9	10	7	-22.8
Geothermal energy	21	34	35	4.6
Hydropower	1	5	1	-81.2
Energy research analysis	4	3	3	4.7
Environment, safety, and health	24	24	24	0.0
Small business innovative research	54	0	0	NA
Technology transfer	37	57	59	3.9
Technology partnership	0	0	3	NA
Advanced neutron source	16	20	0	-100.0
Basic energy sciences	578	607	720	18.6
University and science education	54	58	53	-7.8
Multiprogram lab support	2	7	9	34.7
Biological and environmental research	314	330	333	1.0
Human genome	61	69	70	1.3
All other research	253	261	263	0.9
Uranium enrichment 1/ (271)	3	3	6	148.0
Energy conservation (272)	338	390	490	25.7
Tennessee Valley Authority (271)	65	55	57	4.0
Energy information, policy, and regulation (276)	91	82	82	-0.3
Nuclear Regulatory Commission	91	82	82	-0.3

1/ DOE's uranium enrichment R&D activities were transferred to the U.S. Enrichment Corporation on July 1, 1993
2/ Fiscal year 1995 data do not reflect rescissions enacted in Public Laws 104-6 and 104-19. There is a rescission of $200 million from the Clean Coal Technology program for FY 1995.

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

KEY: NA = Not applicable

SOURCE : Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; DOE's budget justification documents; and supplemental data obtained from the agencies' budget offices.

ALL OTHER FUNCTIONS

Table 13. R&D budget authority for natural resources and environment (300), Fiscal years 1994-96

Funding category	1994 actual	1995 estimated	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total	2,062	2,067	2,208	6.8
Pollution control and abatement (304)				
Environmental Protection Agency	553	584	676	15.9
Air quality	86	79	84	7.0
Multimedia research	235	299	404	35.3
Acid deposition	10	2	0	-100.0
Global change	31	23	22	-3.9
Water quality	27	23	21	-7.2
Drinking water	20	22	22	-2.3
Pesticides	13	14	14	-1.6
Hazardous waste 1/	31	27	23	-14.7
Toxic substances	22	18	15	-14.9
Superfund research	70	67	60	-10.8
Leaking underground storage tanks (LUST)	1	1	1	0.6
Oil spill response research 1/	2	2	2	17.5
Program management and support	6	7	8	10.5
Conservation and land management (302)	217	222	228	2.9
Forest Service (USDA)	195	200	204	2.0
Department of Interior 2/, 3/	22	22	25	10.3
Recreational resources (303)	187	186	186	0.2
National Biological Service 3/ (Interior)	163	167	171	2.6
National Park Service (Interior)	24	19	15	-21.2
Water resources (301)	60	61	63	2.8
Corps of Engineers (DOD)	52	55	55	1.5
Bureau of Reclamation (Interior)	9	6	7	14.3
Other natural resources (306)	1,044	1,015	1,055	4.0
Geological Survey (Interior)	371	363	372	2.5
National Oceanic and Atmospheric Administration (Commerce)	564	549	597	8.7
Bureau of Mines (Interior)	109	103	86	-16.5

1/ Prior to FY 1994, oil spill research was funded under the Hazardous Waste program.

2/ Includes Bureau of Land Management, Office of Surface Mining and Reclamation, Minerals Management Service, and Office of the Secretary.

3/ Most R&D activities of the Fish and Wildlife Service, National Park Service, and Bureau of Land Management were transferred to the National Biological Service in FY 1994.

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

KEY: NA = Not applicable

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; budget justification documents; and supplemental data obtained from the agencies' budget offices.

Table 14. R&D budget authority for other natural resources (306), Fiscal years 1994-96

Funding category	1994 actual	1995 estimated	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total	1,044	1,015	1,055	4.0
U.S. Geologic Survey (Interior)	371	363	372	2.5
Geologic and mineral resource surveys and mapping	224	213	219	2.8
Water resources investigations	124	127	130	2.4
National mapping, geography, and survey	23	22	22	0.0
National Oceanic and Atmospheric Administration (Commerce)	564	549	597	8.7
Oceanic and atmospheric research	202	224	243	8.8
Climate and global change	64	71	89	26.0
All other research	138	153	154	0.8
National Marine Fisheries Services	175	197	218	10.7
Fishery products promotion and development 1/	7	9	9	0.0
All other research	168	188	210	11.2
National Ocean Service	20	21	29	33.5
National Weather Service	48	33	36	9.1
National Environmental Satellite, Data, and Information Service	8	8	9	0.6
Program support	51	56	54	-4.7
Fleet modernization, shipbuilding, and conversion	61	10	9	-9.7
Bureau of Mines (Interior)	109	103	86	-16.5

1/ Actual functional code is 376, other advancement of commerce.

NOTE: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

KEY: NA = Not applicable

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; budget justification documents; and supplemental data obtained from the agencies' budget offices.

Table 15. R&D budget authority for agriculture (352), Fiscal years 1994-96

Funding category	1994 actual	1995 estimated	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total	1,193	1,179	1,187	0.7
Department of Agriculture				
Agricultural Research Service	667	666	662	-0.6
Research on plant sciences	247	241	234	-2.8
Research on commodity conversion and delivery	133	139	137	-1.4
Research on animal sciences	113	112	111	-1.3
Research on soil, water, and air sciences	87	82	81	-1.2
Research on human nutrition	60	61	70	14.4
Integration of agricultural systems	27	30	29	-5.8
Cooperative State Research, Education and Extension Service	429	419	419	0.2
National Research Initiative	103	103	130	26.1
Plant systems	40	37	47	27.0
Animal systems	23	23	30	27.6
Natural resources and environment	22	17	27	62.2
Nutrition, food safety, and health	7	7	11	48.6
Processes and new products	7	7	9	29.8
Rural development, markets, and trade	4	4	7	75.7
Other research programs	0	8	0	-100.0
Payments under the Hatch Act	171	171	171	0.0
Special research grants	60	51	15	-70.8
Improved pest control	11	10	25	155.1
Payments to 1890 colleges and Tuskegee Institute (Evans-Allen)	28	28	28	0.0
McIntire-Stennis cooperative forestry	21	21	21	0.0
Other research programs	20	20	22	10.8
Administration	15	14	7	-49.9
Economic Research Service	55	54	55	2.1
Animal & Plant Health Inspection Service	19	19	19	-1.1
National Agricultural Statistics Service	4	4	4	2.0
Agricultural Marketing Service	5	5	5	0.0
Federal Grain Inspection Service	2	2	3	57.1
Foreign Agricultural Service	1	1	1	0.0
Rural Business Cooperative Development Service	11	10	19	94.4

NOTE: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

SOURCE: USDA's submission to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities;" budget justification documents; and supplemental data obtained from the USDA's budget office.

Table 16. R&D budget authority for transportation (400), Fiscal years 1994-96

Budget function	1994 actual	1995 estimated	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total	1,888	1,865	1,984	6.4
Air transportation (402)	1,546	1,483	1,561	5.2
National Aeronautics and Space Admin 1/	1,271	1,204	1,273	5.7
Aeronautical research and technology	1,251	1,204	1,273	5.7
Transatmospheric research and technology	20	NA	NA	NA
Federal Aviation Administration (DOT)	275	280	288	3.0
Ground transportation (DOT) (401)	310	347	377	8.6
Federal Highway Administration 2/	248	273	NA	NA
Unified Transportation Infrastructure Improvement Program.1/	NA	NA	316	NA
National Highway Traffic Safety Administration	25	26	20	-22.3
Federal Railroad Administration	19	27	40	45.6
Federal Transit Administration 1/	17	21	NA	NA
Water transportation (DOT) (403)	24	22	27	20.1
U.S. Coast Guard	22	20	22	11.1
Maritime Administration	2	3	5	87.2
Other transportation (DOT) (407) 3/	9	12	20	62.3

1/ Includes funds for research and research program management.
2/ DOT has proposed a restructuring of the department for FY 1996 which consolidates the R&D activities of the Federal Highway Administration and Federal Transit Administration under a new Unified Transportation Infrastructure Investment Program administered by a new Intermodal Transportation Administration. The R&D figures reflect a re-estimate of DOT's FY 1996 budget request conducted by the agency budget office in May 1995.
3/ Includes Office of the Secretary and the Research and Special Programs Administration.

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

KEY: NA = Not applicable

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 17. R&D budget authority for education, training, employment, and social services (500), Fiscal years 1994-96

Budget function	1994 actual	1995 estimated	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total	373	371	415	11.6
Research and general education aids (501, 502, 503)	255	257	268	4.4
Department of Education programs	123	124	132	5.9
Smithsonian Institution programs	131	132	136	3.0
Social services (506)	63	60	60	-0.8
Administration for Children and Families (DHHS)	13	12	12	-1.7
Rehabilitation services (Education)	50	49	48	-0.6
Training and employment (504) (Labor's Employment and Training Admin.)	44	36	67	88.3
Other labor services (505) (Labor)	12	19	20	4.5

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 18. R&D budget authority for the Agency for International Development (AID) (151), Fiscal years 1994-96

Funding category	1994 actual	1995 estimated	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total (151).....	254	288	224	-22.2
Agency for International Development (AID):				
Africa.....	66	75	67	-10.7
Asia / Near East.....	16	46	21	-54.3
Europe and N.I.S.....	20	11	8	-27.3
Latin America / Caribbean.....	17	18	35	94.4
Global Programs.....	135	138	95	-31.2

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

SOURCE: AID submission to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities".

Table 19. R&D budget authority for commerce and housing credit (376), Fiscal years 1994-96

Funding category	1994 actual	1995 estimated 1/	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total	380	633	729	15.2
Department of Commerce				
National Institute of Standards and Technology (NIST)	371	623	718	15.3
Electronics & electrical engineering	29	35	43	22.0
Manufacturing engineering	14	19	20	4.1
Chemical science and technology	22	31	37	19.4
Physics	25	25	26	2.4
Materials science	34	40	44	10.9
Building and fire research	12	10	15	57.9
Computer systems	27	35	43	24.1
Applied math & scientific computing	7	7	7	2.7
Technology assistance	2	1	4	591.0
Research support activities	11	12	12	2.6
Industrial technology services				
Advanced Technology Program 1/	189	409	466	14.0
Quality Program	0	0	0	NA
Bureau of the Census	5	5	6	5.8
National Telecommunications and Information Administration	4	5	5	12.0

1/ Fiscal year 1995 data do not reflect rescissions enacted in Public Laws 104-6 and 104-19. There is a rescission of approximately $86 million in R&D from the Advanced Technology Program in FY 1995

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

KEY: NA = Not applicable

SOURCE: Departmental submission to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 20. R&D budget authority for veterans benefits and services (700), Fiscal years 1994-96

Funding category	1994 actual	1995 estimated	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total	265	265	271	2.1
Department of Veterans Affairs				
Medical and prosthetic research	265	265	271	2.1

NOTES: Includes administration and operating expenses related to the VA's research.

SOURCE: Departmental submission to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities."

Table 21. R&D budget authority for community and regional development (450), Fiscal years 1994-96

Funding category	1994 actual	1995 estimated	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total	68	74	83	12.6
Tennessee Valley Authority	31	33	41	24.5
Department of Housing and Urban Development	36	41	41	0.7
Department of Commerce				
Economic Development Administration	1	1	2	200.0

NOTE: Because of rounding, components may not add to the totals shown. Percentage change is derived from unrounded data.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 22. R&D budget authority for general government (800), Fiscal years 1994-96

Funding category	1994 actual	1995 estimated	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total	0	0	0	NA
Department of Treasury				
Engraving and Printing	0	0	0	NA

Department of Treasury activities contain no R&D as redefined by the Office of Management and Budget. As a result, the Department of Treasury no longer reports R&D data.

NOTE: Percentage change is derived from unrounded data.

KEY: NA = Not applicable

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices

Table 23. R&D budget authority for administration of justice (750), Fiscal years 1994-96

Funding category	1994 actual	1995 estimated	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total	46	54	55	2.7
Department of Justice	46	54	55	2.7
Office of Justice Programs	29	33	36	7.7
Federal Bureau of Investigation	2	5	5	0.0
Federal Prison System	13	13	13	-1.1
Drug Enforcement Administration	2	2	1	-54.9
Immigration and Naturalization Service	1	1	1	0.6
Department of Treasury 1/	0	0	0	NA
U.S. Customs Service	0	0	0	NA
Financial Crimes Enforcement Network	0	0	0	NA

1/ Some programs in the Department of Treasury were formerly classified as R&D, but have been reclassified by the Office of Management and Budget as non-R&D. Thus, the Department of Treasury no longer reports R&D data.

NOTE: Because of rounding, components may not add to the totals shown. Percentage change is derived from unrounded data.

KEY: NA = Not applicable

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental dataobtained from the agencies' budget offices.

Table 24. R&D budget authority for income security (600), Fiscal years 1994-96

Funding category	1994 actual	1995 estimated	1996 proposed	Percent change 1995-96
	[In millions of dollars]			
Total	45	67	49	-27.0
Department of Health and Human Services	42	65	47	-27.8
Social Security Administration 1/	30	51	34	-33.0
Office of the Secretary	12	14	12	-8.5
Department of Labor	3	3	3	-7.2
Pension Benefit Guarantee Corporation	1	1	1	-31.8
Pension and Welfare Benefits Admin	2	2	2	2.9

1/ As of March 31, 1995 the Social Security Administration is an independent agency and is no longer part of the Department of Health and Human Services.

NOTE: Because of rounding, components may not add to the totals shown. Percentage change is derived from unrounded data.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

HISTORICAL TABLES

Table 25a. Federal R&D obligations, by selected budget function, Fiscal years 1955-60

[In millions of dollars]

Budget function	1955	1956	1957	1958	1959	1960
Total	2,533	2,988	3,932	4,570	6,694	7,522
National defense	2,151	2,535	3,327	3,801	5,556	6,107
Health	67	83	140	177	233	305
All other functions	315	370	465	592	904	1,140

NOTE: Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 25b. Federal R&D obligations, by selected budget function, Fiscal years 1961-66

[In millions of dollars]

Budget function	1961	1962	1963	1964	1965	1966
Total	9,059	10,290	12,495	14,225	14,614	15,320
National defense	7,005	7,238	7,764	7,829	7,342	7,536
Health	405	551	626	728	792	900
Space research and technology	777	1,413	2,812	4,241	4,887	4,976
Energy	373	448	515	571	585	575
General science	137	187	246	277	304	377
Natural resources and environment	73	108	120	134	159	189
Transportation	55	101	142	122	147	251
Agriculture	125	136	146	165	195	201
All other functions	108	107	125	160	203	315

NOTE: Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 25c. Federal R&D obligations, by budget function, Fiscal years 1967-72

[In millions of dollars]

Budget function	1967	1968	1969	1970	1971	1972
Total	16,529	15,921	15,641	15,339	15,543	16,496
National defense	8,566	8,275	8,356	7,981	8,110	8,902
Health	915	1,021	1,088	1,084	1,288	1,547
Space research and technology	4,778	4,304	3,799	3,606	3,048	2,932
Energy	600	657	597	574	556	574
General science	409	437	433	452	513	625
Natural resources and environment	320	331	323	340	416	479
Transportation	380	304	404	535	728	558
Agriculture	218	217	221	238	259	294
Education, training, employment, and social services	154	166	169	164	215	235
International affairs	18	17	26	32	32	29
Veterans benefits and services	41	45	50	59	63	69
Commerce and housing credit	43	48	54	79	90	50
Community and regional development	37	44	32	47	65	66
Administration of justice	(1/)	1	5	9	10	23
Income security	48	50	78	136	145	106
General government	3	5	5	6	7	8

1/ Less than $500,000

NOTE: Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 25d. Federal R&D obligations, by budget function, Fiscal years 1973-77

[In millions of dollars]

Budget function	1973	1974	1975	1976	1977
Total	16,800	17,410	19,039	20,780	23,450
National defense	9,002	9,016	9,679	10,430	11,864
Health	1,585	2,069	2,170	2,351	2,629
Space research and technology	2,824	2,702	2,764	3,130	2,832
Energy	630	759	1,363	1,649	2,562
General science	658	749	813	858	974
Natural resources and environment	554	516	624	683	753
Transportation	572	693	635	631	708
Agriculture	308	313	342	383	457
Education, training, employment, and social services	290	236	239	255	230
International affairs	28	24	29	42	66
Veterans benefits and services	74	85	95	98	107
Commerce and housing credit	50	51	65	69	71
Community and regional development	78	82	93	109	101
Administration of justice	33	35	44	35	30
Income security	106	71	72	48	55
General government	7	9	12	12	13

NOTE: Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 25e. Federal R&D budget authority, by budget function: Fiscal years 1978-83

[In millions of dollars]

Budget function	1978	1979	1980	1981	1982	1983
Total	25,976	28,208	29,739	33,735	36,115	38,768
National defense	12,899	13,791	14,946	18,413	22,070	24,936
Health	2,968	3,401	3,694	3,871	3,869	4,298
Space research and technology	2,939	3,136	2,738	3,111	2,584	2,134
Energy	3,134	3,461	3,603	3,501	3,012	2,578
General science	1,050	1,119	1,233	1,340	1,359	1,502
Natural resources and environment	904	1,010	999	1,061	965	952
Transportation	768	798	887	869	791	876
Agriculture	501	552	585	659	693	745
Education, training, employment and social services	345	354	468	298	228	189
International affairs	57	117	125	160	165	177
Veterans benefits and services	111	123	126	143	139	157
Commerce and housing credit	77	93	101	106	104	107
Community and regional development	92	127	119	104	63	44
Administration of justice	44	47	45	34	31	37
Income security	67	57	47	43	32	32
General government	20	23	22	22	10	6

NOTE: Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 25f. Federal R&D budget authority, by budget function: Fiscal years 1984-89

[In millions of dollars]

Budget function	1984	1985	1986	1987	1988	1989
Total	44,214	49,887	53,249	57,069	59,106	62,138
National defense	29,287	33,698	36,926	39,152	40,099	40,665
Health	4,779	5,418	5,565	6,556	7,076	7,773
Space research and technology	2,300	2,725	2,894	3,398	3,683	4,555
Energy	2,581	2,389	2,315	2,115	2,155	2,436
General science	1,676	1,862	1,873	2,042	2,160	2,373
Natural resources and environment	963	1,059	1,062	1,133	1,160	1,255
Transportation	1,040	1,030	917	908	896	1,064
Agriculture	762	836	815	822	882	907
Education, training, employment and social services	200	220	248	267	285	347
International affairs	192	210	211	223	224	279
Veterans benefits and services	218	193	183	215	195	212
Commerce and housing credit	110	114	111	110	122	128
Community and regional development	46	50	59	37	79	57
Administration of justice	24	47	41	49	51	45
Income security	26	21	14	25	23	27
General government	8	17	14	17	17	15

NOTE: Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Res and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 25g. Federal R&D budget authority, by budget function, fiscal years 1990-96

[In millions of dollars]

Budget function	1990	1991	1992	1993	1994	1995 2/	1996
Total	63,781	65,898	68,398	69,884	68,331	70,309	70,503
National defense	39,925	39,328	40,061	41,249	37,764	38,518	37,571
Health	8,308	9,226	10,055	10,280	10,993	11,356	11,785
Space research and technology	5,765	6,511	6,744	6,988	7,414	7,874	7,863
Energy	2,726	2,953	3,153	2,677	2,873	2,856	3,069
General science	2,410	2,635	2,659	2,691	2,712	2,843	3,011
Natural resources and environment	1,386	1,582	1,688	1,802	2,062	2,067	2,208
Transportation	1,045	1,231	1,523	1,703	1,888	1,865	1,984
Agriculture	950	1,052	1,155	1,152	1,193	1,179	1,187
Education, training, employment, and social services	374	433	365	348	373	371	415
International affairs	375	378	371	382	254	288	224
Veterans benefits and services	216	219	245	250	265	265	271
Commerce and housing credit	140	178	192	220	380	633	729
Community and regional development	67	88	95	57	68	74	83
Administration of justice	44	51	51	49	46	54	55
Income security	33	30	37	36	45	67	49
General government	17	4	4	(1/)	0	0	0

1/ Less than $500,000

2/ Fiscal year 1995 data do not reflect rescissions enacted in Public Laws 104-6 and 104-19.

NOTE: Data for 1990-94 are actual budget authority. Data for 1995 are estimated, and data for 1996 are proposed based on the fiscal year 1996 budget.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

Table 26a. Budget authority for basic research, by budget function, Fiscal years 1978-83

[In millions of dollars]

Budget function	1978	1979	1980	1981	1982	1983
Total	3,665	4,108	4,716	5,107	5,305	6,247
Health	1,246	1,579	1,761	1,951	1,953	2,475
General science	962	1,026	1,152	1,256	1,296	1,439
Space research and technology	412	440	482	445	434	501
National defense	320	365	552	610	696	788
Energy	157	172	200	220	260	320
Agriculture	197	222	246	281	295	326
Natural resources and environment	207	131	136	131	139	156
Transportation	70	75	79	89	102	117
Education, training, employment, and social services	57	59	61	66	78	70
Commerce and housing credit	9	10	15	17	17	19
Veterans benefits and services	9	10	14	15	13	14
Administration of justice	10	10	9	5	4	4
Community and regional development	8	8	8	5	7	6
General government	0	(1/)	(1/)	3	2	3
International affairs	(1/)	0	0	12	10	10
Income security	2	1	1	3	0	0

1/ Less than $500,000

NOTE: Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

Table 26b. Budget authority for basic research, by budget function, Fiscal years 1984-89

[In millions of dollars]

Budget function	1984	1985	1986	1987	1988	1989
Total	7,072	7,810	8,193	9,021	9,553	10,648
Health	2,813	3,243	3,324	3,851	4,087	4,413
General science	1,606	1,779	1,795	1,942	2,061	2,265
Space research and technology	646	498	737	843	944	1,099
National defense	845	856	960	900	905	965
Energy	365	428	456	511	571	703
Agriculture	353	406	390	397	428	433
Natural resources and environment	192	206	204	206	210	331
Transportation	125	255	184	231	197	287
Education, training, employment, and social services	77	86	83	78	83	92
Commerce and housing credit	20	23	26	26	28	29
Veterans benefits and services	15	15	15	17	17	16
Administration of justice	5	4	5	8	8	7
Community and regional development	5	6	6	4	7	3
General government	3	4	5	4	5	3
International affairs	3	4	5	3	3	3
Income security	0	0	0	0	0	0

NOTE: Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

Table 26c. Budget authority for basic research, by budget function, fiscal years 1990-96

[In millions of dollars]

Budget function	1990	1991	1992	1993	1994	estimated 1995 1/	proposed 1996
Total	11,288	12,405	12,973	13,440	13,548	13,807	14,308
Health	4,661	5,021	5,506	5,700	5,889	6,088	6,312
General science	2,306	2,526	2,532	2,553	2,542	2,658	2,816
Space research and technology	1,389	1,479	1,499	1,588	1,796	1,697	1,682
National defense	964	1,188	1,147	1,323	1,174	1,234	1,221
Energy	761	878	921	917	921	967	1,069
Agriculture	456	486	528	553	567	559	569
Natural resources and environment	336	389	383	376	224	222	237
Transportation	242	246	266	238	220	156	161
Education, training, employment, and social services	106	115	118	121	145	152	156
Commerce and housing credit	31	39	35	34	38	44	49
Veterans benefits and services	16	16	16	16	16	16	17
Administration of justice	9	6	5	5	5	6	6
Community and regional development	3	10	11	10	9	9	12
General government	3	0	0	0	0	0	0
International affairs	4	6	6	8	2	1	1
Income security	0	0	0	0	0	0	0

1/ Fiscal year 1995 data do not reflect rescissions enacted in Public Laws 104-6 and 104-19.

NOTE: Data for 1990-94 are actual budget authority. Data for 1995 are estimated, and data for 1996 are proposed based on the fiscal year 1996 budget. Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

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