

CHANGING COMPOSITION OF FEDERAL FUNDING FOR RESEARCH AND DEVELOPMENT AND R&D PLANT SINCE 1990

by Ronald L. Meeks

New data from the National Science Foundation's (NSF's) annual Survey of Federal Funds for Research and Development demonstrate the increasing importance of non-defense, especially health-related, research and development (R&D) in the portfolio of R&D activities funded by the Federal Government. The fiscal year (FY) 2002 preliminary estimates for total Federal obligations for research and development and R&D plant of \$84.9 billion represent a 2.1-percent annual growth rate over the period from FYs 1990 to 2002. However, the annual growth rates for departments vary considerably, with a decline for the Department of Defense (DoD) and growth for the other major departments, particularly Health and Human Services (HHS) (table 1).

Based on the FY 2002 budget requests, the six agencies providing the most funds are expected to provide 95 percent of the total Federal R&D and R&D plant funding in FY 2002. These six agencies are DoD, HHS, National Aeronautics and Space Administration (NASA), Department of Energy (DOE), NSF, and Department of Agriculture (USDA).

The statistics here are calculated from NSF's annual Survey of Federal Funds for Research and Development. The data were collected in 2001, and agencies provided actual data for FY 2000. Agencies also reported preliminary data for FYs 2001 and 2002. Data are subject to change as Federal agencies' budgets are updated to reflect approved programs.

Agency Shares

While DoD continues to be the largest Federal funder of R&D, the FY 2002 budget request for DoD was below actual obligations in FY 1990. The DoD share of Federal obligations for R&D and R&D plant has fallen from 57 percent in FY 1990 to an expected 40 percent in FY 2002. The last time the DoD share was

DoD's share of total Federal funding for R&D and R&D plant is expected to be only 40 percent in FY 2002 compared to a 57-percent share in FY 1990.

this small was in FY 1979 when the agency provided 43 percent of the Federal total. DoD's R&D and R&D plant dollars have dropped at an average annual rate of nearly 1 percent (a 3-percent decrease in constant 1996 dollars) between FYs 1990 and 2002. HHS provides the second largest share of total Federal R&D and R&D plant funding; this share was nearly 29 percent in FY 2002, compared with 13 percent in FY 1990. The growth in this agency's share reflects not only a relative decline in DoD's R&D funding but also the more recent dramatic rise in the HHS (primarily the National Institutes of Health, NIH) R&D budget. The HHS R&D and R&D plant budget in FY 2002 reflects a 9-percent average annual increase over its FY 1990 obligations (a nearly 7-percent increase in constant 1996 dollars).



Table 1. Federal obligations for research and development and for R&D plant: fiscal years (FYs) 1990 - 2002

By agency	FY 1990 actual	FY 1995 actual	FY 1998 actual	FY 1999 actual	FY 2000 actual	FY 2001 preliminary	FY 2002 preliminary	Average annual percent change FYs 1990-2002
(Millions of current dollars)								
Total.....	65,831	70,443	73,743	77,386	77,356	85,452	84,938	2.1
DoD.....	37,755	33,857	35,352	35,753	33,215	36,457	34,324	-0.8
HHS.....	8,513	11,711	13,991	16,168	18,646	21,593	24,230	9.1
NASA.....	7,060	9,640	9,918	9,885	9,755	9,973	9,696	2.7
DOE.....	6,547	6,890	6,601	6,876	6,874	7,675	7,295	0.9
NSF.....	1,729	2,439	2,474	2,680	2,942	3,278	3,226	5.3
USDA.....	1,211	1,524	1,531	1,745	1,834	2,080	1,911	3.9
All other.....	3,016	4,383	3,878	4,280	4,091	4,397	4,255	2.9
(Millions of constant 1996 dollars)								
Total.....	76,503	71,851	71,319	73,807	72,383	78,317	76,239	0.0
DoD.....	43,876	34,534	34,190	34,100	31,080	33,413	30,809	-2.9
HHS.....	9,894	11,945	13,530	15,420	17,447	19,790	21,749	6.8
NASA.....	8,205	9,832	9,592	9,428	9,128	9,140	8,703	0.5
DOE.....	7,608	7,028	6,384	6,558	6,432	7,034	6,548	-1.2
NSF.....	2,009	2,488	2,392	2,556	2,753	3,004	2,896	3.1
USDA.....	1,407	1,554	1,480	1,664	1,716	1,906	1,716	1.7
All other.....	3,505	4,471	3,750	4,082	3,828	4,030	3,819	0.7

KEY: DoD = Department of Defense
HHS = Department of Health and Human Services
NASA = National Aeronautics and Space Administration
DOE = Department of Energy
NSF = National Science Foundation
USDA = Department of Agriculture

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Federal Funds for Research and Development: Fiscal Years 2000, 2001, and 2002

NASA has the third largest FY 2002 share (11 percent) of the total Federal R&D and R&D plant funding.¹ NASA's funding for R&D and R&D plant grew from \$7.1 billion in FY 1990 to \$9.7 billion in FY 2002, an estimated average rate of increase of nearly 3 percent (or a 0.5-percent increase in constant 1996 dollars).

Research by Field

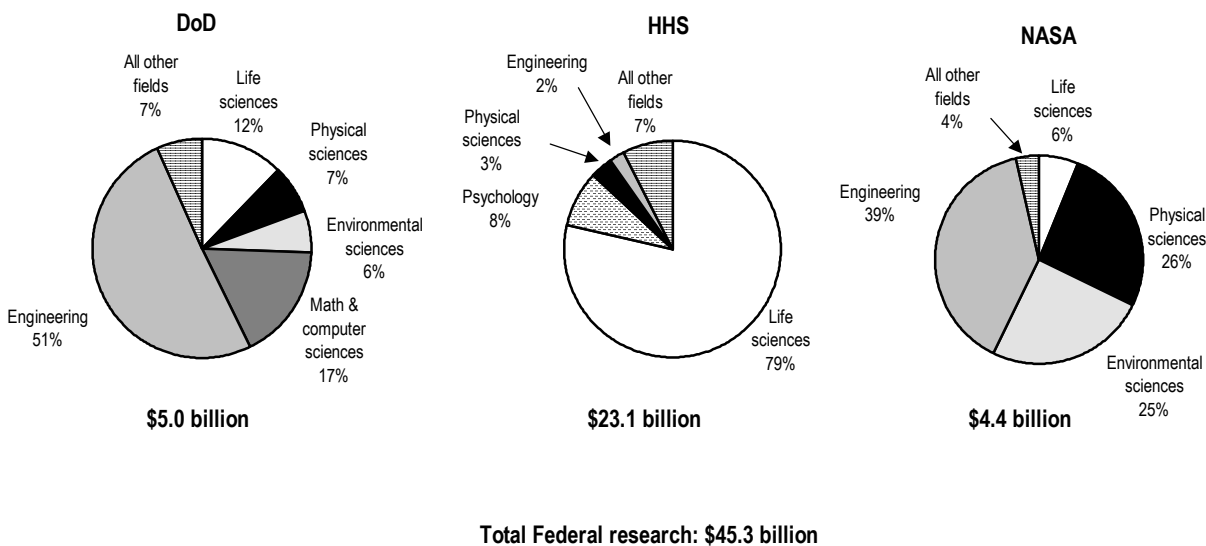
DoD, HHS, and NASA are not only the top three agencies in terms of R&D and R&D plant support, but also the top three agencies obligating the most funds for research only (basic research and applied research combined). The agencies exhibit quite distinct patterns

of research support. Total research obligations are reported for eight broad fields of science and engineering in the Federal Funds survey (life sciences; psychology; physical sciences; environmental sciences; mathematics and computer sciences; engineering; social sciences; and other sciences, not elsewhere classified). In FY 2002, combined research dollars from DoD, HHS, and NASA will account for 72 percent, or \$32.6 billion of the total \$45.3 billion in research money provided by the Federal Government.

DoD will allocate 51 percent (\$2.5 billion) of its total research money to engineering projects in FY 2002 (figure 1). The agency will obligate another 17 percent (\$0.9 billion) of its research funds to activities in mathematics and computer sciences. The life sciences

¹Beginning in FY 2000, NASA reclassified the Space Station as a physical asset and Space Station research as equipment and transferred funding for the program from R&D to R&D plant.

Figure 1. Expected distribution of Federal obligations for research, by field of science and engineering for selected agencies: fiscal year 2002



KEY: DoD = Department of Defense
HHS = Department of Health and Human Services
NASA = National Aeronautics and Space Administration

NOTES: DoD, HHS, and NASA are the three agencies with the largest levels of R&D and R&D plant support. Percents shown are based on unrounded data, while dollar values shown are based on rounded data.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Federal Funds for Research and Development: Fiscal Years 2000, 2001, and 2002

will account for 12 percent (\$0.6 billion) of DoD’s total research dollars. Funding shares for each of the other five fields are expected to range from 1 percent for the social sciences to 7 percent for the physical sciences.

HHS will provide 79 percent (\$18.2 billion) of its total research dollars to the life sciences (notably biomedical research).² The agency plans to obligate 8 percent (\$1.9 billion) of its total research money for psychology. The shares of the remaining six fields range from 1 percent (\$0.2 billion) for mathematics and computer sciences to 3 percent (\$0.8 billion) for the physical sciences.

²Beginning in FY 2001, NIH reclassified all its development activities as research. For a discussion of these NIH and NASA (see footnote 1) reporting changes, see SRS InfoBrief, “Classification Revisions Reduce Reported Federal Development Obligations,” (NSF-02-309, Arlington, VA: National Science Foundation).

NASA plans to obligate 39 percent (\$1.7 billion) of its research dollars to engineering projects and nearly equal portions in the physical sciences (26 percent, \$1.2 billion) and environmental sciences (25 percent, \$1.1 billion). The shares of the remaining five fields range from under 0.5 percent for the social sciences to 6 percent for the life sciences.

Data Collection Notes

The 31 Federal agencies that report R&D obligations to the Federal Funds survey submitted actual obligations for FY 2000 and preliminary data for FYs 2001 and 2002. Survey data include totals by funding agency, by character of work (basic research, applied research, development, and R&D plant), by field of science and engineering, and by performer of R&D. Data were reported during the period March through November 2001; therefore, these data for FYs 2001 and 2002 are

based on agencies' budget requests and do not necessarily represent actual appropriations. Agencies later revise their preliminary data to reflect actual changes in R&D program funding levels. Agencies may also provide changes to prior-year data to reflect program reclassifications or other corrections.

The data presented in this InfoBrief are being released in advance of the comprehensive Detailed Statistical Tables Report, *Federal Funds for Research and Development: Fiscal Years 2000, 2001, and 2002, Volume 50*.

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