

AAAS Analysis of R&D in the FY 2002 Budget

Table 1. R&D in the FY 2002 Budget by Agency
(budget authority in millions of dollars)

	FY 2000	FY 2001	FY 2002	Change FY 01-02	
	Actual	Estimate	Budget	Amount	Percent
Total R&D (Conduct and Facilities)					
Defense (military) 1/	39,959	42,258	45,855	3,597	8.5%
S&T (6.1-6.3 + medical) 1/	8,603	9,392	9,589	197	2.1%
All Other DOD R&D 1/	31,356	32,866	36,266	3,400	10.3%
Health and Human Services	18,182	20,859	23,496	2,637	12.6%
Nat'l Institutes of Health	17,234	19,710	22,395	2,685	13.6%
NASA	9,494	9,925	9,967	41	0.4%
Energy	6,956	7,744	7,399	-346	-4.5%
NNSA and other defense	3,201	3,499	3,542	42	1.2%
Energy and Science programs	3,755	4,245	3,857	-388	-9.1%
Nat'l Science Foundation	2,931	3,279	3,226	-52	-1.6%
Agriculture	1,776	1,961	1,803	-158	-8.1%
Commerce	1,174	1,201	1,110	-91	-7.6%
NOAA	643	726	772	47	6.4%
NIST	471	421	313	-108	-25.7%
Interior	618	631	593	-39	-6.1%
Transportation	607	747	798	51	6.8%
Environ. Protection Agency	558	609	569	-40	-6.5%
Veterans Affairs	645	703	722	19	2.7%
Education	238	265	259	-6	-2.3%
All Other	630	704	663	-41	-5.8%
Total R&D	83,769	90,887	96,459	5,572	6.1%
Defense R&D	43,160	45,757	49,397	3,639	8.0%
Nondefense R&D	40,609	45,130	47,062	1,933	4.3%
Nondefense R&D excluding NIH	23,374	25,420	24,668	-752	-3.0%
Basic Research	19,468	22,014	23,343	1,329	6.0%
Applied Research	18,957	21,439	22,458	1,019	4.8%
Development	40,425	42,367	45,561	3,195	7.5%
R&D Facilities and Equipment	4,919	5,068	5,097	29	0.6%

Source: AAAS, based on OMB data for R&D for FY 2002, agency budget justifications, and information from agency budget offices.

1/ FY 2002 DOD figures represent a projection from FY 2001 funding levels plus inflation, plus an additional \$2.6 billion (in development) for unspecified projects. The revised FY 2002 request will be released in May upon completion of the Defense Strategy Review.

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Table 2. Research in the FY 2002 Budget
(budget authority in millions of dollars)

	FY 2000 Actual	FY 2001 Estimate	FY 2002 Budget	Change FY 01-02	
				Amount	Percent
BASIC RESEARCH					
Defense (military) 1/	1,136	1,317	1,345	28	2.1%
Health and Human Services	10,099	11,537	12,973	1,436	12.4%
<i>Nat'l Institutes of Health</i>	10,097	11,535	12,971	1,436	12.4%
NASA	2,148	2,556	2,466	-90	-3.5%
Energy	2,263	2,372	2,347	-25	-1.1%
Nat'l Science Foundation	2,540	2,796	2,799	3	0.1%
Agriculture	684	742	717	-25	-3.4%
Commerce (NIST)	39	42	40	-2	-4.3%
Interior	52	57	54	-3	-5.1%
Transportation	10	17	21	4	23.4%
Environ. Protection Agency	58	105	98	-7	-6.7%
Smithsonian	103	105	102	-3	-2.9%
Veterans Affairs	266	290	304	14	4.8%
All Other	69	78	77	-1	-1.3%
Total Basic Research	19,468	22,014	23,343	1,329	6.0%
<i>Basic research excluding NIH</i>	9,370	10,478	10,372	-107	-1.0%
RESEARCH (basic + applied)					
Defense (military; incl. medical) 1/	4,840	5,393	5,514	121	2.2%
Health and Human Services	17,886	20,575	23,046	2,471	12.0%
<i>Nat'l Institutes of Health</i>	16,993	19,478	21,988	2,510	12.9%
NASA	3,690	4,243	4,277	34	0.8%
Energy	4,149	4,597	4,474	-123	-2.7%
Nat'l Science Foundation	2,724	3,016	3,017	1	0.0%
Agriculture	1,518	1,664	1,546	-118	-7.1%
Commerce	896	995	987	-8	-0.8%
NOAA	601	692	741	49	7.1%
NIST	278	296	239	-57	-19.2%
Interior	572	594	557	-37	-6.2%
Transportation	407	477	530	53	11.0%
Environ. Protection Agency	445	475	442	-33	-6.9%
Veterans Affairs	633	689	707	18	2.6%
Education	153	167	169	2	1.2%
Agency for Int'l Develop.	194	213	203	-10	-4.7%
Smithsonian	103	105	102	-3	-2.9%
All Other	214	250	230	-20	-8.0%
Total Research	38,425	43,453	45,801	2,349	5.4%
<i>Total research excluding NIH</i>	21,432	23,974	23,813	-161	-0.7%

Source: AAAS, based on OMB data for R&D for FY 2002, agency budget justifications, and information from agency budget offices.

1/ FY 2002 DOD figures represent a projection from FY 2001 funding levels plus inflation

A revised FY 2002 request will be released in May upon completion of the Defense Strategy Review.

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Table 3. AAAS Analysis of the Outyear Projections for R&D in the FY 2002 Budget
(budget authority in millions of dollars)

	FY 2001 Estimate	FY 2002 Budget	FY 2003 Projected	FY 2004 Projected	FY 2005 Projected	FY 2006 Projected	% Change FY 01-06 current \$	constant \$
Total R&D (Conduct and Facilities)								
Defense (military) *	--	--	--	--	--	--	--	--
Health & Human Services	20,859	23,496	27,503	28,013	28,632	29,265	40.3%	26.5%
<i>Nat'l Institutes of Health</i>	19,710	22,395	26,383	26,873	27,472	28,084	42.5%	28.4%
NASA	9,925	9,967	10,493	10,808	11,034	11,385	14.7%	3.4%
Energy (nondefense only)	4,245	3,857	3,986	4,078	4,170	4,264	0.4%	-9.5%
Nat'l Science Foundation	3,279	3,226	3,298	3,371	3,447	3,524	7.5%	-3.1%
Agriculture	1,961	1,803	1,842	1,880	1,922	1,963	0.1%	-9.7%
Commerce	1,201	1,110	1,134	1,161	1,184	1,210	0.7%	-9.2%
Interior	631	593	606	620	633	647	2.5%	-7.6%
Transportation	747	798	765	784	804	824	10.3%	-0.6%
Environ. Protection Agcy.	609	569	582	595	608	621	2.1%	-8.0%
Veterans Affairs	703	722	738	754	772	788	12.1%	1.1%
All Other	969	922	943	966	988	1,011	4.4%	-5.9%
Nondefense R&D	45,130	47,062	51,890	53,030	54,195	55,503	23.0%	10.9%
<i>Nondef. R&D minus NIH</i>	<i>25,420</i>	<i>24,668</i>	<i>25,507</i>	<i>26,157</i>	<i>26,723</i>	<i>27,419</i>	<i>7.9%</i>	<i>-2.8%</i>

Source: AAAS analyses of defense and nondefense R&D, based on detailed budget account projections in the Public Budget Database of the *Budget of the United States Government FY 2002*.

FY 2001 figures represent latest agency estimates of R&D. FY 2002 figures represent latest revised agency requests. Constant dollar conversions based on GDP deflators from OMB.

* **DOD outyear projections will not be available until completion of the Defense Strategy Review (late May). All defense R&D (DOD + DOE defense) excluded from this table.**

This table will be revised to include defense R&D when DOD data become available.

The detailed analysis of nondefense R&D containing agency details and methodology

and other outyear projections data are available on the World Wide Web at

<http://www.aaas.org/spp/R&D/> in the "Guide to R&D Funding Data" section (see "Outyear Projections").

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Table 4. Major Functional Categories of R&D
(budget authority in millions of dollars)

	FY 2000	FY 2001	FY 2002	Change FY 01-02		% Share of Total ('02)
	Actual	Estimate	Budget	Amount	Percent	
Defense ¹	43,160	45,757	49,397	3,639	8.0%	51.2%
Nondefense ²	40,609	45,130	47,062	1,933	4.3%	48.8%
Space	8,437	8,986	9,076	90	1.0%	9.4%
Health	18,758	21,506	24,173	2,667	12.4%	25.1%
Energy	1,146	1,340	994	-346	-25.8%	1.0%
General Science	5,593	6,234	6,156	-77	-1.2%	6.4%
Environment ³	2,082	2,271	2,230	-41	-1.8%	2.3%
Agriculture	1,561	1,716	1,553	-163	-9.5%	1.6%
Transportation	1,664	1,686	1,688	2	0.1%	1.7%
Commerce	530	475	337	-138	-29.1%	0.3%
International	200	216	206	-10	-4.6%	0.2%
All Other	637	700	649	-51	-7.3%	0.7%
Total R&D	83,769	90,887	96,459	5,572	6.1%	100.0%

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

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

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

¹ FY 2002 DOD figures represent a projection from FY 2001 funding levels plus inflation

A revised FY 2002 request will be released in May upon completion of the Defense Strategy Review.

² Includes all R&D not in defense.

³ Includes natural resources R&D.

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Table 5. Total U.S. R&D, 1998-2000
(expenditures in millions of dollars)

(calendar years)	1998 Actual	1999 Actual	2000 Preliminary	% Change 1999-2000	% Share of Total ('00)
U.S. R&D by funding source:					
Federal Government	66,827	67,711	69,627	2.8%	26.3%
Industry	147,867	163,397	181,040	10.8%	68.4%
Universities and Colleges	5,183	5,562	5,969	7.3%	2.3%
Nonprofits	5,007	5,390	5,789	7.4%	2.2%
Nonfederal Government	1,987	2,083	2,197	5.5%	0.8%
Total U.S. R&D	226,872	244,143	264,622	8.4%	100.0%
U.S. R&D by performer:					
Federal Government	17,362	18,332	19,143	4.4%	7.2%
Industry	167,102	180,450	197,280	9.3%	74.6%
Universities and Colleges	26,664	28,363	30,154	6.3%	11.4%
FFRDCs *	8,510	8,980	9,294	3.5%	3.5%
Nonprofits	7,234	8,017	8,750	9.1%	3.3%
Total U.S. R&D	226,872	244,143	264,622	8.4%	100.0%
U.S. R&D by character of work:					
Basic Research	41,294	44,625	47,903	7.3%	18.1%
<i>(from federal sources)</i>	20,613	22,140	22,310	0.8%	8.4%
<i>(from industry sources)</i>	13,397	14,667	16,223	10.6%	6.1%
Applied Research	45,702	51,632	55,041	6.6%	20.8%
Development	139,875	147,886	161,679	9.3%	61.1%
Total U.S. R&D	226,872	244,143	264,622	8.4%	100.0%
U.S. GDP** (billions of dollars)	8,790	9,299	9,963	7.1%	
U.S. R&D / GDP	2.58%	2.63%	2.66%		

Source: National Science Foundation, *National Patterns of R&D Resources 2000*, 2001.The complete data are available at <http://www.nsf.gov/sbe/srs/stats.htm>.

* Federally Funded Research and Development Centers.

** Gross Domestic Product.

These data are based on performer surveys of expenditures for calendar years, and thus differ from data presented elsewhere in this report (agency budget authority data by fiscal year). These data also exclude R&D facilities.

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

	FY 2000	FY 2001	FY 2002	Change FY 01-02	
	Actual	Estimate	Budget	Amount	Percent
Defense ¹	39,959	42,258	45,855	3,597	8.5%
VA, HUD, Independent Agencies	13,673	14,570	14,527	-43	-0.3%
Labor, HHS, Education	18,329	21,050	23,670	2,620	12.4%
Energy & Water	6,362	7,024	6,906	-118	-1.7%
Interior	1,642	1,825	1,567	-259	-14.2%
Agriculture	1,693	1,854	1,693	-161	-8.7%
Commerce, Justice, State	1,247	1,291	1,184	-107	-8.3%
Transportation	607	747	798	51	6.8%
Foreign Operations	200	216	206	-10	-4.6%
Treasury, Postal, Gen. Gov't.	56	52	54	2	3.8%
Total R&D	83,769	90,887	96,459	5,572	6.1%

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

¹ Some DOD R&D may be funded in Military Construction.

R&D as Percent of Discretionary Appropriations by Appropriations Subcommittee for FY 2002 (budget authority in **billions** of dollars)
(President's FY 2002 request)

	FY 2002 R&D	FY 2002 Discr.	R&D as % of Discr.	Agencies and Programs
Defense ¹	45.9	301.0	15.2%	Most DOD
VA, HUD, Independent Agencies	14.5	83.1	17.5%	VA, HUD, NSF, NASA, EPA
Labor, HHS, Education	23.7	116.4	20.3%	Labor, HHS, Education
Energy & Water	6.9	22.5	30.7%	Most of DOE, Corps of Eng., NRC
Interior	1.6	18.1	8.7%	Interior, some DOE, FS, Smithsonian
Agriculture	1.7	15.4	11.0%	Most of USDA (except Forest Serv.)
Commerce, Justice, State	1.2	37.9	3.1%	Commerce, Justice, State
Transportation	0.8	16.2	4.9%	Department of Transportation
Foreign Operations	0.2	15.2	1.4%	Agcy. for Int'l Development; Int'l Orgs.
Treasury, Postal, Gen. Gov't.	0.1	16.6	0.3%	Treasury, Executive Branch
All Other ²	0.0	18.2	0.0%	Congress, some DOD, DC
Total	96.5	660.6	14.6%	
Defense Discretionary	49.4	325.1	15.2%	DOD and DOE nuclear weapons
Nondefense Discretionary	47.1	335.5	14.0%	All other discretionary

Source: AAAS, based on estimates of R&D and *Budget of the U.S. Government FY 2002*.

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

² District of Columbia, Legislative Branch, and Military Construction.

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

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