

AAAS Analysis of R&D in the FY 2004 Budget

Table 1. R&D in the FY 2004 Budget by Agency
(budget authority in millions of dollars)

| | FY 2002 Actual | FY 2003 Estimate 1/ | FY 2004 Budget | Change FY 03-04 | |
|---|-------------------|------------------------|-------------------|-----------------|---------|
| | | | | Amount | Percent |
| Total R&D (Conduct and Facilities) | | | | | |
| Defense (military) | 49,877 | 58,646 | 62,821 | 4,175 | 7.1% |
| <i>S&T (6.1-6.3 + medical)</i> | 10,337 | 11,232 | 10,297 | -935 | -8.3% |
| <i>All Other DOD R&D</i> | 39,539 | 47,415 | 52,524 | 5,109 | 10.8% |
| Health and Human Services | 24,016 | 27,550 | 28,203 | 653 | 2.4% |
| <i>Nat'l Institutes of Health</i> | 22,714 | 26,245 | 26,946 | 700 | 2.7% |
| NASA | 10,224 | 10,999 | 11,025 | 26 | 0.2% |
| Energy | 8,078 | 8,205 | 8,535 | 330 | 4.0% |
| <i>NNSA and other defense</i> | 3,761 | 3,849 | 4,180 | 330 | 8.6% |
| <i>Office of Science</i> | 3,074 | 3,075 | 3,066 | -9 | -0.3% |
| <i>Energy programs</i> | 1,244 | 1,281 | 1,289 | 8 | 0.6% |
| Nat'l Science Foundation | 3,525 | 3,927 | 4,035 | 109 | 2.8% |
| Agriculture | 2,112 | 2,166 | 1,943 | -223 | -10.3% |
| Commerce | 1,227 | 1,248 | 1,100 | -148 | -11.9% |
| NOAA | 677 | 684 | 675 | -9 | -1.4% |
| NIST | 503 | 527 | 410 | -117 | -22.1% |
| Interior | 623 | 627 | 633 | 6 | 1.0% |
| Transportation | 778 | 702 | 693 | -9 | -1.2% |
| Environ. Protection Agency | 592 | 643 | 607 | -37 | -5.7% |
| Veterans Affairs | 756 | 800 | 822 | 22 | 2.8% |
| Education | 265 | 315 | 275 | -40 | -12.8% |
| Homeland Security * | 266 | 669 | 1,001 | 332 | 49.6% |
| All Other | 760 | 798 | 792 | -6 | -0.7% |
| Total R&D | 103,100 | 117,297 | 122,485 | 5,189 | 4.4% |
| Defense R&D | 53,731 | 62,986 | 67,515 | 4,530 | 7.2% |
| Nondefense R&D | 49,368 | 54,311 | 54,970 | 659 | 1.2% |
| <i>Nondefense R&D excluding NIH</i> | 26,654 | 28,066 | 28,024 | -42 | -0.1% |
| Basic Research | 23,848 | 26,048 | 26,861 | 813 | 3.1% |
| Applied Research | 24,407 | 26,878 | 26,870 | -8 | 0.0% |
| Development | 49,412 | 58,599 | 64,284 | 5,684 | 9.7% |
| R&D Facilities and Equipment | 5,432 | 5,772 | 4,471 | -1,301 | -22.5% |

Source: AAAS, based on OMB data for R&D for FY 2004, agency budget justifications, and information from agency budget offices.

* DHS figures for all years adjusted to include programs to be transferred to DHS from other agencies.

1/ FY 2003 figures revised to reflect AAAS estimates of final FY 2003 appropriations.

AAAS - REVISED March 7, 2003

AAAS Analysis of R&D in the FY 2004 Budget

Table 2. Research in the FY 2004 Budget

(budget authority in millions of dollars)

| | FY 2002 | FY 2003 | FY 2004 | Change FY 03-04 | |
|-------------------------------------|---------------|---------------|---------------|-----------------|--------------|
| | Actual | Estimate 1/ | Budget | Amount | Percent |
| BASIC RESEARCH | | | | | |
| Defense (military) | 1,334 | 1,417 | 1,309 | -108 | -7.6% |
| Health and Human Services | 12,957 | 14,092 | 14,804 | 712 | 5.1% |
| <i>Nat'l Institutes of Health</i> | 12,954 | 14,088 | 14,801 | 713 | 5.1% |
| NASA | 1,912 | 2,356 | 2,535 | 179 | 7.6% |
| Energy | 2,580 | 2,561 | 2,593 | 32 | 1.2% |
| Nat'l Science Foundation | 3,076 | 3,435 | 3,486 | 51 | 1.5% |
| Agriculture | 797 | 911 | 819 | -92 | -10.1% |
| Commerce | 329 | 325 | 391 | 66 | 20.2% |
| NOAA | 273 | 265 | 312 | 46 | 17.5% |
| NIST | 53 | 58 | 79 | 21 | 36.6% |
| Interior | 41 | 42 | 38 | -4 | -10.0% |
| Transportation | 17 | 17 | 37 | 20 | 119.5% |
| Environ. Protection Agency | 107 | 116 | 90 | -27 | -22.9% |
| Smithsonian | 111 | 115 | 121 | 6 | 5.2% |
| Veterans Affairs | 465 | 513 | 495 | -18 | -3.5% |
| Homeland Security * | 32 | 47 | 47 | 0 | 0.0% |
| All Other | 90 | 101 | 97 | -4 | -4.4% |
| Total Basic Research | 23,848 | 26,048 | 26,861 | 813 | 3.1% |
| <i>Basic research excluding NIH</i> | <i>10,894</i> | <i>11,960</i> | <i>12,060</i> | <i>100</i> | <i>0.8%</i> |
| RESEARCH (basic + applied) | | | | | |
| Defense (military) | 5,879 | 6,165 | 5,045 | -1,120 | -18.2% |
| Health and Human Services | 23,515 | 26,340 | 28,077 | 1,737 | 6.6% |
| <i>Nat'l Institutes of Health</i> | 22,299 | 25,120 | 26,866 | 1,746 | 7.0% |
| NASA | 4,680 | 5,532 | 5,482 | -50 | -0.9% |
| Energy | 5,026 | 5,155 | 5,480 | 325 | 6.3% |
| Nat'l Science Foundation | 3,261 | 3,648 | 3,690 | 42 | 1.1% |
| Agriculture | 1,672 | 1,798 | 1,666 | -132 | -7.3% |
| Commerce | 997 | 989 | 961 | -28 | -2.8% |
| NOAA | 651 | 647 | 650 | 2 | 0.4% |
| NIST | 332 | 329 | 301 | -28 | -8.6% |
| Interior | 563 | 566 | 575 | 9 | 1.6% |
| Transportation | 519 | 432 | 448 | 16 | 3.6% |
| Environ. Protection Agency | 489 | 532 | 459 | -74 | -13.8% |
| Veterans Affairs | 733 | 774 | 797 | 23 | 3.0% |
| Education | 175 | 225 | 220 | -5 | -2.4% |
| Homeland Security * | 110 | 111 | 173 | 62 | 55.9% |
| Agency for Int'l Develop. | 279 | 301 | 306 | 5 | 1.7% |
| Smithsonian | 111 | 115 | 121 | 6 | 5.2% |
| All Other | 246 | 243 | 232 | -11 | -4.4% |
| Total Research | 48,255 | 52,925 | 53,731 | 806 | 1.5% |
| <i>Total research excluding NIH</i> | <i>25,956</i> | <i>27,805</i> | <i>26,865</i> | <i>-940</i> | <i>-3.4%</i> |

Source: AAAS, based on OMB data for R&D for FY 2004, agency budget justifications, and information from agency budget offices.

* DHS figures for all years adjusted to include programs to be transferred to DHS from other agencies.

1/ FY 2003 figures revised to reflect AAAS estimates of final FY 2003 appropriations.

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AAAS Analysis of R&D in the FY 2004 Budget

Table 3. "Federal Science and Technology Budget" by Agency

(budget authority in millions of dollars)

| | FY 2002 | FY 2003 | FY 2004 | Change FY 03-04 | |
|---|---------------|---------------|---------------|-----------------|--------------|
| | Actual | Estimate 1/ | Budget | Amount | Percent |
| Health and Human Services | 23,279 | 27,167 | 27,893 | 726 | 2.7% |
| <i>(National Institutes of Health)</i> | 23,279 | 27,167 | 27,893 | 726 | 2.7% |
| National Science Foundation | 4,823 | 5,310 | 5,481 | 171 | 3.2% |
| Department of Energy | 5,193 | 5,226 | 5,211 | -15 | -0.3% |
| <i>(Science programs)</i> | 3,232 | 3,284 | 3,311 | 27 | 0.8% |
| <i>(Energy supply)</i> | 747 | 697 | 832 | 135 | 19.4% |
| <i>(Energy conservation)</i> | 631 | 624 | 549 | -75 | -12.0% |
| <i>(Fossil energy)</i> | 583 | 621 | 519 | -102 | -16.4% |
| National Aeronautics & Space Admin. | 7,868 | 8,945 | 9,164 | 219 | 2.4% |
| <i>(Space Science)</i> | 2,902 | 3,501 | 4,007 | 506 | 14.5% |
| <i>(Earth Science)</i> | 1,592 | 1,708 | 1,552 | -156 | -9.1% |
| <i>(Aero-Space Technology)</i> | 2,550 | 2,873 | 2,632 | -241 | -8.4% |
| <i>(Biological and Physical Res.)</i> | 824 | 863 | 973 | 110 | 12.7% |
| Department of Defense | 5,415 | 5,706 | 4,979 | -727 | -12.7% |
| <i>(Basic Research)</i> | 1,334 | 1,417 | 1,309 | -108 | -7.6% |
| <i>(Applied Research)</i> | 4,081 | 4,289 | 3,670 | -619 | -14.4% |
| Agriculture | 1,862 | 1,989 | 1,843 | -146 | -7.3% |
| <i>(CSREES Res. And Edu.)</i> | 551 | 624 | 526 | -98 | -15.7% |
| <i>(Economic Research Service)</i> | 67 | 69 | 77 | 8 | 11.6% |
| <i>(Agricultural Research Service)</i> | 1,003 | 1,046 | 987 | -59 | -5.6% |
| <i>(Forest Service Research)</i> | 241 | 250 | 253 | 3 | 1.2% |
| Commerce | 926 | 977 | 851 | -126 | -12.9% |
| <i>(Oceanic and Atmos. Res. NOAA)</i> | 356 | 375 | 367 | -8 | -2.1% |
| <i>(NIST minus MEP)</i> | 570 | 602 | 484 | -118 | -19.6% |
| Interior (USGS) | 914 | 919 | 896 | -23 | -2.5% |
| Environ. Protection Agency (S&T) | 788 | 801 | 776 | -25 | -3.1% |
| Veterans Affairs (Med. & Prosthetic) | 756 | 800 | 822 | 22 | 2.8% |
| Education | 310 | 382 | 373 | -9 | -2.4% |
| <i>(Spec. Edu. Res. And Innov.)</i> | 78 | 77 | 78 | 1 | 1.3% |
| <i>(Disability and Rehab. Research)</i> | 110 | 109 | 110 | 1 | 0.9% |
| <i>(Res., Dev., and Dissemination)</i> | 122 | 196 | 185 | -11 | -5.6% |
| Transportation | 693 | 591 | 606 | 15 | 2.5% |
| <i>(Highway Research)</i> | 448 | 444 | 506 | 62 | 14.0% |
| <i>(FAA Res., Eng. And Develop.)</i> | 245 | 147 | 100 | -47 | -32.0% |
| Total "FS&T" | 52,828 | 58,813 | 58,894 | 81 | 0.1% |
| <i>FS&T excluding NIH</i> | <i>29,549</i> | <i>31,646</i> | <i>31,001</i> | <i>-645</i> | <i>-2.0%</i> |

OMB data from the *Budget of the U.S. Government FY 2004: Analytical Perspectives* Chapter 8.

The programs in the Federal Science and Technology Budget do not correspond to definitions of R&D.

The FS&T Budget contains selected R&D and non-R&D programs with an emphasis on basic and applied research and the creation of new knowledge or technologies. The programs in this table were selected by OMB, and differ from the original definitions of FS&T proposed by the National Academy of Sciences.

1/ FY 2003 figures revised to reflect AAAS estimates of final FY 2003 appropriations.

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AAAS Analysis of R&D in the FY 2004 Budget

Table 4. Major Functional Categories of R&D

(budget authority in millions of dollars)

| | FY 2002 | FY 2003 | FY 2004 | Change FY 03-04 | | % of Total ('04) |
|--------------------------|----------------|----------------|----------------|-----------------|-------------|---------------------|
| | Actual | Estimate 1/ | Budget | Amount | Percent | |
| Defense ¹ | 53,731 | 62,986 | 67,515 | 4,530 | 7.2% | 55.1% |
| Nondefense ² | 49,368 | 54,311 | 54,970 | 659 | 1.2% | 44.9% |
| Space | 9,227 | 9,923 | 10,032 | 109 | 1.1% | 8.2% |
| Health | 24,748 | 28,315 | 28,971 | 656 | 2.3% | 23.7% |
| Energy | 1,332 | 1,366 | 1,374 | 8 | 0.6% | 1.1% |
| General Science | 6,605 | 7,025 | 7,375 | 350 | 5.0% | 6.0% |
| Environment ³ | 2,175 | 2,249 | 2,210 | -39 | -1.7% | 1.8% |
| Agriculture | 1,909 | 1,924 | 1,693 | -231 | -12.0% | 1.4% |
| Transportation | 1,889 | 1,911 | 1,881 | -30 | -1.6% | 1.5% |
| Commerce | 549 | 563 | 424 | -139 | -24.7% | 0.3% |
| International | 279 | 301 | 306 | 5 | 1.7% | 0.2% |
| All Other | 656 | 734 | 704 | -30 | -4.0% | 0.6% |
| Total R&D | 103,100 | 117,297 | 122,485 | 5,189 | 4.4% | 100.0% |

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

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

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

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

² Includes all R&D not in defense.

³ Includes natural resources R&D.

1/ FY 2003 figures revised to reflect AAAS estimates of final FY 2003 appropriations.

AAAS - REVISED March 7, 2003

AAAS Analysis of R&D in the FY 2004 Budget

Table 5. AAAS Analysis of the Outyear Projections for R&D in the FY 2004 Budget
(budget authority in millions of dollars)

| | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | % Change FY 03-08 | |
|---|----------------|----------------|----------------|----------------|----------------|----------------|-------------------|--------------------|
| | Estimate | Budget | Projected | Projected | Projected | Projected | current \$ | constant \$ |
| Total R&D (Conduct and Facilities) | | | | | | | | |
| Defense (military) | 58,646 | 62,821 | 68,182 | 65,379 | 65,660 | 68,028 | 16.0% | 6.0% |
| Health & Human Services | 27,550 | 28,203 | 28,727 | 29,307 | 29,948 | 30,702 | 11.4% | 1.8% |
| <i>Nat'l Institutes of Health</i> | 26,245 | 26,946 | 27,446 | 28,001 | 28,615 | 29,338 | 11.8% | 2.1% |
| NASA | 10,999 | 11,025 | 11,557 | 12,140 | 12,656 | 12,957 | 17.8% | 7.6% |
| Energy | 8,205 | 8,535 | 8,832 | 9,089 | 9,394 | 9,651 | 17.6% | 7.5% |
| <i>Defense</i> | 3,849 | 4,180 | 4,362 | 4,510 | 4,690 | 4,826 | 25.4% | 14.6% |
| <i>Science</i> | 3,075 | 3,066 | 3,124 | 3,188 | 3,258 | 3,340 | 8.6% | -0.7% |
| <i>Energy</i> | 1,281 | 1,289 | 1,346 | 1,392 | 1,446 | 1,485 | 15.9% | 5.9% |
| Nat'l Science Foundation | 3,927 | 4,035 | 4,135 | 4,206 | 4,282 | 4,396 | 11.9% | 2.3% |
| Agriculture | 2,166 | 1,943 | 2,054 | 2,105 | 2,170 | 2,221 | 2.5% | -6.3% |
| Commerce | 1,248 | 1,100 | 1,110 | 1,133 | 1,158 | 1,187 | -4.9% | -13.1% |
| <i>NOAA</i> | 684 | 675 | 687 | 702 | 717 | 735 | 7.4% | -1.8% |
| <i>NIST</i> | 527 | 410 | 407 | 416 | 425 | 436 | -17.3% | -24.4% |
| Interior | 627 | 633 | 644 | 658 | 671 | 688 | 9.8% | 0.3% |
| Transportation | 702 | 693 | 705 | 716 | 729 | 744 | 6.1% | -3.1% |
| Environ. Protection Agcy. | 643 | 607 | 619 | 631 | 644 | 661 | 2.7% | -6.1% |
| Homeland Security | 669 | 1,001 | 1,019 | 1,040 | 1,062 | 1,090 | 62.9% | 48.9% |
| Veterans Affairs | 800 | 822 | 837 | 854 | 873 | 895 | 11.9% | 2.3% |
| Education | 315 | 275 | 280 | 286 | 292 | 299 | -5.0% | -13.2% |
| All Other | 798 | 792 | 807 | 823 | 840 | 861 | 8.0% | -1.4% |
| Total R&D | 117,297 | 122,485 | 129,507 | 128,368 | 130,381 | 134,382 | 14.6% | 4.7% |
| Defense R&D | 62,986 | 67,515 | 73,069 | 70,424 | 70,896 | 73,414 | 16.6% | 6.5% |
| Nondefense R&D | 54,311 | 54,970 | 56,438 | 57,944 | 59,485 | 60,967 | 12.3% | 2.6% |
| <i>Nondef. R&D minus NIH</i> | <i>28,066</i> | <i>28,024</i> | <i>28,992</i> | <i>29,943</i> | <i>30,870</i> | <i>31,629</i> | <i>12.7%</i> | <i>3.0%</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 2004*.

FY 2003 figures represent latest agency estimates of R&D, based on final FY 2003 appropriations.

FY 2004 figures represent latest revised agency requests.

Constant dollar conversions based on GDP deflators from OMB.

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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/rd> in the "Guide to R&D Funding Data" section (see "Outyear Projections").

AAAS Analysis of R&D in the FY 2004 Budget

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

| | FY 2002 | FY 2003 | FY 2004 | Change FY 03-04 | |
|--------------------------------|---------|----------|----------------|-----------------|---------|
| | Actual | Estimate | Budget | Amount | Percent |
| Defense | 49,877 | 58,646 | 62,821 | 4,175 | 7.1% |
| VA, HUD, Independent Agencies | 15,147 | 16,420 | 16,540 | 121 | 0.7% |
| Labor, HHS, Education | 24,181 | 27,770 | 28,356 | 586 | 2.1% |
| Energy & Water | 7,281 | 7,421 | 7,802 | 382 | 5.1% |
| Interior | 1,917 | 1,919 | 1,873 | -47 | -2.4% |
| Agriculture | 2,010 | 2,044 | 1,837 | -207 | -10.1% |
| Commerce, Justice, State | 1,318 | 1,356 | 1,206 | -150 | -11.0% |
| Transportation / Treasury | 824 | 751 | 743 | -8 | -1.0% |
| Foreign Operations | 279 | 301 | 306 | 5 | 1.7% |
| Homeland Security ¹ | 266 | 669 | 1,001 | 332 | 49.6% |
| Total R&D | 103,100 | 117,297 | 122,485 | 5,189 | 4.4% |

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

¹ The Homeland Security subcommittee is new.

Subcommittees reflect new congressional appropriations committee structure from March 2003. FY 2002 and FY 2003 figures adjusted for comparability. FY 2003 figures adjusted to reflect AAAS estimates of final FY 2003 appropriations. March 7, 2003 - REVISED

R&D as Percent of Discretionary Appropriations by Appropriations

Subcommittee for FY 2004 (budget authority in billions of dollars)

(President's FY 2004 request)

| | FY 2004 R&D | FY 2004 Discr. | R&D as % of Discr. | Agencies and Programs |
|-------------------------------|----------------|-------------------|-----------------------|--|
| Defense | 62.8 | 371.0 | 16.9% | Most DOD |
| VA, HUD, Independent Agencies | 16.5 | 89.1 | 18.6% | VA, HUD, NSF, NASA, EPA |
| Labor, HHS, Education | 28.4 | 135.1 | 21.0% | Labor, HHS, Education |
| Energy & Water | 7.8 | 26.8 | 29.1% | Most of DOE, Corps of Eng., NRC |
| Interior | 1.9 | 19.7 | 9.5% | Interior, some DOE, FS, Smithsonian |
| Agriculture | 1.8 | 16.9 | 10.9% | Most of USDA (except Forest Serv.) |
| Commerce, Justice, State | 1.2 | 38.6 | 3.1% | Commerce, Justice, State |
| Transportation / Treasury | 0.7 | 27.0 | 2.8% | Department of Transportation |
| Foreign Operations | 0.3 | 18.8 | 1.6% | Agcy. for Int'l Development; Int'l Orgs. |
| Homeland Security | 1.0 | 26.7 | 3.7% | Dept. of Homeland Security |
| All Other ¹ | 0.0 | 12.6 | 0.0% | Congress, some DOD, DC |
| Total | 122.5 | 782.3 | 15.7% | |
| Defense Discretionary | 67.5 | 399.2 | 16.9% | DOD, DOE defense, some DHS |
| Nondefense Discretionary | 55.0 | 383.1 | 14.3% | All other discretionary |

Source: AAAS, based on estimates of R&D and *Budget of the U.S. Government FY 2004*.

¹ 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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