

## House Boosts DOD Basic Research by 12 Percent, Provides \$8.8 Billion for S&T

(This analysis is part of a series of AAAS R&D Funding Updates on the FY 2001 congressional appropriations process. This analysis includes information on R&D in House appropriations for DOD. The complete series of AAAS R&D Funding Updates, including continually updated analyses of R&D by agency in FY 2001 appropriations, is available on the AAAS R&D Web Site (<http://www.aaas.org/spp/R&D>) in the "FY 2001 R&D" or the "What's New" sections.)

Before leaving Washington for a week-long Memorial Day recess, the House Appropriations Committee approved its version of the FY 2001 Defense appropriations bill for the Department of Defense (DOD). [The full House approved the bill on June 7.] The Senate Appropriations Committee sent its own version of the bill to the Senate floor earlier in May. Both the House and Senate bills would provide substantial increases for most DOD R&D programs, in contrast to the cuts requested by the Pentagon and the Clinton Administration, with the House bill the more generous of the two. DOD's R&D in FY 2001 would total \$41.1 billion in the House bill, \$2.5 billion more than the President's request and \$1.8 billion or 4.6 percent more than FY 2000 (see Tables A and B). The House would provide [\$438 million] more than the Senate's proposed 3.5 percent increase over FY 2000.

**The House bill would boost DOD funding of basic research ("6.1") by [\$133 million or 11.5 percent] to \$1.3 billion.** The Senate would provide a smaller but still substantial 10.5 percent increase. The House and Senate would differ in their treatment of applied research ("6.2") programs, however, with the House allocating a slight cut to \$3.4 billion while the Senate would increase applied research by 6.1 percent to \$3.6 billion. Both are well above the requested cut to \$3.1 billion. Including DOD's medical research programs, **DOD S&T** ("6.1" through "6.3" programs, representing DOD's investment in basic and applied research and technology development) would increase by [1.8 percent] to \$8.8 billion under both the House and Senate bills, considerably more than the requested level of \$7.6 billion.

Both the House and Senate Defense bills contain substantial increases for the overall DOD budget as well as for R&D programs, increases even larger than those proposed by the President in February. The \$288 billion total for the House Defense bill, which funds most but not all of DOD, is \$4 billion more than the request and more than \$20 billion above the FY 2000 funding level.

The House bill would provide large increases for most **basic research ("6.1")** accounts. DOD requested a 4.9 percent increase for "6.1" but the Senate would boost "6.1" by 10.5 percent, and the House would go even higher with a [11.5 percent increase] to \$1.3 billion (see Table A). Although there would be a slight cut in Army basic research (down [1.0 percent] to \$202 million), Navy basic research (up 6.3 percent to \$397 million) and Air Force basic research ([up 1.0 percent to \$216 million]) would increase. But the largest increase would go to "6.1" in the Defense Agencies (DA), which would jump [30.1 percent to \$479 million. Within DA "6.1," University Research Initiatives would increase from \$224 million to \$290 million to fund university-based projects across a broad range of science and engineering disciplines.] In recent years, the Senate has proposed large increases to "6.1" while the House has appropriated smaller increases or cuts, and final appropriations have generally split the difference. But this year's House-proposed large increases are a departure from the recent pattern, and are a good sign of how basic research could fare in the final, compromise Defense bill.

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The **applied research** (“6.2”) accounts total \$3.4 billion in the House bill, a slight cut from the FY 2000 funding level but well above the request of \$3.1 billion. As a result, total DOD support of research (basic plus applied) would be \$4.7 billion ([up 2.8 percent]), compared with a 7.2 percent increase in the Senate bill.

The “6.1” and “6.2” research accounts provide a significant share of federal support for several **key scientific and engineering disciplines**. DOD provides nearly a third of all federal support for engineering research, and a majority of federal support for some key engineering subfields. DOD also provides more than 40 percent of total federal support for computer sciences research, and plays a strong funding role in other disciplines such as mathematics, oceanography, medical sciences, chemistry, physics, and environmental sciences.

The “6.1” and “6.2” accounts are especially important for the nation’s **colleges and universities**, which perform more than half of “6.1” research and roughly 20 percent of “6.2” research. DOD is the third largest sponsor of federal R&D at colleges and universities, behind only the National Institutes of Health and the National Science Foundation. DOD’s impact, however, is concentrated in the few key fields listed above. DOD provides a tenth of federal support for academic R&D, but more than half of all federal support for mechanical engineering and electrical engineering at universities, and nearly half of all federal support for computer sciences and materials engineering.

The House Defense bill contains a separate \$256 million appropriation (\$337 million in the Senate), outside the regular R&D accounts, for **medical R&D** (see Table A) plus another \$72 million for medical care-related information technology development for a total of \$328 million. This appropriation for peer-reviewed, competitively awarded research grants continues the recent expansion of DOD’s effort in medical research. The House would divide the \$256 million medical R&D total into \$175 million for breast cancer research (up from \$172 million in FY 2000) and \$75 million for prostate cancer research (up from \$74 million), plus \$6 million for peer reviewed medical research on other topics. The Senate would provide the same amount for breast cancer but \$100 million for prostate cancer, \$12 million for ovarian cancer, and \$50 million for research on other medical topics. The House bill also contains numerous congressionally designated appropriations for medical research in DOD’s regular accounts, mostly in the Army and Navy, including R&D on HIV, alcoholism, neuroscience, bone marrow disease, Gulf War illness, and funding for medical laboratory facilities around the nation. Counting these appropriations, the House bill would provide a total of \$639 million for congressionally designated medical research projects.

The “6.1,” “6.2,” and “6.3” categories are often grouped together as **“Science and Technology” (S&T)**. This category encompasses basic research, applied research, and advanced technology development, which contribute to a broad knowledge base with potential applications to a wide variety of military as well as civilian uses. S&T is separate from the “6.4” and higher categories, which are focused on the development and testing of specific weapons systems. DOD S&T declined steeply in the 1990s, but in **FY 2000 DOD S&T, including the medical research appropriations formerly appropriated within the “6.3” category, exceeded \$8 billion for the first time since FY 1994 thanks to strong congressional support for an appropriation of \$8.7 billion**. Many science and technology organizations and defense observers called on DOD to maintain S&T funding at a minimum of \$8 billion in 2000 dollars, but the Pentagon requested only \$7.6 billion for S&T in FY 2001. Both the **House and the Senate would add more than \$1.2 billion to the request to bring S&T to \$8.8 billion**, [up 1.8 percent] from FY 2000.

Among the Defense Agencies, the House bill would provide increases for **the Defense Advanced Research Projects Agency (DARPA)**. The \$1.9 billion DARPA appropriation would be 1.7 percent above FY 2000 funding, compared to a 12.9 percent increase in the Senate because of a \$200 million Senate-only boost to DARPA’s efforts in developing remotely controlled combat systems. Most DARPA programs that are high priorities for the Administration would receive increases, although not as large as requested. Extensible Information Systems, a key program in the Administration’s Information Technology initiative on fundamental IT research, would see its funding rise from \$30 million to \$49 million, though this would fall short of the request for \$69 million. Computing Systems and Communications Technology, another IT initiative component, would fall short of the \$377 million request but would still rise from \$321 million in FY

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2000 to \$336 million in the House bill. The House would add to the request for Biological Warfare Defense, a program that funds R&D aimed at countering bioterrorism threats, and bring FY 2001 funding to \$167 million, up from \$132 million.

The **Ballistic Missile Defense Organization's (BMDO)** budget would also increase substantially, by 19.9 percent to \$4.1 billion. The BMDO appropriation funds continued development and testing of national and theater missile defense systems, including \$1.7 billion for development of a national missile defense. The President is still scheduled to make a decision this month on whether to commit to deploying a national defense system, although many observers have urged him to delay the decision until more technology tests have been completed.

[The House approved the Defense bill on June 7, and the Senate version is scheduled for floor action shortly. Because of the generous funding increases and the absence of controversial legislative provisions, the Senate bill is expected to win easy approval, but there may be delays in bringing the bill to the floor because of controversies over the other appropriations bills.]

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AAAS R&D Budget and Policy Program  
1200 New York Ave, NW  
Washington, DC 20005  
(202) 326-6607; -6600  
science\_policy@aaas.org  
www.aaas.org/spp/R&D

**Table A. Department of Defense by Program  
House Action on R&D in the FY 2001 Budget  
(budget authority in millions of dollars)**

	FY 2000 Estimate	FY 2001 Request	FY 2001 Senate	Action by House		
				FY 2001 House	Chg. from FY 2000 Amount	Percent
Research, Development, Test, and Evaluation:						
Basic Research ("6.1")	1,161	1,217	1,283	<b>1,294</b>	133	11.5%
Applied Research ("6.2")	3,410	3,144	3,617	<b>3,405</b>	-6	-0.2%
Total Research, or Tech. Base	4,571	4,362	4,900	<b>4,699</b>	128	2.8%
Advanced Tech. Dev. ("6.3")	3,826	3,182	3,530	<b>3,798</b>	-28	-0.7%
Total Science and Technology	8,397	7,543	8,430	<b>8,497</b>	100	1.2%
Demonstration/Validation ("6.4")	6,524	6,810	7,765	<b>7,476</b>	952	14.6%
Engineering and Manuf. Dev. ("6.5")	8,679	8,661	8,325	<b>8,667</b>	-12	-0.1%
RDT&E Management Support ("6.6")	2,552	2,434	2,552	<b>2,599</b>	47	1.8%
Operational Systems Dev. ("6.7")	12,137	12,415	12,526	<b>12,931</b>	795	6.5%
BA Adjustment	68	1	0	<b>0</b>	--	--
TOTAL RDT&E	38,357	37,863	39,597	<b>40,170</b>	1,813	4.7%
Other appropriations <sup>1</sup>	655	647	647	<b>587</b>	-68	-10.4%
Medical research <sup>2</sup>	270	66	403	<b>328</b>	58	21.4%
<b>Total DOD R&amp;D</b>	<b>39,282</b>	<b>38,576</b>	<b>40,648</b>	<b>41,085</b>	<b>1,803</b>	<b>4.6%</b>

AAAS estimates based on FY 2001 appropriations bills. Includes conduct of R&D and R&D facilities.

FY 2000 and FY 2001 request figures based on OMB R&D data and supplemental agency budget data.

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

<sup>1</sup> R&D support in military personnel, military construction, and other DOD appropriations.

Includes chemical agents and munitions destruction R&D funded outside RDT&E.

<sup>2</sup> Medical research appropriated in Defense Health Programs, not RDT&E. These funds are not included in "6.2."

**June 2, 2000 - REVISED June 8 to reflect House-approved funding levels.**

**Senate figures are Senate Appropriations Committee-approved funding levels and may be amended.**

**Table B. Department of Defense by Agency  
House Action on R&D in the FY 2001 Budget  
(budget authority in millions of dollars)**

	FY 2000 Estimate	FY 2001 Request	FY 2001 Senate	Action by House		
				FY 2001 House	Chg. from FY 2000 Amount	Percent
Research, development, test, and evaluation:						
Army	5,200	5,260	5,684	<b>6,025</b>	825	15.9%
Navy	9,001	8,477	8,812	<b>9,223</b>	222	2.5%
Air Force	14,487	13,686	13,931	<b>13,761</b>	-726	-5.0%
Defense Agencies	9,373	10,238	10,952	<b>10,919</b>	1546	16.5%
<i>Defense Adv. Res. Projects Agcy.</i>	1,876	1,951	2,119	<b>1,908</b>	32	1.7%
<i>Ballistic Missile Defense Org.</i>	3,428	3,943	4,243	<b>4,111</b>	684	19.9%
<i>Other</i>	4,069	4,344	4,590	<b>4,899</b>	830	20.4%
Director of Test and Evaluation	265	0	0	<b>0</b>	-265	-100.0%
Director of Operational Test & Eval.	31	202	219	<b>243</b>	212	682.5%
<b>TOTAL RDT&amp;E</b>	<b>38,357</b>	<b>37,863</b>	<b>39,597</b>	<b>40,170</b>	<b>1,813</b>	<b>4.7%</b>
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