

Congress Boosts DHS R&D in Final 2008 Budget

AAAS R&D Funding Update on DHS R&D in FY 2008 Final Appropriations

Highlights

- After a sharp drop last year, Congress returns to giving **the Department of Homeland Security's (DHS) R&D portfolio a large increase in 2008. The final 2008 DHS R&D total of \$1.0 billion is \$86 million or 9.0 percent more than in 2007 (see Table), primarily because of new R&D earmarks.**
- DHS' University Programs receive \$49 million, the same as last year and \$11 million more than the request. DHS plans to support 11 university-based centers by 2008.
- Research on radiological and nuclear countermeasures would continue to increase, by 5.2 percent to \$324 million for the newly created Domestic Nuclear Detection Office (DNDO), but within the main Science and Technology Directorate chemical and biological countermeasures R&D would fall 9.3 percent to \$208 million.
- Congress slashed the request for the Innovation program to develop revolutionary technological breakthroughs from \$38 million last year to \$33 million in 2008.

DHS R&D in FY 2008 Final Appropriations

On December 26, President Bush signed into law the FY 2008 omnibus appropriations bill (HR 2764) that had cleared Congress a week earlier, bringing the 2008 appropriations process to a close. The omnibus bill included a final version of the FY 2008 Homeland Security appropriations bill. Although the President's tight limits on domestic spending frustrated congressional appropriators in most of the budget, Congress managed to designate a large part of homeland security as 'emergency' and thus exempt from the limits, allowing room for substantial increases in the DHS budget for 2008, including in the department's R&D portfolio. **DHS R&D totals \$1.0 billion in the 2008 omnibus bill (see Table), 9.0 percent or \$86 million more than 2007, primarily because of \$82 million in R&D earmarks.** But 2008 DHS R&D would still be a steep drop from the \$1.3 billion DHS had in 2006.¹

After starting from virtually nothing four years ago and rapidly becoming the seventh-largest R&D funding agency, the DHS Science and Technology (S&T) unit ran into trouble spending money, knowing where the money went, and linking R&D to the technology requirements of DHS operating units. Under the leadership of Undersecretary of S&T Jay Cohen, the head of the DHS S&T Directorate for the past 18 months, the entire DHS R&D operation is still reorganizing. Cohen proposed an extensive restructuring of the DHS R&D portfolio in the 2008 budget request, consolidating many program lines and reshuffling others to create new program portfolios. Congress has mostly agreed with Cohen's proposal and would fund DHS R&D in 2008 under his proposed structure, as shown in the Table.

¹ Note: The AAAS estimates of DHS R&D in the Table differ significantly from R&D data in the *Budget of the U.S. Government FY 2008*. AAAS has corrected inaccurate codings of non-R&D programs as R&D, added back some R&D funding left out of the Budget, and removed some non-R&D programs from the R&D data after examination of DHS budget documents. The data in the Table also differ from data in the April report *AAAS Report XXXII: R&D FY 2008* because of recent transfers out of the S&T directorate and because of 2007 supplemental appropriations enacted in May in Public Law 110-28.

Radiological and nuclear countermeasures R&D in the new Domestic Nuclear Detection Office (DNDO) continues to be the largest part of the DHS R&D portfolio in 2008 (see Figure 1). DNDO was carved out of the S&T Directorate in 2006 and is now a stand-alone entity devoted to radiological and nuclear countermeasures. Its mainly applied research portfolio would climb 5.2 percent to \$324 million in 2008 within a total budget of \$485 million. (The difference between the two totals is procurement of nuclear detection devices for U.S. ports of entry, and management costs.) The 2008 increase would have been even larger, except that in May DNDO received an extra \$35 million for R&D (and \$100 million for non-R&D procurement) for 2007 as part of the war supplemental bill. Congress goes along with DNDO's plan for large increases in transformational R&D (to \$96 million) to develop breakthrough methods of detecting radiological and nuclear threats in operational settings, and in systems development (\$118 million) of new Advanced Spectroscopic Portal (APS) systems.

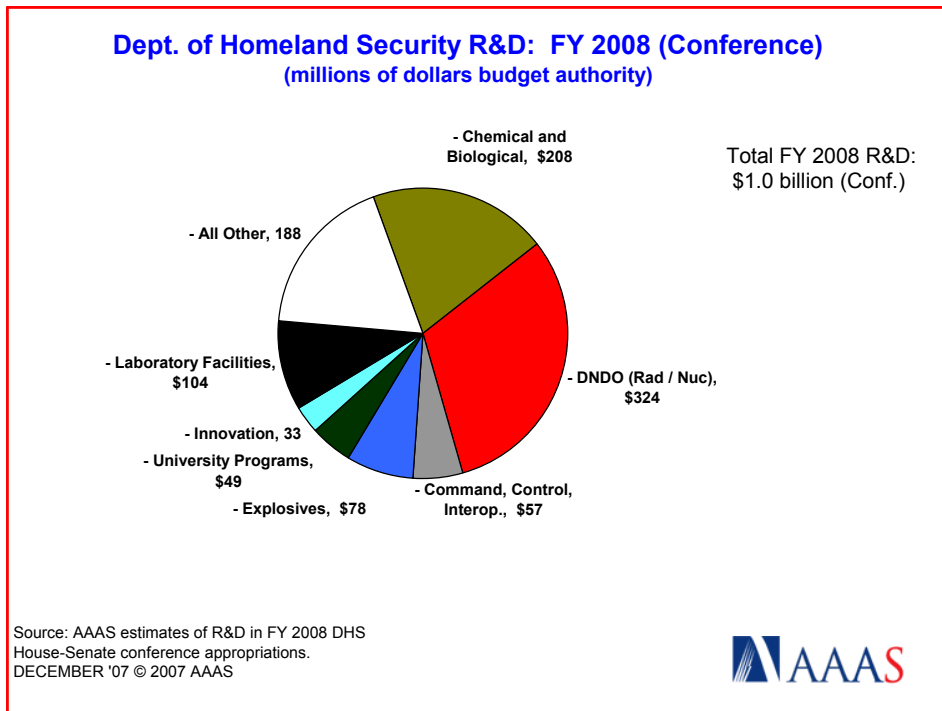


Figure 1. (click on the image for PDF)

The chemical and biological countermeasures portfolio would receive \$208 million in the omnibus, \$21 million less than both 2007 and the 2008 request (see Figure 1). Although this portfolio has been larger in previous years, in 2007 DHS spun off non-R&D programs such as the BioWatch surveillance system to other DHS units, leaving behind only purely R&D programs such as development of next-generation BioWatch 3 systems to better identify bioterror attacks. Separately, in the Laboratory Facilities appropriation (\$104 million, down 1.7 percent), construction of the National Biodefense Analysis and Countermeasures Center (NBACC) continues toward a target completion date of 2008. NBACC will be part of a biodefense complex of DHS, NIH, and DOD facilities at Fort Detrick, Maryland. There would also be \$11 million in funding for preliminary work on the National Bio and Agrodefense Facility, working toward the beginning of construction in 2010 after a site selection later this year, and a \$15 million earmarked appropriation for a Physical Science Facility at the Pacific Northwest National Laboratory in eastern Washington. There would be other earmarks in the final appropriation as well, most of them first introduced by the Senate, including \$27 million for a South East Region Research Initiative centered around Oak Ridge National Laboratory (Tennessee) and \$9.5 million for the multi-state Regional Technology Initiative. In all, Congress would allocate \$82 million for earmarks in the DHS R&D portfolio in 2008 after refraining from earmarking during the first several years of DHS' existence.

Congress keeps funding for University Programs at \$49 million in 2008. This program funds university-based Centers of Excellence that are multi-year university consortia to perform R&D on homeland security-related topics and also fellowships to encourage U.S. students to pursue scientific and technical degrees in areas of study related to homeland security. There are now seven DHS Centers of Excellence, and another four (on the areas of explosives detection, mitigation, and response; border security and immigration; maritime, island, and extreme/remote environment security; and natural disasters, coastal infrastructure, and emergency management) will be awarded soon.

The Innovation portfolio, a Cohen initiative to develop breakthrough technologies and highly innovative approaches to homeland security problems, would have expanded to \$60 million in the DHS request, but Congress cuts funding down to \$33 million. Among the technologies this new program will tackle are tunnel detection devices, improvised explosive devices, and critical infrastructure resiliency.

2008 DHS R&D Appropriations in Historical Context

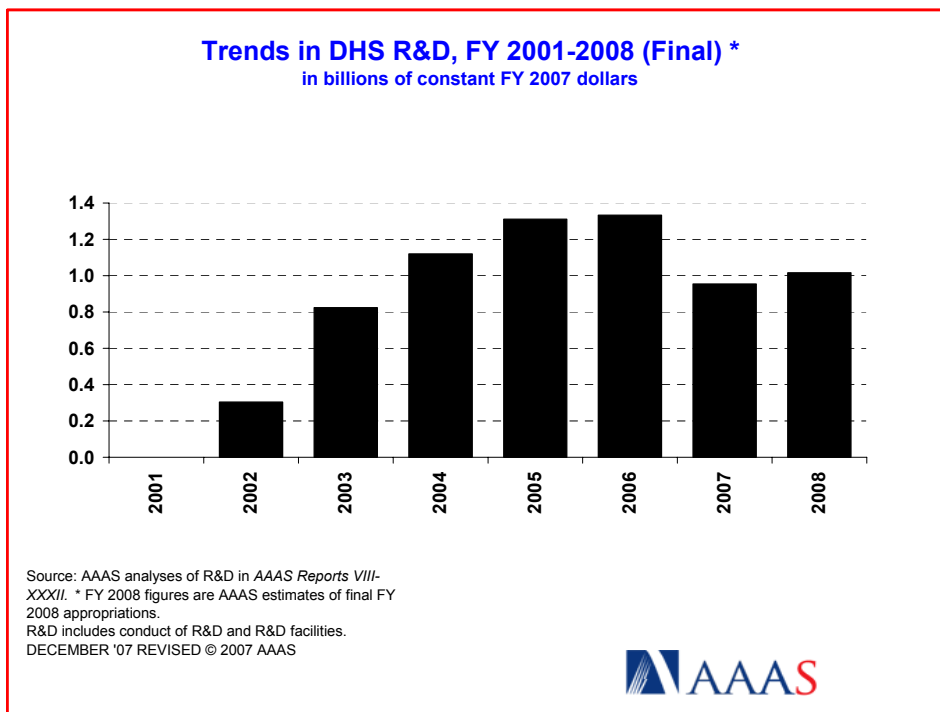


Figure 2. (click on the image for PDF)

DHS R&D, after a rapid ramp-up phase, grew too rapidly and is now in retrenchment and reorganization. As shown in Figure 2, DHS began life with only a few R&D laboratories and programs that it inherited from USDA, DOE, and DOD, unlike the massive transfer of personnel and capabilities that happened in the rest of the new department. From a transfer of less than \$300 million of programs in 2002, DHS began creating new R&D capabilities after its foundation in FY 2003 (see Figure 2), adding portfolios on long-neglected technology areas, establishing relationships with existing national laboratories and federal laboratories, and setting up new structures for funding external R&D.

But the S&T directorate struggled to ramp up its capabilities, staffing, and spending, prompting Congress to slash its funding dramatically in 2007 and impose numerous restrictions and demands. In the 2007 appropriations process, a congressional report described the directorate as “a rudderless ship without a clear way to get back on course,” criticized its lack of clear research goals, absence of detailed budget information, mystifying accounting conventions, and even an inability to spend past appropriations it had been given. At the end of 2006, the S&T Directorate had an unusually large \$400 million in the bank from previous appropriations that it had been unable to spend, and up to one-third of its staff positions were

vacant. The final 2007 appropriations bill rescinded \$125 million in these unspent R&D funds, made program cuts in most areas, and required S&T to submit a five-year research plan with priorities, performance measures, and resource needs for each R&D area.

Undersecretary for Science and Technology Jay Cohen was sworn in as the new S&T directorate leader in August 2006, midway through the bruising 2007 appropriations season and also midway through the internal deliberations on the 2008 budget. The 2008 budget marks the new leadership's first budget proposal. Although the 2007 and 2008 R&D totals are well below appropriations of previous years, DHS is still working through its backlog of unspent funds; at the end of FY 2007, even after rescissions and budget cuts, the S&T Directorate still had more than \$100 million in unspent funds to carry over to FY 2008. So while DHS' appropriations history in Figure 2 is uneven, the actual outflow of money will be smoother as appropriations get stretched out into outlays over several years.

But now, it may be the new DNDO that runs into problems in ramping up its operations. In the omnibus bill, appropriators express concern that DNDO has been unable to hire staff quickly enough to keep up with the rapid growth in its budget, and criticize DNDO for providing too little detail on how it plans to spend its appropriations. These concerns, if left unaddressed, could be signs of trouble for the 2009 appropriations season.

Impacts of the DHS R&D Portfolio

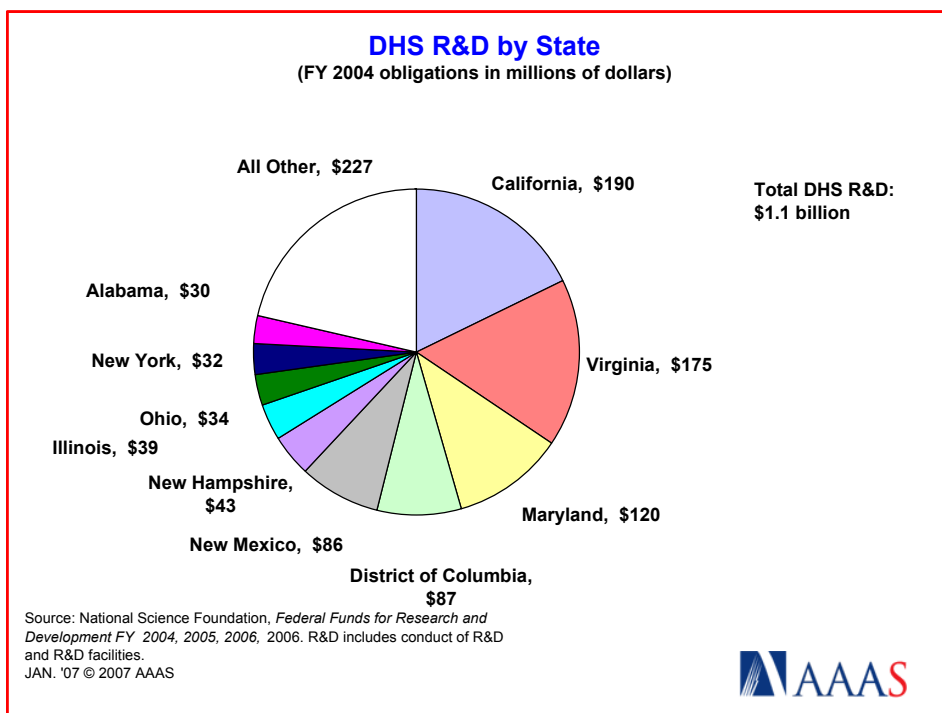


Figure 3. (click on the image for PDF)

Recently, DHS released its first data set on how it spent its initial R&D budgets. As shown in Figure 3, DHS R&D is concentrated geographically, with three states and the District of Columbia accounting for the majority of DHS R&D funding in 2004. Though it is likely that DC's share is due to headquarters funds that eventually went to other states, Maryland and Virginia clearly benefit from the heavy concentration of contractors in the Washington, DC area, while California and New Mexico benefit from the primarily DOE-affiliated national laboratories located in these states.

DHS research, excluding development funding, is heavily oriented to the life sciences and engineering, not surprising since biological countermeasures dominated the early days of DHS R&D. Fully two-thirds of

DHS investments in basic and applied research go to these two disciplines, with the remainder devoted mostly to the physical sciences (see Figure 4). This portfolio is expected to shift in 2007 and 2008 as the emphasis shifts away from biological countermeasures toward the radiological and nuclear countermeasures portfolio. The total research portfolio is expected to grow as well, as research becomes a larger part of DHS R&D and development funding shrinks.

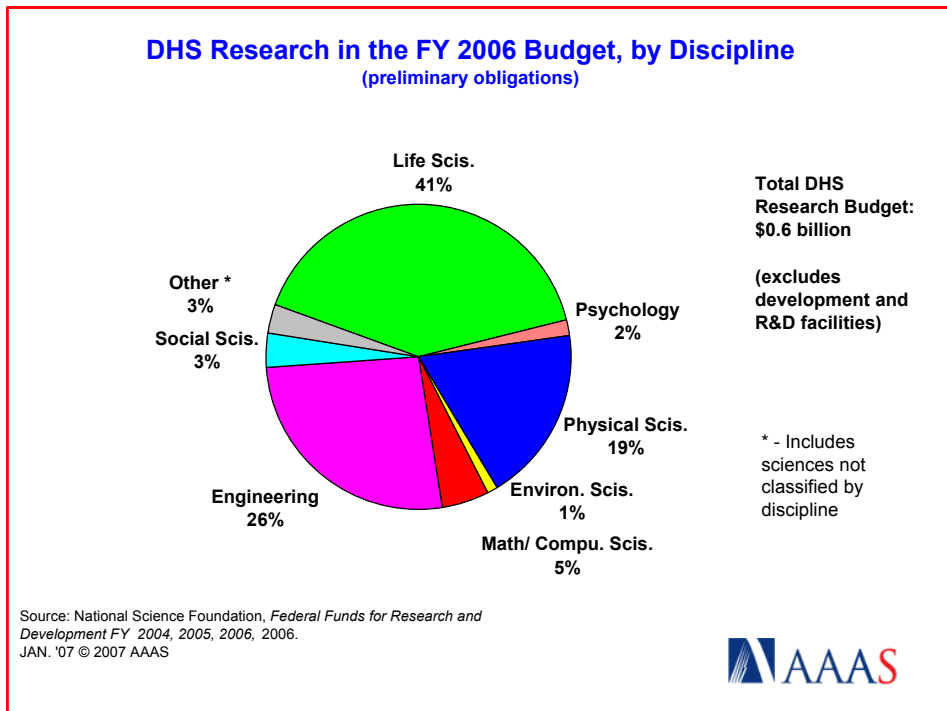


Figure 4. (click on the image for PDF)

Next Steps and Outlook

The 2008 DHS budget is now law. It remains to be seen whether the 2008 appropriation is a sign of renewed congressional confidence in the DHS R&D portfolio, or whether management troubles or missed technical deadlines will cause appropriators to look more critically at DHS R&D in the upcoming 2009 appropriations season. The President's FY 2009 budget request arrives in early February.

(This analysis is one of a series of AAAS R&D Funding Updates on FY 2008 congressional appropriations. The complete series of AAAS R&D Funding Updates, including continually updated analyses of R&D in FY 2008 appropriations, is available on the AAAS R&D Web Site (<http://www.aaas.org/spp/rd>) in the "FY 2008 R&D" or the "What's New" sections.)

- January 3, 2008

AAAS R&D Budget and Policy Program

AAAS R&D Web site: <http://www.aaas.org/spp/rd>



Table. DHS R&D in FY 2008 House-Senate Conference

**Table. Department of Homeland Security
House-Senate Conference on R&D in the FY 2008 Budget
(budget authority in millions of dollars)**

	FY 2007 Estimate	FY 2008 Request	House-Senate Conference				
			FY 2008 CONF.	Chg. from Request Amount	Chg. from Request Percent	Chg. from FY 2007 Amount	Chg. from FY 2007 Percent
DHS R&D:							
Dom. Nuclear Detection Office 1/ 2/	308	320	324	4	1.1%	16	5.2%
Science and Technology 1/ 2/ 3/	628	656	692	35	5.4%	64	10.1%
- <i>Chemical and Biological</i>	229	229	208	-21	-9.1%	-21	-9.3%
- <i>Border and Maritime</i>	33	26	25	0	-1.8%	-8	-23.8%
- <i>Command, Control, Interop.</i>	58	64	57	-7	-10.4%	-1	-1.1%
- <i>Explosives</i>	105	64	78	14	21.8%	-28	-26.2%
- <i>Human Factors</i>	7	13	14	2	12.7%	7	108.9%
- <i>Infrastructure & Geophysical</i>	75	24	65	41	168.8%	-10	-13.7%
- <i>Innovation</i>	38	60	33	-27	-44.9%	-5	-13.2%
- <i>Laboratory Facilities</i>	106	89	104	15	16.9%	-2	-1.7%
- <i>Test & Eval., Standards</i>	25	26	29	3	11.8%	3	12.1%
- <i>Transition</i>	24	25	25	1	2.3%	1	5.1%
- <i>University Programs</i>	49	39	49	11	27.4%	1	1.5%
- <i>Rescissions 4/</i>	-120	0	0	0	--	120	-100.0%
- <i>Homeland Security Institute 5/</i>	0	0	5	5	--	5	--
Coast Guard	19	20	25	5	--	6	31.6%
Total DHS R&D	955	996	1,040	44	4.4%	86	9.0%
Total Budgets (including non-R&D):							
<i>Sci. & Tech.</i>	762	799	830	31	3.9%	69	9.0%
<i>DNDO</i>	616	592	485	-107	-18.1%	-131	-21.3%

AAAS estimates based on FY 2008 appropriations bills. Includes conduct of R&D and R&D facilities.

FY 2007 and FY 2008 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.

FY 2007 figures include 2007 supplemental appropriations enacted in Public Law 110-28 and recent transfers out of S&T.

1/ Rad. & Nuc. Countermeasures transferred to the Domestic Nuclear Detection Office in 2007.

2/ R&D items only. Non-R&D components and line items are excluded.

3/ S&T Directorate proposes new account structure in FY 2008. FY 2007 adjusted for comparability.

4/ Undistributed rescissions in FY 2007 appropriations and undistributed supplemental in Public Law 110-28.

5/ FY 2008 omnibus bill has a separate line for the Homeland Security Institute. Funding is included in other accounts for other year.

December 17, 2007 - AAAS estimates of House-Senate Conference appropriations.

These appropriations may be rejected by the House or Senate, and may be vetoed by the President.