

## House Approves Small Increase for DHS R&D

### AAAS R&D Funding Update on R&D in House FY 2006 DHS Appropriations

#### Highlights

- **Recent growth in Department of Homeland Security (DHS) R&D funding would slow in FY 2006, but would still gain some ground in an era of tight budgets. The House would provide \$1.3 billion for DHS R&D in FY 2006, a small increase of \$16 million or 1.3 percent (see Table), after increases of more than \$200 million in each of the past three years.**

- The House would provide large boosts for DHS' top R&D priorities. There would be \$146 million for radiological and nuclear countermeasures (up nearly 20 percent) to establish a Domestic Nuclear Detection Office (DNDO), \$90 million for chemical countermeasures (up 70 percent), \$55 million for explosives countermeasures (nearly triple last year's funding) and \$110 million for R&D to counter portable anti-aircraft missiles (up 80 percent).

- Large increases for the top priorities would be offset by cuts in other areas of the DHS R&D portfolio, including threat and vulnerability assessments (down 29 percent to \$47 million), standards development (down 11 percent to \$36 million), rapid prototyping (down nearly two-thirds to \$30 million), cybersecurity, and transportation security.

- The largest part of the DHS R&D portfolio would continue to be biological countermeasures with an investment of \$360 million in FY 2006, down slightly from this year.

- The House would agree with the FY 2006 budget proposal to finish the process of consolidating all DHS R&D into the Directorate of Science and Technology (S&T). In FY 2006, R&D programs that transferred into DHS with the Transportation Security Administration (TSA) and the Coast Guard (CG) in 2003 would be moved out of those units into S&T, though at reduced funding levels.

#### DHS R&D in FY 2006 House Appropriations

On May 17, the House of Representatives kicked off the FY 2006 appropriations process by debating and approving its version of the FY 2006 Homeland Security appropriations bill (HR 2360), the first of the House's FY 2006 appropriations bills. **The House Homeland Security bill would provide \$1.3 billion for DHS R&D in FY 2006**, a slight increase of \$16 million or 1.3 percent above FY 2005, slightly less than the 3.6 percent increase requested by DHS in February (see Table).

The House would provide \$30.8 billion in discretionary funding for DHS in FY 2006, an increase of \$1.4 billion (excluding FY 2005 disaster relief supplementals and Bioshield funding) that represents a maturation of the homeland-security effort after the frenzied start-up phase of the last several years. The House appropriation appears to be \$1.3 billion above the \$29.6 billion White House request, but the House would reject the Administration's proposal for nearly \$2 billion in new user fees to finance airport security, leaving overall program funding below the request.

Although still a high priority in these uncertain times, the tighter FY 2006 DHS budget would require some tough choices in spending priorities. The DHS R&D portfolio mirrors the trends in the overall DHS budget: after annual increases greater than 20 percent in the first few years of its existence, **growth in the DHS R&D portfolio would level off with an FY 2006 House appropriation of \$1.3 billion, up \$16**

**million or 1.3 percent** (see Table). (For details of the President's request for DHS R&D, please see Chapter 12 of *AAAS Report XXX: R&D FY 2006* or the February 25 DHS R&D Funding Update).

Increases in some parts of the DHS R&D portfolio would require offsetting cuts in other areas that have previously enjoyed large increases. Unlike other DHS activities, DHS inherited few R&D programs from other agencies at its birth in 2003; therefore, the large increases in R&D funding for the past few years were devoted to building R&D capabilities from scratch to meet the urgent need for science and technology to address homeland security concerns. Now that the start-up phase of DHS R&D is mostly complete, R&D programs should see more stable funding profiles with trade-offs between different areas based on changing assessments of DHS' science and technology needs.

### R&D in the Directorate of Science and Technology

Currently, most DHS R&D programs have their home in the **Directorate of Science and Technology (S&T)**. This Directorate has responsibility for setting homeland-security R&D goals and priorities, coordinating homeland security R&D throughout the federal government, funding homeland security R&D, facilitating the transfer and deployment of technologies for homeland security, and advising the DHS Secretary on all scientific and technical matters.

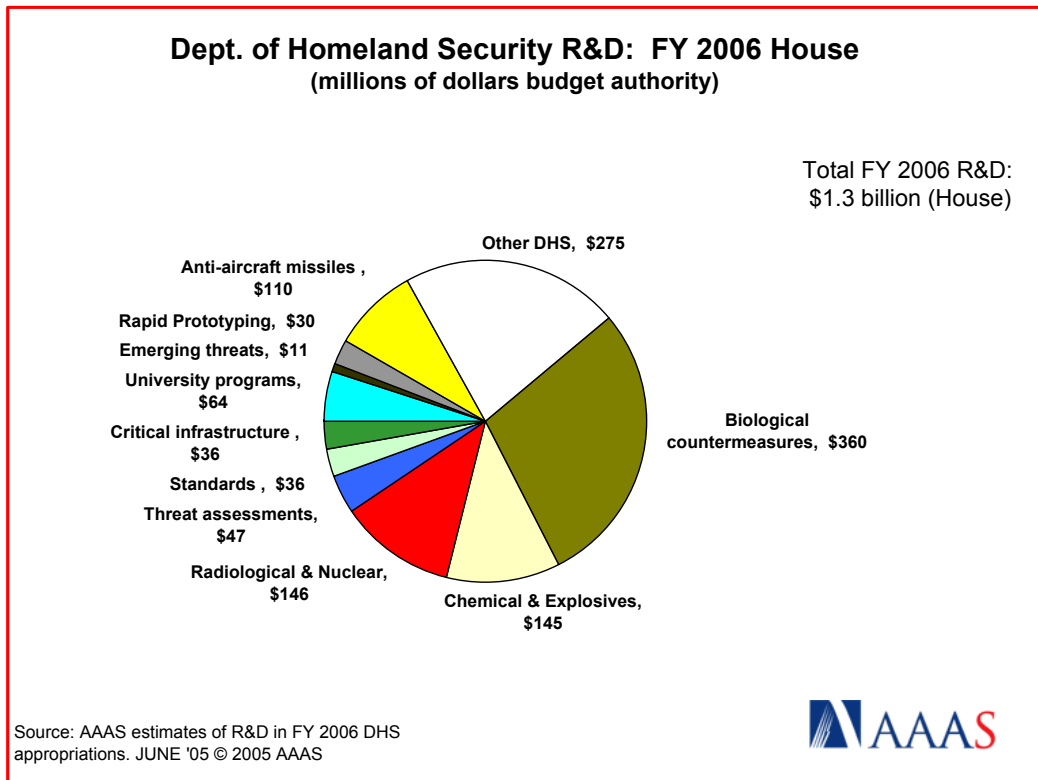


Figure 1. (click on the image for PDF)

In FY 2006, DHS proposes to finish consolidating all R&D activities within the S&T Directorate. Through this year, the Transportation Security Administration (TSA) and Coast Guard (CG), which transferred to DHS from the Department of Transportation (DOT) in 2003, have retained their own R&D programs, but in **FY 2006 the House would agree with the proposal to have the S&T Directorate take over their R&D portfolios and become responsible for 100 percent of the department's \$1.3 billion in R&D funding.** Nearly all of the \$1.4 billion total S&T Directorate budget would go toward R&D activities except for \$81 million in management expenses.

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In an era of record-breaking federal budget deficits and tightening restraints on discretionary spending, even defense and homeland security spending are not immune from tough choices in the FY 2006 budget, requiring careful balancing of priorities. The FY 2006 House DHS R&D appropriation, with a 1.3 percent increase far smaller than past increases allowing every program area to receive more funding, would set clear priorities among DHS' R&D program areas, mostly mirroring DHS' own priorities (see Table and Figure 1). **The top priorities in the DHS R&D portfolio would be radiological and nuclear countermeasures (increasing 20 percent to \$146 million in FY 2006), including the establishment of a Domestic Nuclear Detection Office (DNDO); chemical countermeasures (climbing 70 percent to \$90 million); explosives countermeasures (up 178 percent to \$55 million) and R&D to counter portable anti-aircraft missiles (up 80 percent to \$110 million).**

**The House would provide \$127 million in FY 2006 for a new Domestic Nuclear Detection Office (DNDO)**, down dramatically from the \$227 million request but still a significant start-up appropriation. The DNDO would develop, acquire, and support a domestic system to detect and report terrorist attempts to transport or use radiological or nuclear materials. DNDO will be staffed with a multi-agency team and will coordinate its efforts with the intelligence community, and hopes to fund R&D, develop new technologies, and transition these technologies to field use. Within this portfolio, there would also be \$9 million to finish construction of a Radiological / Nuclear Countermeasures Test and Evaluation Complex (Rad/Nuc CTEC) at the Nevada Test Site to provide laboratory facilities for this work. DNDO would be funded as part of the radiological and nuclear countermeasures portfolio, which would jump 19.4 percent to \$146 million.

The explosives countermeasures portfolio would nearly triple from \$20 million to \$55 million. The House would allocate \$40 million of the FY 2006 funds specifically for air cargo explosives detection technologies, including \$30 million for three air cargo screening pilot projects.

The Counter MANPADS portfolio would nearly double in both the request and the House bill to \$110 million (up 80.3 percent). Man Portable Air Defense Systems (MANPADS) are shoulder-mounted portable air missiles that have been used (unsuccessfully so far) against passenger aircraft. Fears of a successful MANPADS attack against commercial aircraft have jump-started DHS' Counter MANPADS effort. The increased FY 2006 investment would allow DHS to develop, prototype, and test promising technologies in aircraft to give policymakers a range of options on how to most effectively protect commercial aviation.

Another area due for a large increase is R&D for Support of DHS Components, up 46 percent to \$80 million. This R&D portfolio represents S&T Directorate programs that directly support the missions and capabilities of other DHS units, such as the Border Patrol, the Secret Service, the Emergency Preparedness and Response directorate, and the Coast Guard. Key technologies explored in this portfolio are border surveillance technologies, container shipping security, disaster modeling and simulation capabilities, and protective equipment.

**Large increases for the priorities above would be offset by cuts in other areas of the DHS R&D portfolio**, including threat and vulnerability assessments (down 29 percent to \$47 million), standards development (down 11 percent to \$36 million), rapid prototyping (down 61 percent to \$30 million), cybersecurity, and transportation security. TSA and Coast Guard R&D programs, mostly in transportation security, funded at a combined \$196 million in FY 2005 would be consolidated within the S&T Directorate at \$117 million in the FY 2006 House appropriation, a dramatic reduction. But the House would add funds to some areas that were proposed for cuts in the DHS request, including a 33 percent boost for critical infrastructure R&D to \$36 million instead of a proposed cut, and a doubling of the R&D effort in interoperable communications technology for first responders to \$42 million instead of flat funding. The House would also add \$10 million in new funds for Technology Development and Transfer, to allow DHS to address criticisms that it has been slow to actually transfer and deploy new technologies from the laboratory to the front lines of homeland security.

**The House would agree with the request to make modest cuts to \$64 million for University Programs and Fellowship Programs**, down from \$70 million in FY 2005 but still well above \$22 million last year.

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The House explains this cut by noting that the program does not expect to spend \$45 million in FY 2005 funds by the end of this year, allowing total FY 2006 funding to exceed \$100 million. This program funds several university-based centers of excellence and is a funding source dedicated exclusively to funding university-based research. DHS has already designated four university-based centers for homeland security; the latest, awarded to the University of Maryland and its partners, will focus on behavioral and social aspects of terrorism. Another focuses on threat assessments and two focus on agro-terrorism. The fifth center, to be awarded this year, will focus on preparations and responses to terrorist attacks, and will be followed by three other centers to be awarded by the end of FY 2006. The program also funds cooperative centers awarded in collaboration with other federal agencies for research areas of mutual interest: there will soon be a joint DHS-EPA award for a center on microbial risk assessment, followed by two more cooperative centers by the end of FY 2006. This program also funds fellowships and scholarships that fund graduate education and research opportunities for scientists and engineers.

**The largest part of the portfolio would continue to be biological countermeasures** with an investment of \$360 million in FY 2006, down slightly from this year. Although no money would be requested, construction of the National Biodefense Analysis and Countermeasures Center (NBACC) at Fort Detrick, Maryland would continue in FY 2006 with previously appropriated funds toward a target completion date of 2008. There would also be \$23 million in new funds to start construction of a new National Bio and Agrodefense Facility (NBAF), a \$450 million total project with a scheduled completion of 2010 to enhance DHS capabilities to respond to food or animal-borne terrorist threats and to replace DHS' existing facility on Plum Island, New York.

Most of the above S&T directorate funds will be spent in federal laboratories or federally funded R&D centers (FFRDCs; government-owned, contractor-operated laboratories). DHS has an Office for National Laboratories that coordinates DHS interactions with DOE national laboratories possessing expertise in homeland security. Over the past year, DHS has set up its own FFRDC, a new Homeland Security Institute (HSI), and has also consolidated R&D activities at laboratories it inherited from other departments. The extramural R&D portfolio in the S&T directorate is managed by **the Homeland Security Advanced Research Projects Agency (HSARPA)**, modeled on the Defense Advanced Research Projects Agency (DARPA) in the Department of Defense (DOD). HSARPA awards extramural grants for basic and applied research to promote revolutionary changes in homeland security technologies; develops and tests potential homeland security technologies; and accelerates or prototypes the development of homeland security technologies to get them ready for deployment.

### Next Steps and Possible Impacts

The House approved its version of the Homeland Security bill on May 17. The Senate Appropriations Committee is expected to draft its version in June.

(This analysis is one of a series of AAAS R&D Funding Updates on FY 2006 congressional appropriations. The complete series of AAAS R&D Funding Updates, including continually updated analyses of R&D in FY 2006 appropriations, is available on the AAAS R&D Web Site (<http://www.aaas.org/spp/rd>) in the "FY 2006 R&D" or the "What's New" sections.)

- June 3, 2005  
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Table. DHS R&amp;D in FY 2006 House Appropriations

**Table. Department of Homeland Security  
House Action on R&D in the FY 2006 Budget  
(budget authority in millions of dollars)**

	FY 2005 Estimate	FY 2006 Request	FY 2006 House	House Action			
				Chg. from Request Amount	Chg. from Request Percent	Chg. from FY 2005 Amount	Chg. from FY 2005 Percent
DHS R&D:							
Border & Transp. Security (TSA) 1/	178	0	0	0	--	-178	-100.0%
Science and Technology	1,047	1,287	1,259	-28	-2.2%	212	20.2%
- Biological Countermeasures	363	362	360	-2	-0.6%	-3	-0.7%
- NBACC 2/	35	0	0	0	--	-35	-100.0%
- Chemical Countermeasures	53	102	90	-12	-11.8%	37	69.8%
- Explosives Countermeasures	20	15	55	40	272.1%	35	177.7%
- Radiological & Nuclear Ctrmeas. 3/	123	246	146	-100	-40.6%	24	19.4%
- Threat & Vulnerability Assess.	66	47	47	0	0.0%	-19	-28.6%
- Standards	40	36	36	0	0.0%	-4	-10.6%
- Support of DHS Components	55	94	80	-14	-14.6%	25	46.4%
- University Programs	70	64	64	0	0.0%	-6	-9.1%
- Emerging Threats	11	11	11	0	0.0%	0	-2.3%
- Rapid Prototyping	76	21	30	9	43.5%	-46	-60.5%
- Counter MANPADS	61	110	110	0	0.0%	49	80.3%
- SAFETY Act	10	6	10	4	78.6%	0	0.0%
- Interoperable Communic.	21	21	42	21	102.4%	21	97.6%
- Critical Infrastructure	27	21	36	15	72.1%	9	32.6%
- Cybersecurity	18	17	17	0	0.0%	-1	-7.2%
- R&D Consolidation 1/	0	117	117	0	0.0%	117	--
- Tech. Development & Transfer	0	0	10	10	--	10	--
Coast Guard 1/	18	0	0	0	--	-18	-100.0%
<b>Total DHS R&amp;D</b>	<b>1,243</b>	<b>1,287</b>	<b>1,259</b>	<b>-28</b>	<b>-2.2%</b>	<b>16</b>	<b>1.3%</b>
Selected non-R&D items:							
Biodefense countermeasures (BioShield)	2,508	0	0	0	--	-2,508	-100.0%
Total DHS Discretionary Budget	31,980	29,555	30,846	1,291	4.4%	-1,134	-3.5%

AAAS estimates based on FY 2005 and FY 2006 appropriations bills. Includes conduct of R&D and R&D facilities.

FY 2005 and FY 2006 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.

BioShield funding has already been provided in FY 2005 advance appropriations.

1/ FY 2006 budget proposes to consolidate TSA and CG R&D within S&T Directorate.

2/ Construction funds for National Biodefense Analysis and Countermeasures Center.

3/ Includes \$227 million in FY 2006 request and \$127 million in FY 2006 House for the Domestic Nuclear Detection Office (DNDO).

June 3, 2005 - AAAS estimates of House-approved appropriations bill.