



AAAS R&D Funding Update September 24, 2003 -

New DHS Receives Final R&D Portfolio of \$1.05 Billion, Funding for Project BioShield

Highlights

- **The new Department of Homeland Security (DHS) will be one of the major funding sources of R&D in FY 2004. The DHS R&D portfolio will total \$1.05 billion in the final congressional budget, up 57 percent from FY 2003 (see Table).**
- **Congress has decided to fund the non-R&D Project Bioshield** to procure biodefense countermeasures, a program first proposed in the President's State of the Union address this year. The final DHS budget contains \$5.6 billion over 10 years for biodefense countermeasures, of which \$890 million will be available in FY 2004.
- **The new S&T Directorate in the DHS will have \$874 million for R&D activities**, 68 percent more than the current funding level, including \$70 million for university programs and \$60 million for R&D on antimissile devices for commercial aircraft.

R&D in the Department of Homeland Security

Last week, a House-Senate conference committee released the final version of the first-ever Homeland Security appropriations bill (HR 2555) providing FY 2004 funding for programs in the newly created Department of Homeland Security (DHS). The House and Senate are expected to give final approval to the bill and send it to President Bush for his signature before the October 1 start of FY 2004. DHS took shape just six months ago on March 1 with the transfer of nearly 180,000 federal employees in nearly two dozen federal agencies to the new department. DHS programs had previously been funded in nine different appropriations bills, but for the FY 2004 appropriations process both the House and the Senate consolidated DHS programs into a single Homeland Security appropriations bill. **The final HS bill will provide \$29.4 billion in FY 2004 for discretionary programs in DHS, a modest 1.9 percent increase; included in this total is \$1.05 billion for DHS R&D, a staggering 56.9 percent or \$381 million increase over FY 2003** (see Table). (For details of earlier House appropriations for DHS R&D, see the June 25 House DHS R&D Funding Update. For details of earlier Senate appropriations for DHS R&D, see the July 14 Senate DHS R&D Funding Update)

The final appropriation for DHS R&D is well above the \$907 million request announced in February. (For details of the request for DHS R&D as well as short history of the creation of the DHS in Public Law 107-296 (Nov. 2002), see the June 12 AAAS R&D Funding Update. Some of the figures in the earlier analysis have been revised since June 12). Congress added \$80 million to the request for transportation security R&D, \$60 million to the request for university programs, and \$60 million for antiaircraft missile countermeasures, partially offset by minor reductions in other areas.

R&D in the Directorate of Science and Technology

Nearly all DHS R&D programs find their home in the Directorate of Science and Technology, one of four broad directorates in the new department. The Directorate is led by Charles McQueary, confirmed in March as the first Under Secretary for Science and Technology, who reports directly to the Secretary for Homeland Security (Tom Ridge). **The House and the Senate have agreed on \$874 million for R&D in the S&T Directorate, up \$353 million or 67.8 percent from the FY 2003 funding level.**

One reason for this enormous increase in funding is that unlike the other directorates S&T is building many of its capabilities from scratch. Although the Directorate became the new home of existing Department of Defense, Energy, and Agriculture programs with an estimated budget of \$521 million in FY 2003, the Directorate will have to create brand-new R&D capabilities in several areas to address critical knowledge gaps in homeland security. The Table shows the division of the S&T Directorate budget among the various program areas for the President's request and the final DHS budget. (For more information on the S&T programs from other agencies that transferred to the DHS this year, see the June 12 R&D Funding Update).

Unlike many other R&D funding agencies, which are responsible for research but are not responsible for bringing technology-based products all the way to market or deployment, DHS will have responsibility for the entire spectrum of science and technology, all the way from basic research to engineering work to development to deployment of new technologies in the hands of DHS employees and state and local responders. Thus, its R&D portfolio will at least initially be heavily skewed toward development. In this way, the DHS portfolio will be very similar to DOD's portfolio, which is also heavily oriented toward development over research, rather than the research-oriented models of NIH or NSF.

The final DHS FY 2004 budget will provide a total of \$70 million for University Programs and Fellowship Programs, a boost of \$60 million over the request of \$10 million and well above the original House and Senate proposals. This program will fund several university-based centers of excellence and will be a funding source dedicated exclusively to funding university-based research. The Department expects to designate several university-based centers for homeland security in FY 2004; the competition for the first such center, oriented toward threat assessments using the social sciences, is already underway. Universities will not be limited to just this pool of money; they will also be able to compete for R&D funds in the other program areas. This program will also fund fellowships that will bring scientists and engineers from academia and private industry to work within DHS for a year or two.

DHS will also provide \$60 million in new funds for R&D on antimissile devices for commercial aircraft, in the hopes of developing and prototyping of antimissile devices that can be fitted on airplanes. The new funding responds to increasing congressional concern in recent months that terrorists could launch attacks on U.S. commercial airplanes using shoulder-fired missiles from the ground, similar to the failed attacks on an Israeli passenger jet last year in Africa. The funds are provided within the Critical Infrastructure Protection program (see Table).

Congress also added to the request for rapid prototyping activities, bringing total FY 2004 funding to \$75 million, midway between the House and Senate proposals. This program will assist private industry in rapidly developing and prototyping new homeland security technologies to speed the deployment of new technologies by first responders and DHS employees. DHS will also have \$39 million for standards R&D in FY 2004; this program will certify the effectiveness and performance capabilities of homeland-security technology products through the work of a future network of standards certification laboratories, and in collaboration with Commerce's National Institute of Standards and Technology (NIST). This work should allow DHS operating units, state and local governments and other potential customers for these products to make more-informed purchasing decisions.

DHS will make significant R&D investments in other areas: \$127 million for the development of radiological / nuclear countermeasures including detection systems and crisis-response technologies; \$199 million for the development of biological countermeasures to reduce the probability and impacts of a biological terrorist attack; \$52 million for chemical countermeasures to protect U.S. civilians against chemical attacks; \$10 million for R&D against explosives attacks; \$94 million for threat and vulnerability assessments to develop technologies to analyze and evaluate threats, especially in information technologies; and \$21 million for R&D on emerging threats. Funded separately from the biological countermeasures program in the final DHS budget but included within it in the request is \$88 million for construction of a new laboratory named the National Biodefense Analysis and Countermeasures Center in Fort Detrick, Maryland. This center was initiated in FY 2003 Department of Defense (DOD) appropriations, but was immediately transferred to the DHS earlier this year.

DHS plans to create a new R&D unit in the S&T directorate in FY 2004, the **Homeland Security Advanced Research Projects Agency (HSARPA)**, modeled on the existing Defense Advanced Research Projects Agency (DARPA) in the Department of Defense (DOD). HSARPA will distribute much of the R&D money within the directorate, and will have a role in most of the above areas. HSARPA will award extramural grants for basic and applied research to promote revolutionary changes in homeland security technologies; will develop and test potential homeland security technologies; and will accelerate or prototype the development of homeland security technologies to get them ready for deployment. HSARPA has already hired employees and has begun to establish its processes for awarding R&D grants. In addition to HSARPA, the Directorate will create several other organizations and advisory structures over the next few months to a year in order to carry out its S&T tasks. For more information on the S&T infrastructure in DHS, see the June 12 R&D Funding Update.

R&D in Other DHS Directorates and Programs

- **Directorate of Border and Transportation Security:** This directorate is by far the largest of the four DHS directorates with a budget of more than \$12 billion in FY 2004. It folds in the Immigration and Naturalization Service, the Customs Service, and the recently created Transportation Security Administration (TSA) formerly in the Department of Transportation (DOT). This directorate inherits TSA's R&D programs on aviation security, with an appropriation of \$110 million in FY 2003 rising to \$155 million in FY 2004. Congress added \$35 million to the Administration request for a total of \$45 million for R&D on next-generation explosive detection technologies in commercial aviation, and an additional \$45 million (for a total of \$55 million) for air cargo security R&D. This R&D portfolio is expected to result in a report next April on options for inspecting air cargo on commercial flights including costs and timetables for implementing comprehensive cargo screening.

- **Directorate for Information Analysis and Infrastructure Protection:** R&D is not a large part of this directorate, totaling just \$5 million in FY 2004 out of a total budget of \$839 million. Although R&D spending is a small part of this directorate's budget, most of its research and analysis needs on cybersecurity will be performed by the S&T Directorate. The Information directorate will also rely on research performed by other agencies such as Commerce's National Institute of Standards and Technology (NIST).

- **Directorate of Emergency Preparedness and Response:** This directorate will coordinate all federal assistance in response to disasters (including natural disasters) and domestic attacks, and folds in the Federal Emergency Management Agency (FEMA). There are no R&D programs within its \$8.4 billion budget in FY 2004.

Congress and the President have agreed to set aside \$5.6 billion over the next 10 years to procure biodefense countermeasures from the private sector, which could provide strong incentives for private-sector investments in biodefense R&D. The final DHS budget provides \$890 million in FY 2004 and an additional \$4.7 billion between 2005 and 2013 for the program named Project BioShield in the President's State of the Union address. Although not an R&D program, the program is designed to encourage private-sector R&D investments in biodefense vaccines, therapeutics, and other countermeasures by providing a guaranteed government market for future products. DHS, through the Emergency Preparedness Directorate, will purchase and stockpile these countermeasures using the \$5.6 billion total appropriation. After the Senate balked at making the program an entitlement (mandatory) program as originally proposed by the Administration, the Administration and the House agreed to fund it through discretionary funds but through an advance appropriation setting aside a decade's worth of funding in the FY 2004 DHS bill.

- **Coast Guard:** The Coast Guard's R&D portfolio became part of DHS in March. DHS takes over responsibility of the Coast Guard from DOT, but the Coast Guard remains an independent entity under the DHS umbrella and retains an independent \$16 million R&D portfolio for its science and technology needs.

Other Homeland Security R&D Programs

Although DHS will be the focal point for homeland security-related R&D in the federal government, the majority of federal homeland security-related R&D will actually remain outside the department. Bioterrorism R&D programs currently within the National Institutes of Health (NIH) will stay there instead of transferring to DHS. The NIH bioterrorism R&D portfolio for FY 2004 would be \$1.6 billion in the President's request, mostly in the National Institute of Allergy and Infectious Diseases (NIAID). The DHS legislation signed into law last November gives the DHS Secretary authority with the HHS Secretary to set priorities and strategy for human health-related research on terrorist threats, but no funding authority; research grants will continue to flow from NIH out of the NIH budget and be administered by NIH personnel using existing funding mechanisms, but research priorities will come from DHS. Other counterterrorism R&D programs in other agencies, notably EPA, DOD, and DOE, will continue to remain outside DHS. (For more on the NIH R&D portfolio, see the July 10 FY 2004 NIH R&D Funding Update).

Next Steps

The House and the Senate are expected to each give final approval to the final Homeland Security bill within the next week. President Bush will sign the bill into law shortly thereafter, either at the end of the month or shortly after the October 1 start of FY 2004.

(This analysis is one of a series of AAAS R&D Funding Updates on the FY 2004 congressional appropriations process. This analysis includes information on R&D in House-Senate conference appropriations for the Department of Homeland Security. The complete series of AAAS R&D Funding Updates, including continually updated analyses of R&D by agency in FY 2004 appropriations, is available on the AAAS R&D Web Site (<http://www.aaas.org/spp/rd>) in the "FY 2004 R&D" or the "What's New" sections.)

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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/rd



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**Table. Department of Homeland Security
House-Senate Conference on R&D in the FY 2004 Budget
(budget authority in millions of dollars)**

	FY 2003 Estimate	FY 2004 Request*	House-Senate Conference				
			FY 2004 CONF.	Chg. from Request		Chg. from FY 2003	
				Amount	Percent	Amount	Percent
DHS R&D:							
Border & Transportation Security (TSA)	110	75	155	80	106.4%	45	40.8%
Emergency Preparedness	0	0	0	0	--	0	--
Information Analysis and Infra.	15	5	5	0	0.0%	-10	-66.7%
Science and Technology	521	803	874	71	8.8%	353	67.8%
<i>Biological countermeasures</i>	--	365	199	-166	-45.6%	--	--
<i>Nuclear & Radiological ctrmeasrs.</i>	--	137	127	-10	-7.0%	--	--
<i>Chemical countermeasures</i>	--	55	52	-3	-5.5%	--	--
<i>High Explosives countermeasures</i>	--	10	10	-1	-5.0%	--	--
<i>Threat & vulnerability assessments</i>	--	90	94	4	3.9%	--	--
<i>Conventional missions</i>	--	55	34	-21	-38.2%	--	--
<i>Rapid Prototyping / TSWG</i>	--	30	75	45	150.0%	--	--
<i>Standards / state and local</i>	--	25	39	14	56.0%	--	--
<i>Emerging threats</i>	--	22	21	-1	-4.5%	--	--
<i>Critical infrastructure protection</i>	--	5	67	62	1230.0%	--	--
<i>University programs / HS fellowships</i>	--	10	70	60	600.0%	--	--
<i>Countermeasures Center 1/</i>	--	0	88	88	--	--	--
Coast Guard	23	23	16	-7	-31.4%	-7	-31.4%
Total DHS R&D	669	907	1,050	143	15.8%	381	56.9%
<i>Selected non-R&D items:</i>							
<i>Biodefense countermeasures (BioShield)</i>	0	890	890	0	0.0%	890	--
Total DHS Discretionary Budget	28,875	27,772	29,411	1,639	5.9%	536	1.9%

AAAS estimates based on FY 2004 appropriations bills. Includes conduct of R&D and R&D facilities.

FY 2003 and FY 2004 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 2004 request figures have been revised since the February 2003 release of the President's budget.

1/ Construction costs for the National Biodefense Analysis and Countermeasures Center in Fort Detrick, MD.

September 24, 2003 - House-Senate conference funding levels.

These funding levels are final unless the conference report is vetoed.