



AAAS R&D Funding Update June 25, 2003 -

House Approves \$1.1 Billion for Dept. of Homeland Security R&D, Funds Project BioShield

Highlights

- **The Department of Homeland Security (DHS) would become one of the major funding sources of R&D in FY 2004. The DHS R&D portfolio would total \$1.1 billion in the House-approved appropriation, up nearly 60 percent** from the \$669 million for comparable programs in FY 2003 and nearly quadruple the FY 2002 funding level. The House would provide \$148 million more than the request.
- **The House would provide \$890 million in FY 2004 and \$5.6 billion over 10 years for 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 new S&T Directorate in the DHS would receive \$900 million for R&D activities**, nearly double the current funding level. The House would provide \$35 million for university programs and \$60 million for R&D on antimissile devices for commercial aircraft.

On June 24, the House of Representatives overwhelmingly approved (425-2) the first-ever Homeland Security appropriations bill (HR 2555) providing FY 2004 funding for programs in the newly created Department of Homeland Security (DHS). DHS took shape less than four 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 House HS bill would provide \$29.4 billion in FY 2004 for discretionary programs in DHS; included in this total would be \$1.1 billion for DHS R&D, a staggering 57.5 percent or \$385 million increase over FY 2003** (see Table).

The House appropriation would be well above the President's request of \$907 million 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). The House would add \$51 million to the request for transportation security R&D, and would add \$97 million to the request for R&D in the Directorate for Science and technology, including a \$50 million boost for rapid prototyping activities, a \$25 million boost for university programs, and \$60 million in new funds for R&D on antimissile devices for commercial aircraft, offset with some trimming of the request 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 would provide \$900 million for R&D in the S&T Directorate, up \$379 million or 72.8 percent from the FY 2003 funding level.**

One reason for this enormous increase in funding, far larger than the 1.9 percent increase for the overall DHS budget, is that unlike the other directorates S&T will have to build 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. Also, because of the bipartisan consensus that homeland security is a critical national priority, it is not surprising that both the House and the President so far have shown a willingness to dramatically boost resources for DHS R&D even in tight budgetary times. The Table shows the division of the \$900 million S&T Directorate budget among the various program areas for both the President's request and the House appropriation. (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 rather than research, rather than the research-oriented models of NIH or NSF.

As the Table shows, the House would rearrange S&T priorities somewhat from the request but would mostly provide the requested funding. The House would make a minor internal change in the Directorate by consolidating salaries and expenses of federal employees into a single Salaries & Expenses account funded at \$39 million rather than distributing these costs among the program areas.

The House would add \$135 million to the request for three specific program areas. **The House would provide a total of \$35 million for University Programs and Fellowship Programs**, a boost of \$25 million over the request. This program would fund several university-based centers of excellence and would 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, although the exact number of centers and the selection process have not yet been announced. Universities will not be limited to just \$35 million; 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 the DHS for a year or two.

The House would provide a total of \$112 million for conventional missions R&D to develop technologies that could assist DHS units in better performing their existing, non-homeland security missions. **Included in the House bill would be \$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.

Finally, **the House would add \$50 million to the request for rapid prototyping activities**, bringing total FY 2004 funding to \$80 million. This program would 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. This program will work in cooperation with the multi-agency Technology Support Working Group (TSWG), a coordinating mechanism among several federal departments to support private-sector R&D on potential counter-terrorism technologies.

In other areas, DHS would make significant R&D investments under the House proposal: \$130 million for the development of radiological / nuclear countermeasures including detection systems and crisis-response technologies; \$293 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 and explosives attacks (including aircraft explosives); \$86 million for threat and vulnerability assessments to develop technologies to analyze and evaluate threats, especially in information technologies; \$39 million for a standards program to develop test

and evaluation criteria for homeland defense technologies, up \$14 million from the request because the House would transfer in funds for similar activities in another directorate; and \$21 million for R&D on emerging threats. Funding for these areas would follow the request closely. Included in the biological countermeasures funding is \$90 million, the same as the request, to begin construction of a new laboratory named the National Biodefense Analysis and Countermeasures Center in Fort Detrick, Maryland. Not included in biological countermeasures R&D but funded elsewhere is Project Bioshield (see the R&D in Other DHS Directorates and Programs, below).

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 begin life with a request for roughly \$350 million in FY 2004; from the House bill, it is unclear how much money HSARPA would receive** but it could have a role in most of the above R&D 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. Planning for the HSARPA is already underway this year; HSARPA has begun hiring employees and establishing 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

\$154 million of the FY 2004 DHS R&D portfolio would remain outside the S&T Directorate in the House plan (see Table). The House would also provide nearly \$1 billion in related non-R&D biodefense funding outside S&T (see below).

- **Directorate of Border and Transportation Security:** This directorate is by far the largest of the four DHS directorates with a budget of nearly \$15 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 \$126 million in the FY 2004 House proposal. The House would add \$50 million to the Administration request by providing an additional \$30 million (for a total of \$40 million) for R&D on next-generation explosive detection technologies in commercial aviation, and an additional \$20 million (for a total of \$30 million) on cargo screening technologies to address potential terrorist attacks using air cargo.

- **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 \$776 million in the House plan. 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. This 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 \$5 billion budget in FY 2004, though the S&T Directorate could fund R&D to improve this directorate's ability to respond to disasters.

The House would provide \$890 million in FY 2004 and a total of \$5.6 billion over the next decade for the procurement of biodefense countermeasures. In an unusual move, the House would provide the entire \$5.6 billion cost of this program as an advance appropriation, guaranteeing the availability of funds through FY 2013, with \$890 million available to initiate the program in FY 2004. The House appropriation would follow closely the President's request, named Project BioShield in his State of the Union address, although the President proposed to fund the program as an entitlement program rather

than through appropriations. 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, would purchase and stockpile these countermeasures using the \$5.6 billion total appropriation. The DHS Secretary would have the authority to designate countermeasures as eligible for procurement under this program, even when these products are still at the R&D stage. The precise details of this program have not been worked out; the House and Senate are currently considering separate legislation to authorize this program and fill in the details such as criteria for determining which products are eligible, guidelines on who will make the determination of eligibility and purchase, and pricing mechanisms. Because the separate House and Senate bills for Project Bioshield are currently stalled in both the House and Senate, it is still uncertain whether the program will actually be created in FY 2004, but the House's decision to fully fund it is a strong vote of confidence in the program.

- **Coast Guard:** The Coast Guard's \$23 million R&D portfolio becomes part of DHS. DHS takes over responsibility of the Coast Guard from DOT, but the Coast Guard will remain an independent entity under the DHS umbrella.

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 House FY 2004 NIH R&D Funding Update, which will be available July 1 on the AAAS R&D web site).

Next Steps

The House Homeland Security appropriations bill now awaits parallel action by the Senate. The Senate hopes to draft its HS bill in July.

(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 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



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

	FY 2003 Estimate	FY 2004 Request*	Action by House				
			FY 2004 House	Chg. from Request		Chg. from FY 2003	
				Amount	Percent	Amount	Percent
DHS R&D:							
Border & Transportation Security (TSA)	110	75	126	51	67.2%	16	14.1%
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	900	97	12.1%	379	72.8%
<i>Biological countermeasures</i>	--	365	293	-72	-19.6%	--	--
<i>Nuclear & Radiological ctrmeasrs.</i>	--	137	130	-7	-5.1%	--	--
<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	86	-5	-5.0%	--	--
<i>Conventional missions</i>	--	55	112	57	103.6%	--	--
<i>Rapid Prototyping / TSWG</i>	--	30	80	50	166.7%	--	--
<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	5	-1	-10.0%	--	--
<i>University programs / HS fellowships</i>	--	10	35	25	250.0%	--	--
<i>Salaries & expenses 1/</i>	--	0	39	39	--	--	--
Coast Guard	23	23	23	0	0.7%	0	0.7%
Total DHS R&D	669	907	1,054	148	16.3%	385	57.5%
<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	28,372	29,411	1,039	3.7%	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/ The House Homeland Security would move salaries and expenses for federal employees in the S&T Directorate from program line items to a consolidated Salaries & Expenses account.

June 25, 2003 - House-approved funding levels.

These figures reflect amendments on the House floor.