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U.S. Homeland Security R&D Budgets

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U.S. Homeland Security R&D Budgets

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ABSTRACT

The FY09 budgets for homeland security research and development programs in the U.S. are summarized. Homeland security policy developments that can influence future efforts are discussed. Initial indications of the new administration direction on homeland security R&D are summarized. An overview of the Optics and Photonics in Global Homeland Security V conference is presented

Keywords: R&D, homeland security, budget, DHS, DTRA, BARDA, DNDO

1. FY09 BUDGETS

The budgets are from the AAAS. AAAS breaks out R&D budgets for DHS, but does not do so for DOD agencies such as DTRA. The DTRA and CBDP budgets are for the entire agency; the proportion of the budget used for R&D is not known for DTRA; for CBDP it is estimated to be about one third.

Table 1. Budgets for homeland security R&D FY09

DHS DNDO R&D	$ 269 M
DHS S&T R&D	$ 800 M
DOD DTRA (total agency)	$ 471 M
•Emphasis on R&D	
DOD CBDP (total agency)	$ 1.1 B
•Approximately 1/3 R&D	
DHHS BARDA	$ 250 M
•Biomedical Advanced R&D Authority	
•$ 102 M in FY08	
09 Economic Recovery Act:	
•DHHS BARDA: $ 430 M House proposal, $ 0 Senate, $ 0 final	
•$ 0 for DHS and DOD homeland security R&D	

1.1 Department of Homeland Security R&D

The Department of Homeland Security was formed in response to 9/11, and grew rapidly. The DHS R&D effort expanded rapidly, but problems in managing the rapid growth led Congress to reduce budgets. In 2006 the R&D effort was reorganized, splitting into two parts: Science and Technology (S&T) and the Domestic Nuclear Detection Office (DNDO). The budget in FY2006 was $1.3 billion; in FY09, the budget was $1.1 billion, up 9% from FY08.

DNDO is focused on mitigating the threat of a domestic nuclear or radiological bomb detonation. The total budget in FY09 was $514 million, of which $269 million was allocated for R&D, a 2% decrease from FY08. A portion of the R&D budget is set aside for transformative R&D; this budget was $103 million in FY09, and increase of $7 million from FY08.

1.2 DHS Science and Technology R&D

The DHS S&T budgets are nominally aligned with operating units within the Department of Homeland Security. S&T has a large effort in chem/bio defense, including both $200 million for R&D, and also $162 million, an increase of 56%, for laboratory facilities, including the biological laboratory complex in Maryland. The explosives detection program is large and growing rapidly, at $96 million in FY09, up 24%. Command, control, and interoperability R&D is intended to address a known deficiency in integrating data for analysis and in disseminating data and analysis across the country.

S&T R&D (total):	$ 800 M	+ 16 %
•Chem/bio	$ 200 M	- 4 %
•Laboratory facilities	$ 162 M	+ 56 %
•Explosives	$ 96 M	+ 24 %
•Infrastructure/Geophys.	$ 76 M	+ 18 %
•Command control interoper	$ 75 M	+ 31 %
•University programs	$ 50 M	+ 2 %
•Innovation (revolutionary)	$ 33 M	0 %
•Border & maritime	$ 33 M	+ 30 %
•Test, eval., standards	$ 29 M	0 %
•Transition	$ 29 M	+ 14 %
•Human factors	$ 12 M	- 12 %
•Homeland Security Institute	$ 5 M	0 %
Coast Guard R&D	$ 16 M	- 41 %

University programs total $50 million, and fund a number of Centers of Excellence that are intended to develop human resources to address homeland security issues, and to conduct multidisciplinary research. Each center is led by a university, in collaboration with other universities, agencies, laboratories, and the private sector. The current centers are as follows:

Center for Border Security and Immigration

Center for Explosives Detection, Mitigation, and Response

Center for Maritime, Island, and Port Security

Center for National Disasters, Coastal Infrastructure, and Emergency Management

National Transportation Security Center

Center for Risk and Economic Analysis of Terrorism Events

National Center for Food Protection and Defense

National Center for Foreign Animal and Zoonotic Disease Defense

National Consortium for the Study of Terrorism and Responses to Terrorism

National Center for the Study of Preparedness and Catastrophic Event Response

Center for Advancing Microbial Risk Assessment

University Affiliate Centers to the Institute for Discrete Sciences

Regional Visualization and Analytics Centers

1.3 Department of Defense Homeland Security R&D

The Department of Defense (DOD) has a large homeland security R&D effort. The Defense Threat Reduction Agency (DTRA) has the mission of safeguarding the U.S. and allies from weapons of mass destruction, by reducing, countering, and mitigating the threats. The emphasis is on nuclear and radiological threats, and on threats carried on missiles. DTRA emphasizes R&D. The total agency funding in FY09 was $471 million, up 3% from FY08. The DTRA R&D is not readily available, but is substantial. There is a university research program, which experienced a doubling of the budget to $22 million in FY09. The DTRA charter is available on their website (www.dtra.mil), along with significant information about their research directions.

The Chemical and Bio-Defense Program (CBDP) is focused on the detection, protection, decontamination, defense, and modeling of chemical and biological weapons of mass destruction. The CBDP budget totaled $1.1 billion in FY09, up 8%. About one third of this budget is used for R&D. Some further information on the CBDP is available at www.dtic.mil.

1.4 Policy Developments

Homeland security policy is driven by events, and also by policy studies. Recent events that are driving policy include the Mumbai attack, and violence along the U.S.-Mexican border. The Mumbai attack is being considered as a possible template for future attacks, but a public policy response does not appear to be readily available at present. The violence along the U.S. southern border has resulted in a DHS initiative, which is focused on operations. There appears to be a need for means to detect small quantities (3-4) of assault rifles being smuggled across the southern border. These weapons are considered to be a destabilizing element in the area.

One event that continues to exert a significant influence in public policy has not yet occurred. This is an attack with a weapon of mass destruction, such as a nuclear weapon. Nonproliferation efforts continue to be well supported, but significant technical issues remain. In particular, the detection of enriched uranium requires further research.

Policy studies can have significant influence on the direction of homeland security R&D. A Quadrennial Homeland Security review is due at the end of 2009. This is modeled on the influential quadrennial reviews of military policy performed by the DOD. The review should represent a coherent statement of policy by the new administration. The blog www.hlswatch.com is a useful source of information about this and other reviews.

The new administration is emphasizing the new Fusion Centers, which are an attempt to better coordinate federal, state, and local agencies in homeland security. The federal agencies involved in the Fusion Centers are Justice, FBI, and intelligence agencies, along with DHS.

1.5 Overview of Optics and Photonics in Global Homeland Security V

The Optics and Photonics in Global Homeland Security conference (OPGHS) has seven sessions in 2009.

The Global Health Security session is very large and active this year. It is led by Sarka Southern of the Gaia Medical Institute.

The session on Protecting Air Transportation from Missiles is led by Dan Lehrfeld. This session is unique in that it brings together the leaders in the field of developing means to protect commercial aircraft from MANPADS. The government program sponsor, Kerry Wilson from DHS, will be presenting an invited talk on research directions. This will be followed by talks from the key contractors who are developing the systems.

Rafael Gatt has organized the Explosives Detection session, which is focused on the application to airport security. Richard Lareau, from the DHS Transportation Security Laboratory, will be presenting on the detection of trace explosives.

Jeffrey Gordon from the General Electric Global Research Center is leading the session on Radiation Detection. The invited speaker, Marek Osinski from the University of New Mexico, will be presenting on nanoscintillators for portable radiation detection.

Dan Kroll from the Hach Corp. is a leader in water security, and he leads a unique session in this area. Talks on automated pathogen screening and detection will be presented.

The new session on Border Technology is led by Han Le from the University of Houston and Gary Shiffman from L-3. We are fortunate to have an invited presentation by Jeanne Lin from DHS on the DHS Center of Excellence program.

Michael DeWeert from BAE Systems and Chung Hye Read from NGA are leading the session on Maritime Security Technology. Christopher Dyer from the Naval Research Laboratory will present on Maritime Domain Awareness.

REFERENCES

[1] AAAS www.aaas.org/spp/rd- September 25, 2008.

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