

DEPARTMENT OF HOMELAND SECURITY  
Office of the Under Secretary for Science & Technology  
FY 2009 Report of Closed Meeting of the  
Homeland Security Science & Technology Advisory Committee  
Under Section 10(d)  
Federal Advisory Committee Act

The Homeland Security Science & Technology Advisory Committee (HSSTAC) met in closed session on October 20-22, 2008 in Norfolk, VA. The determination to close the meeting was based on the briefings and discussions during the meeting involving classified information sensitive to homeland security so that disclosure of the information discussed could potentially increase the risk to the nation's security due to the identification of vulnerabilities and the potential areas of focus for future research to mitigate our vulnerabilities. All sessions of the meeting were closed to the public pursuant to the provisions of 5 U.S.C. 552b(c).

The purpose of this quarterly meeting was to discuss the organizational structure for the next cycle of HSSTAC studies and to have preliminary technical discussions, including classified topics. Department of Defense (DoD) and Department of Homeland Security (DHS) experts presented SECRET-level briefings concerning matters sensitive to homeland security within the meaning of 5 U.S.C. 552b(c)(1) and (c)(9)(B).

Mr. Norman Polmar, HSSTAC Chairman, opened the meeting and proceeded to outline the organizational changes within HSSTAC, and noting that the Committee would be adding a new panel on the Maritime IED Threat and dissolving the Chem/Bio Defense panel. The Cyber Security and S&T Program Assessment panels would remain.

### Presentations

Under Secretary Jay M. Cohen began his discussion by telling the committee members about the future of the HSSTAC. He explained that they had been unable to get an authorization bill to maintain the HSSTAC's mandate. As a result, the committee would be allowed to sunset, but due to its importance, Under Secretary Cohen said that he would establish it as a discretionary committee, with its members being classified as special government employees.

Admiral Cohen noted that, going forward, it would be important for their work to examine the potential for transitions, in order to create an environment conducive to the setting up of a new administration and Under Secretary. He clarified, however, that the DHS S&T staff would largely stay in place because he was basically the only political appointee in the Directorate.

With regard to future threats, Under Secretary Cohen told the committee that he believed the next attack was coming, and that new issues such as cyber security were growing in importance. He noted that the Federal Government was the only organization that had the far-reaching, risk-oriented project capability necessary to provide long-term benefits to society, and that a variety of mitigation measures and innovations were being fielded, covering such areas as cargo screening, disaster management, and incident response.

Dr. Doherty, Program Executive Officer, Counter Improvised Explosive Devices, DHS S&T, began her briefing by telling the committee that her division had been working to internalize and respond to the recommendations made in the most recent HSSTAC report, *IEDs: Coming to America*. She reviewed the four main findings of the report, and outlined her group's responses to them.

For finding 1, she noted that they had created an interagency council which had brought together the intelligence community to discuss the domestic Improvised Explosive Device (IED) threat. In parallel, they were also working to develop joint S&T-Intelligence relations to maintain an ongoing review of the threat and potential mitigation methods. She further mentioned that a degree of cooperation had been established with the FBI's Terrorist Explosive Device Analytical Center (TEDAC).

Her group had also worked with the Transportation Security Agency (TSA) to coordinate red-teaming efforts that helped to validate their technology through exercises, as well as trying to engage the Joint IED Defeat Organization (JIEDDO) and the Army in their efforts.

In regards to findings 2 through 4, Dr. Doherty told the Committee that they were conducting an interim study to examine the potential effectiveness of their programs, and any alternate methods that might be considered. Their primary concern was the terrorist use of IEDs, especially in waging a sustained IED campaign. This concern overshadowed the possibility of loners or disgruntled individuals, mostly due to the design and intent of their attacks.

The next section of Dr. Doherty's briefing focused on an NSTC subcommittee that had been set up in April to focus on Domestic IEDs, and was tasked with identifying operational requirements, areas of interest, and tasking. She noted that, to date, the issue of consistent messaging and partnerships had not been addressed. She told the HSSTAC that the subcommittee would identify problem areas that S&T could invest in and try to address, with priorities assigned to each. She also explained that there was a lack of Health and Human Services (HHS) representation on the subcommittee, largely due to the fact that it was not active in this focus area. At this point, Under Secretary Cohen noted that HHS had not embraced this process fully and had a level of philosophical disagreement over the approach and mission. He noted that they did, however, help with the bio-lab efforts.

Dr. Doherty further told the HSSTAC that her group had coordinated with representatives from the FBI, TSA, and the National Bomb Squad Commanders Advisory Board (NBSCAB) to discuss the needs of their organizations, and that some had been able to provide specific inputs.

Dr. Rausch, Director, Human Factors Division, DHS S&T, provided the committee with an overview the makeup, mission, and key projects of the Human Factors division, which she said had benefited greatly from the attention and efforts of the HSSTAC. She further noted that the addition of Dr. Doherty to the S&T staff had been a good decision on the Under Secretary's part, and that her expertise would greatly benefit the Directorate.

Dr. Rausch went on to explain to the committee that her division's budget had increased from 3 to 7 million dollars this year, and that this had greatly improved their ability to expand their mission and benefit operators. The primary focus of her division, she explained, was on four distinct areas: Analysis, Observation, Personal ID Systems, and Human Technology Integration.

In regards to Analysis, she told the committee that they used different tools, such as violent-intent screening, to enhance the analytical abilities of screeners and security personnel, which would enable them to better identify motive, intent, and behavior. She noted that they worked in coordination with many international allies, including the UK and Singapore. She went on to say that their Analysis efforts were being utilized to conduct a survey for the Civil Rights division of DHS, which focused on U.S. Muslim Attitudes towards security.

Dr. Rausch then focused on their efforts in the Observation category, which she said further contributed to screening technologies, and looked at physiological factors such as heartbeat, sweat, and so on. She noted that this was funded out of the Innovation portfolio, and that despite the fact that such programs were criticized as potentially violating civil liberties, she believed the program as it existed had sufficient protective measures.

The next section of Dr. Rausch's briefing focused on Personal ID Systems, which she said were designed to fuse multiple biometrics such as fingertips, irises, and so on. She noted that mobile biometrics had been used in the field for some time, and had been validated in extreme conditions in regards to weather and physical wear. Toward that end, she observed that they were working again with many international partners, and that their effort was primarily on quantitative psychosocial impact and quicker, more convenient screenings.

In regards to Human Technology Integration, Dr. Rausch told the committee that they were focused on increasing the screening abilities of intent from a distance, and that the ultimate goal was to create a non-invasive system to rapidly and securely screen people. In response to a question, she explained that they worked with TSA to validate their training methods, and that they had started to bring such efforts into airports, where local law enforcement was invited to participate. Finally, she noted that any additional funding she received would be best spent on mobile biometrics and fusion between different metrics systems, largely because the biometrics field was heavily underfunded at this time.

Mr. Randy Zeller and Mr. Bray Barnes, DHS S&T First Responder Program, presented via video teleconference. Mr. Barnes opened the briefing by providing the committee members with an overview of his mission, and the history of how he had come to S&T. He explained that a few months prior to this meeting, he had met with Under Secretary Cohen, who had told him that S&T needed to do a better job of interfacing with the first responder community. He had been assigned to the position of First Responder Liaison, and had met with association chairs, major metropolitan area departments and chiefs, and regional fusion centers to explain the role and function of S&T, and how they could benefit the community.

He went on to say that an important function of his Liaison Office was to explain the nature and functionality of the various components within DHS, due to confusion on the part of

many within the first responder and law enforcement community in this regard. He noted that, in many cases, they would interact with FEMA or other components of DHS without having an understanding of the greater organization at hand.

Mr. Barnes explained that there were currently 59 fusion centers throughout the country, and that DHS had a seat in 25 of them. He went on to say that 45 seats would exist by the end of fiscal year 2009, and that DHS would be represented in all of them by 2010. With that said, he noted that individual components often had parallel roles and representations within the fusion centers, and that the ongoing goal of DHS was to work with them to identify best practices for ensuring the effectiveness and efficiency of the centers.

The next section of the briefing focused on S&T efforts to coordinate with and support the first responder community, and Mr. Barnes outlined a number of S&T programs to date. These included the establishment of a First Responder Council, which had engaged with many DHS components and had been well received.

Additionally, he told the committee that his office was developing a communications plan that would look at the first responder programs, and how to better coordinate with the community and facilitate its needs. He also highlighted the success of websites like [firstresponder.gov](http://firstresponder.gov), which he said served as an entry point into DHS S&T for the responder community.

At this point, Mr. Zeller noted that they were using part of their budget to transport the leaders of the first responder community to the various meetings that had taken place, and that they were partnering with the Federal Law Enforcement Training Center (FLETC). In response to a question, he said the first responder participation within the IPTs would primarily be facilitated by representation from association heads, noting that it would be difficult to coordinate participation from individual departments.

Mr. Zeller explained that six divisions and three portfolio directors within S&T would be involved with the First Responder Council, and that they would regularly involve responders as well. It was noted that if the responder community was not made an equal partner in this effort, they would not have much of a motivation to be involved.

Dr. Lawrence Papay, Chairman, S&T Assessment Panel, began his briefing by reviewing the purpose and agenda of his group, which was to review, assess, and make recommendations on DHS S&T programs with regard to relevance, completeness, balance between long and short term requirements, customer satisfaction and effectiveness, and to place special emphasis on successful transition of technologies into the ultimate user community.

In addition to the tasking specified in the Terms of Reference, Under Secretary Cohen specifically requested that the panel examine DHS S&T responsiveness to the enabling and subsequent legislation, including annual authorization and appropriation acts. Dr. Papay told the HSSTAC that his panel had interviewed the portfolio directors, research division heads, and Integrated Product Team (IPT) members to better understand how the customer requirements that DHS S&T was presented with were being met.

He explained that their focus had been on the 2007 through 2008 time period, that they had noted a great deal of fundamental improvement in the structure and organization of S&T, and that this should be carried forward following the transition to new leadership under the next administration. Among other things, he explained that the Directorate had done well in improving morale, providing direction, establishing better customer interfaces, expanding basic research, and improving relationships with Congress.

Dr. Papay felt that the IPT structure had been beneficial to the Directorate and its customers, having made significant improvements in the definition and prioritization of gaps, as well as fulfilling the objectives of the Transition portfolio. However, he also noted that the panel had found the various IPTs to be at markedly different levels of maturity. The panel also found that S&T had a limited Test and Evaluation (T&E) capability.

Finally, Dr. Papay focused on the recommendations and other forward-looking aspects of their research. He noted that much of their work in this regard focused on maintaining or improving the structure, funding, and strategies that had been improved to-date. Most significantly, they recommended seeking to increase the budget, promulgating a detailed, national-level Homeland Security S&T strategy, and establishing and improving interaction with operators and first responders.

Dr. Richard Roca, Chairman, Cyber Security Panel, began his briefing by providing an overview of the current cyber portfolio within DHS S&T, and outlining the various limitations and benefits that it presented. He explained that his panel had not taken legislative oversight of the cyber portfolio into consideration, and were primarily concerned with looking at findings and recommendations regarding its forward movement.

He described the S&T cyber program as being small in relation to other agencies' portfolios, and illustrated this fact by noting that the Directorate maintained only one staff member with relevant domain expertise. Furthermore, he outlined that the primary focus of the program was on the creation of test data sets and directory network services security. He noted that a combination of both formal and informal links existed between S&T and its various federal counterparts as it pertained to cyber programs, one of the most notable of which was DHS S&T support of the National Institute of Standards and Technology (NIST).

The next section of Dr. Roca's briefing focused on the findings that his panel had uncovered during their review of the cyber program. In response to a question, he noted that HSPD 23 was indeed a key mandate in cyber security and the mission, and that a number of their findings were designed to help in the successful implementation of the goal. The panel's nine findings included discussion regarding the evolving nature of the cyber threat, the importance of systems integration and a national strategy against such threat, and the need for greater interoperability between DHS S&T and its federal counterparts.

The final and most important section of Dr. Roca's briefing provided a summary of his panel's recommendations regarding the proper way to move forward in dealing with the cyber threat. The first of these was that the Under Secretary should reach an agreement with his

counterparts in the Cyber Operations organization of DHS that would outline the proper support role and functions that were to be expected of the S&T Directorate in this regard. It was noted that to facilitate such an arrangement, the current investment that S&T was placing in its cyber portfolio should be continued or increased, and that it would be beneficial to team with universities and colleges to help train a new generation of cyber defense-oriented engineers and specialists.

The second recommendation that the cyber panel recommended was that DHS S&T should serve as the principal technology supplier to DHS Cyber Operations, and that S&T should work in the short term to develop better systems engineering to support this effort. Furthermore, it was noted that partnering with other agencies and creating tools for use by cyber defense operators would help to protect against the threat. Finally, the importance of forensics and prosecution was mentioned as well.

Dr. David Franz, Chairman, Chem-Bio Panel provided the committee with an overview of the current environment that Chem/Bio work was being conducted in, and the various challenges and achievements that the Chem/Bio discussion had experienced within the S&T Directorate. He first noted that, unlike IED or cyber experts, biological analysts were not always able to access relevant information that could be used to reliably mitigate the threat of attacks. Furthermore, a Chem/Bio attack would be likely not have the same delivery method or scale as an IED or cyber attack, so it was difficult to conduct a comparable study.

At this point, Under Secretary Cohen interjected that Capitol Hill was very interested in Chem/Bio defense, but that there was a relatively low level of information about the subject within the legislative community. It was also noted that the most significant challenges presented by the Chem/Bio threat were the difficulty of detection and the speed with which such attacks could spread.

Dr. Franz went on to say that his panel had looked at behavioral issues and the Chem/Bio program within DHS S&T, and had made particular efforts to address seams between the various components that tried to address the issue. In response to a question, he noted that they had not worked with the World Health Organization (WHO). Additionally, he noted that the issue was made more complex by the fact that chemical and biological threats were different in many ways and had to be responded to and mitigated in disparate ways.

He further explained that due to the nature of the subject, they had been unable to be completely comprehensive in their study, and had therefore chosen to focus on a number of deliverables and working groups within the Directorate. He noted that their interviewees had been very forthcoming and helpful, and seemed eager to help. At this point, it was mentioned that the IPT process that had been set up by Under Secretary Cohen was valued by the participants that they had interviewed, and that it appeared to help bring people together and increase coordination.

Ms. Teresa Smith, the chair of the new Maritime IED Threat Panel, explained to the committee members that she would primarily focus on identifying targets and means of delivery, as well as mitigation efforts that could be utilized. The chairman of the HSSTAC, Mr. Norman

Polmar, noted that it was important to identify seams in this area, which included issues such as resource allocation and responsibility. He observed that the U.S. Coast Guard (USCG) did not have either the tasking or the tools to address the underwater threat, and that services that did (such as the Navy) were not domestically oriented.

The committee members identified a number of challenges that would be faced by the panel, one of which included defining the scope and nature of the threat. For instance, would the targets of consideration include bridges or above-water facilities that could be targeted by maritime vessels? If so, it was noted that this would vastly increase the number of potential targets. Additionally, the committee expressed concern that underwater power lines, communication lines, and oil pipelines would likely be a target.

With the scope and nature of the threat considered, the committee moved on to determining the levels of responsibility that were to be shared in this mission area by the various Federal agencies and combatant commands. It was pointed out that Northern Command (NORTHCOM) was interested in this area; the potential for parallel work between the USCG and Navy was also considered.

Finally, it was determined that it would be incumbent upon the panel to provide a context for the IED threat at ports, dams, and other maritime locations. On that note, Ms. Smith observed that a number of Port Authorities were interested in this type of research, and had an independent source of revenue with which to fund it. Complicating the matter, however, was the disparate design, layout, and functionality of the many ports throughout the United States.

Major General Richard Engel, Deputy National Intelligence Officer for Science and Technology, National Intelligence Council presented "Climate Change: Impact on National Security". He began his briefing by telling the committee that one of the primary priorities of the National Intelligence Council (NIC) was to examine the impact of environmental and natural resources on national security. He went on to explain that they were in the process of creating an intelligence community assessment and that Congress had mandated a National Intelligence Estimate (NIE) to study the impact of climate change.

General Engel told the committee that they had worked closely with the Joint Global Change network and other organizations, and had worked with the Center for Strategic and International Studies (CSIS) and the Center for New American Security (CNAS). As a result, their efforts had focused on changes that would occur by 2030, a year that was determined largely because it is difficult to foresee change with any accuracy beyond that timeframe.

The General told the committee that one of the NIC's first findings was that climate change would aggravate existing issues like poverty, social tensions, regional unrest, and so on. Its impact on the U.S would vary, largely due to its mid-tropic location, which might enable it to better deal with climate change. However, he noted that climate change could have significant economic impact.

Among the problems that climate change could present to the U.S. prior to 2030, General Engel discussed possible droughts in the southwest, damage to tundra in the north, flooding in

the northeast, and infrastructure degradation for coastal military installations and towns. In response to a question, he said that climate change would probably not directly cause failed states globally, but that its secondary effects could certainly lead in that direction and aggravate situations that were already poor.

General Engel noted that humanitarian crises could rise, and that the pressures facing Non-Governmental Organizations (NGOs), the military, and other relief organizations would likely be severe. In response to a question, he noted that U.S. Africa Command (AFRICOM) would be likely to have a central role in the humanitarian missions of the future in this regard.

Dr. David Easterling, National Oceanic and Atmospheric Administration (NOAA) presented on "Observed and Projected Changes in Climate Extremes". He began his briefing by providing the committee with an overview of NOAA's mission and priorities, which he said focus around the study of weather, climate change, and their impact on society. His study focused on the impacts of climate change on the world in the near future, and served as an informative question and answer session for many members of the committee.

He noted that certain examples of climate change were based around empirical, hard data that had been compiled since the late 1800s, which included a notable rise in the temperatures of the ocean, land, and air since that timeframe. He observed that the temperature had averaged a 2 degree rise during this period, which had influenced the development of coastline and the receding of certain glacial areas.

To illustrate the rise in temperature during the last century, Dr. Easterling explained that there had been a shift to a warmer climate in the years 1901 to 2005, and that this could impact homeland security concerns on a number of fronts. The first example he used in this instance was the possibility of crop failure, drought, and other agricultural disasters which would increase instability.

Dr. Easterling noted that droughts were increasing in many regions, and that the size and scope of droughts that occurred were often more severe than they had historically been. In response to a question, he explained that rainfall and excessive water yields were harder to model, but could be observed.

In regards to other weather-related disasters, like hurricanes, Dr. Easterling observed that the frequency and severity of such storms had increased, and that their destructive potential had steadily risen since the 1970s. In response to a question, he noted that it would be difficult to project an increase in fog, but that it could be seen as a likely after-effect of such changes.

Finally, he noted that the possibility of destructive forest fires had increased, largely due to an increase in population density, and the proximity of infrastructure to many forested areas.

Norman Polmar, HSSTAC Chairman, presented "Climate Change - Are There Implications for DHS S&T". He opened group discussion on of this issue by presenting a briefing that he had created which outlined the issue of climate change as it might affect the S&T directorate. He explained that the HSSTAC was to consider the appropriateness and priority of



climate change as an issue to be addressed by the Directorate. Committee members held a variety of opinions on the matter, and a lively discussion was pursued for several minutes. It was noted that certain climate change-induced events, such as hurricanes or floods, would affect DHS capabilities. However, the committee also agreed that when considering the various issues associated with climate change, only a minute number could be considered to be an appropriate area for DHS S&T to involve itself.

More than a few committee members offered that DHS had too many priorities as it was, and that an issue like climate change could be all-consuming. In response to this line of discussion, the chairman asked if any functions of S&T could be of use, perhaps to better predict storms or more accurately assess their damage potential. It was noted that S&T had been challenged by this in the past. Perhaps, Mr. Polmar suggested, the HSSTAC could propose something less than the size and scope of the climate change issue as a whole, something more consistent with S&T resources and capabilities. The committee noted that resiliency could be improved, and that history had shown that the public had repeatedly been ill-prepared for disasters.

The next meeting of the HSSTAC will be on January 26-27, 2009 in Laurel, MD.



Ervin Kapos  
Designated Federal Officer

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The Homeland Security Science & Technology Advisory Committee (HSSTAC) met in closed session on January 26-27, 2009 in Laurel, MD. The determination to close the meeting was based on the briefings and discussions during the meeting involving classified information sensitive to homeland security. Disclosure of the information discussed could potentially increase the risk to the nation's security due to the identification of vulnerabilities and the potential areas of focus for future research to mitigate our vulnerabilities. All sessions of the meeting were closed to the public pursuant to the provisions of 5 U.S.C. 552b(c).

The purpose of this quarterly meeting was to receive classified and sensitive Homeland Security and related briefings on Maritime Improvised Explosive Devices (IEDs), Cyber Security, and Science and Technology Programs.

Mr. Norman Polmar, Chairman of the HSSTAC, opened the session by reviewing administrative details pertaining to the HSSTAC, the status of Under Secretary Jay M. Cohen, and other related information. He updated the panel on their status noting that they were still legally official, and that the Acting Under Secretary, Bradley Buswell, had signed a new charter for the group the week before. He noted that their panel reports would be published in the spring of 2009. Furthermore, he explained that four members of the committee would be rotating out over the summer of 2009, and that new members would be assigned as they were identified and became available. With regard to Admiral Cohen, Mr. Polmar explained that he had officially left the position of Under Secretary, and that the position of Under Secretary was being temporarily filled by Brad Buswell (the Deputy Under Secretary).

The HSSTAC watched a one-hour video that provided an overview of DHS S&T's efforts and contributions towards the War on Terror, and discussed the merits and efficacy of various programs. It was generally regarded as a very positive video, and the panel agreed that Under Secretary Cohen had served the Directorate well.

#### Presentations

An overview of John Hopkins University/Applied Physics Lab efforts in support of DHS was briefed by several of the JHU/APL staff. Mr. Jose Latimer explained that APL had a division that was dedicated to homeland protection efforts, and that they worked very closely with DHS and other domestically focused agencies. He went on to say that the first purpose of their efforts was to defeat Chemical, Biological, Radiological Nuclear, and High-Yield Explosive (CBRNE) attacks within the US, and that they had assigned four stages of protection, which were elimination, prevention, protection, and response. Furthermore, he noted that they had a number of competencies with regard to CBRNE defeat, including systems engineering,

situational awareness systems, physical security systems, and mission level architecture and engineering.

Secondly, Mr. Latimer focused on the Weapons of Mass Destruction (WMD) Defeat aspect of their work, which he said partnered with the Defense Threat Reduction Agency (DTRA), for the Joint IED Defeat Organization (JIEDDO), the Joint Program Executive Office (JPEO) Chemical/Biological Defense (CBD), U.S. Special Operations Command (SOCOM), and others. He noted that a key project of theirs had been working towards early warning system development, and that they were making good progress in this regard. He went on to say that their domestic security partners were represented by DHS, the Centers for Disease Control (CDC), State and Local governments, and other Federal government agencies. With regard to their work with DHS S&T, he explained that they had worked on systems evaluations for developing a framework for Infrastructure Protection, as well as mitigating CBRNE attacks. Finally, he discussed specific programs that they had worked on with partner agencies, such as their container security program, which they developed in cooperation with Customs and Border Protection (CBP), and a mobile emergency response support program for the Federal Emergency management Agency (FEMA). He also noted that they had developed protection and response programs for DHS S&T to use in its critical infrastructure inspection management system.

Mr. Mike Delaney, JHU/APL, provided the panel with an overview of their Ocean Surveillance Initiative, which he said had been jointly sponsored by the Navy and DoD (having partnered with CBP for the effort). He explained that the need for such a system had arisen because of a lack of persistent wide area surveillance capability, which was crucial in preventing infiltration of people and products into the US. He went on to say that they had conducted a number of experiments, including efforts with aircraft surveillance in 2006 and 2007. However, he noted that challenges included a lack of automated detection systems in the aircraft that were currently available, and the difficulty of adapting the airplanes as needed. Following this, he told the HSSTAC that they had they were working on small craft surveillance and interdiction.

Ms. Sheri Lewis, JHU/APL, told the Committee that disease surveillance was categorized as the ongoing and systematic collection, analysis, and interpretation of health data, and primarily focused on combining and streamlining data from school / work absence information, pharmacy activity, poison control alerts, hospital visits, and so on. She noted that they had tested their system for operational capability, and would continue doing so through 2009. She further explained to the committee that the Applied Physics Laboratory was the Center of Excellence for Public Health and Informatics, and that they had learned a number of valuable lessons, including the difficulty of modeling behavior, the need to be flexible with different regions of the United States, and the importance of adapting to the different needs of various metropolitan centers.

Mr. Phil Anderson, Director of the Homeland Security Institute (HSI), provided the HSSTAC with an overview of the mission and composition of HSI, a Federally Funded Research and Development Center (FFRDC) which acts as an independent, expert source of advice and analysis, and is dedicated solely to the needs of the Department of Homeland Security. In response to a question, he explained that their funding covered a variety of programs, including their support to the Transportation Security Administration (TSA), Futures Assessment, and Field Analysis. He went on to say that the Institute had 120 dedicated analysts, with groups

specializing in risk analysis, operations analysis, threat analysis, systems analysis, information sharing analysis, policy and planning analysis, and S&T assessments. Of their 120 personnel, he noted that over 50 percent had top secret clearances, and over 80 percent either had a master's degree or a PhD. Furthermore, he explained that the Institute had an on-site presence in several DHS offices, including Management, S&T, Policy, Health Affairs, Intelligence and Analysis, Operations Coordination, the Domestic Nuclear Detection Office (DNDO), CounterNarcotics Enforcement, CBP, US Citizenship and Immigration Services, FEMA, and the US Coast Guard.

Mr. Anderson informed the committee that his analysts used their capabilities and presence in these offices to ensure a number of positive outcomes for DHS, including the proper allocation of resources, creation of risk frameworks, and improving operational effectiveness and business efficiency. Toward that end, he highlighted a number of projects that they had been involved in, including the National Capital Region (NCR) Biodetection Notification Program, the National Bio-Defense Architecture, Community Perceptions of Technology, and others.

Finally, Mr. Anderson noted that the current HSI contract would end on April 25, 2009, and that DHS was in the process of establishing a new FFRDC entitled the Homeland Security Studies and Analysis Institute, or HSSAI. It was expected that a contract for this FFRDC would be awarded in the coming month.

Mr. Jim Tuttle, Director of S&T's Explosives Division, provided the Committee with an overview of the Explosives Integrated Product Team (IPT), explaining that it is comprised of four main subcomponents. These include Counter-Man-Portable Air Defense Systems (MANPADs), Counter-IED, S&T Advanced Technology Programs, and Transitional Security Programs. He further explained that the Counter-IED and Transition functions worked together closely, and the Counter-MANPADs and S&T teams worked alongside each other, too. In regards to Counter-IED work, he explained that the longstanding approach or kill chain that pertained to mitigating IEDs was used by the IPT, with a particular focus on the detect, defeat, and mitigate stages. Mr. Tuttle went on to say that the explosives detection strategic approach was developing long-range screening and detection, warning indicators, and standoff capability. Furthermore, he noted that they were working with the Human Factors Division to accomplish this, and that they were developing means with which to screen different large-scale venues.

The next section of Mr. Tuttle's briefing focused on the three primary types of explosives that are dealt with in a standard scenario, which were described as person-borne, vehicle-borne, and leave-behind. He went on to say that their goal was to have standoff determination of these threats, and save time and money by being able to determine if something was a false alarm. Additionally, he noted that DoD was doing extensive work in this area that they hoped to leverage, but that it was difficult to transfer much of the technology for domestic use. In response to a question, he explained that they had four Memorandums of Understanding (MOUs) with the Israelis, and had worked with them extensively.

An Israeli Delegation presented a briefing on "Border Crossing Security Concept". They explained to the HSSTAC members that they had a variety of methods and strategies for securing their various border crossings, and protecting against the smuggling of weapons, narcotics, or personnel. They noted that the primary mission of their operations was to ensure

the security of the terminal/border crossing areas, as well as the security of cargo, persons, and luggage that were being handled in the process. They explained that the responsibility for this regulation lay with the Israeli National Police, the Israeli Security Agency, and the Israeli Defense Forces, each of whom focused on different aspects of security. Furthermore, they noted that the regulations were also influenced by the airport authorities, seaport companies, postal company, and Ministries of Transport and Defense. They went on to say that prior to restrictions being emplaced in certain areas, several thousand people would cross in a typical day, with varying degrees of surveillance.

The next section of their briefing focused on the responsibilities aligned to the police forces, which they said included the formulation of policy and strategy, defining threats according to intelligence, defining and locating suitable technology, formulating professional tests, and approving security programs for crossings. The principles involved in these considerations were focused around the general security of the country, followed by access of business and commerce as a secondary focus. They also noted that there were a variety of means with which terrorists attempted to attack their facilities, which required flexibility in defensive measures. Attack methods mentioned included small arms, bomb placement, hand grenades, shoulder-fired missiles, and suicide bombings (including Vehicle-Borne IEDs).

The final segment of the Israeli briefing focused on cargo security, and the various methods they use to inspect or identify suspicious cargo. They explained that they placed a general emphasis on imported goods and vehicles, and that they monitor suspected vehicles or potential dual use goods such as fertilizer. Also, they mentioned that they had started incorporated professional vehicle mechanics in their searches, since they were better trained to identify anomalies in a vehicle.

Teresa Smith, Chairwoman of the Maritime IED panel, began by providing an overview of the people and organizations that they had interviewed to date, which included the Navy, United States Coast Guard (USCG), Office of Naval Intelligence (ONI), and other pertinent groups. She noted that they had made a number of interesting findings, and cited the fact that the Navy and USCG are working together on a joint anti-mine program. She went on to say that they had come to determine that the primary threat was posed by small boats, and that mines and swimmers were a less likely danger. Mr. Ken Rapuano noted that this type of focus would be a big investment on S&T's part, and that it was important to study the full spectrum of efficiency, return on investment, and effectiveness before acting.

Major General Tom Garrett (Ret.) observed that, psychologically, people would likely not be inclined to submit to maritime tracking and that public perception and cooperation would play a major role in the success of such efforts. Dr. Baruch Fischhoff noted that another challenge in maritime scenarios such as port or harbor closings would be who is responsible for determining that the situation is secure, and how to go about transmitting such a message to the public. Dr. Richard Roca raised the point that dual-use technology would be very valuable in this regard, and should be pursued where possible (i.e., screeners that can catch terrorists as well as illicit materials or narcotics).

Admiral Tom Brooks, Vice-Chairman of the Maritime IED panel, noted that the Navy has no surface minesweepers, and that they had been replaced by the Littoral Combat Ship, with the rest of the fleet suffering overall reductions as well. He went on to say that the Navy was in charge of the anti-mine and maritime security efforts, but that U.S. Northern Command (NORTHCOM) had set up an operational plan organization, and was officially in charge of protecting the homeland within the Department of Defense (DoD) realm.

Dr. David Franz gave a brief wrap-up of the Chem/Bio panel's efforts, observing that they had primarily focused on seams between stakeholders and operators, and their impacts on five-year deliverables. He noted that there seemed to be good collaboration between DHS and its stakeholders, but that there were some exceptions. Finally, he said that the mission was complex due to the disparate teams and regional focus on chem/bio issues.

Dr. Phil DePoy spoke for the S&T Assessment panel, and said that they had focused on the best developed IPTs and departments, as well as the three portfolios (Transition, Innovation, and Basic Research). He further noted that they had broken the group into three additional sub-panels, to include chem/bio, infrastructure, and human factors.

Dr. Richard Roca spoke for the Cyber Security panel and explained to the committee that they had already submitted their report, and that it was awaiting publication. He noted that they had enumerated some questions that he deemed to be critical to the future of DHS internal interaction, to include highlighting the importance of defining the relationship between the S&T Directorate and federal-level cyber security efforts, and the impact that S&T would have on DHS cyber operations as a whole. He finished by saying that they were waiting for a response to their recommendations, and that they were ready for new taskings and action items.

The next meeting of the HSSTAC will be on April 27-29, 2009 in San Diego, CA.



Ervin Kapos  
Designated Federal Officer