

DHS SCIENCE AND TECHNOLOGY

Chemical-Biological Defense S&T For Homeland Security

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**Homeland
Security**

Science and Technology

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Define the Chem-Bio Defense S&T Environment

- **For Homeland Security, the Chemical Biological Defense Division has three top level goals:**
 - **Know and understand the chem-bio threat**
 - Develop an understanding of the nature of the chemical and biological agents that pose a risk to the homeland in order to enable prevention and response
 - **Detect the chem-bio threat**
 - Develop the tools and methods necessary to rapidly and confidently identify a chemical or biological incident as close as possible to its initiation
 - **Respond to, and limit the impact of the chem-bio threat**
 - Develop the tools and procedures to help DHS components, first responders and emergency managers minimize the casualties and disruption resulting from a chemical or biological incident

Mission Areas and Goals of DHS S&T Chemical-Biological Defense Division

Guidance provided by HSPD-9, -10, -18, -21, -22

Threat Awareness

- Is there a chemical and/or biological threat to the civilian population? What is it?
- What is the probability of a chem-bio based attack? Where?

Surveillance

- Watch for the emergence of a harmful chemical or biological agent which could be used against the U. S. civilian population

Detection & Diagnostics

- Detect a chemical or biological event at $T = 0$
- If a chemical or biological attack occurs, what is it and what do we do about it?

Response and Recovery

- Clean-up and mitigation

All programs are in collaboration with State, Local, Territorial, Tribal and Federal partners

The Operational Environment

- **Budget realities**
- **“Flat is the new up ...”**
- **Funds cannot chase requirements**
- **Administration and Congressional direction**
- **Return on investment is ... ???????**
- **DHS senior leadership direction**
- **Component requirements are a high priority**

Understanding the Threat Space

- **Would a terrorist use chemical and/or biological based weapons?**
 - Accessibility, opportunity, technology
- **Is there a chemical and biological threat to the U. S. population?**
 - Rely upon the Intelligence and Law Enforcement Communities
- **Redouble efforts to strengthen working relationships with DNI and the DoD**
 - Development of joint programs
 - Increase scope of technical risk assessments

Address the Chem-Bio Requirements of the DHS Components

- **Direct support of the DHS S&T Integrated Product Team (IPT) process**
 - Component requirements for chemical-biological defense and response are a priority
- **Emphasis areas include chemical and biological agent detection**
 - Goals include real time, high confidence, zero false alarm rates
- **Transition of developed products remains a challenge**
 - Exploring commercial technology transfer options
 - Need to implement a DoD Instruction 5000 “lite”

Chemical Defense

Is a national chemical surveillance/detection equivalent of BioWatch required?

- “ChemWatch”?

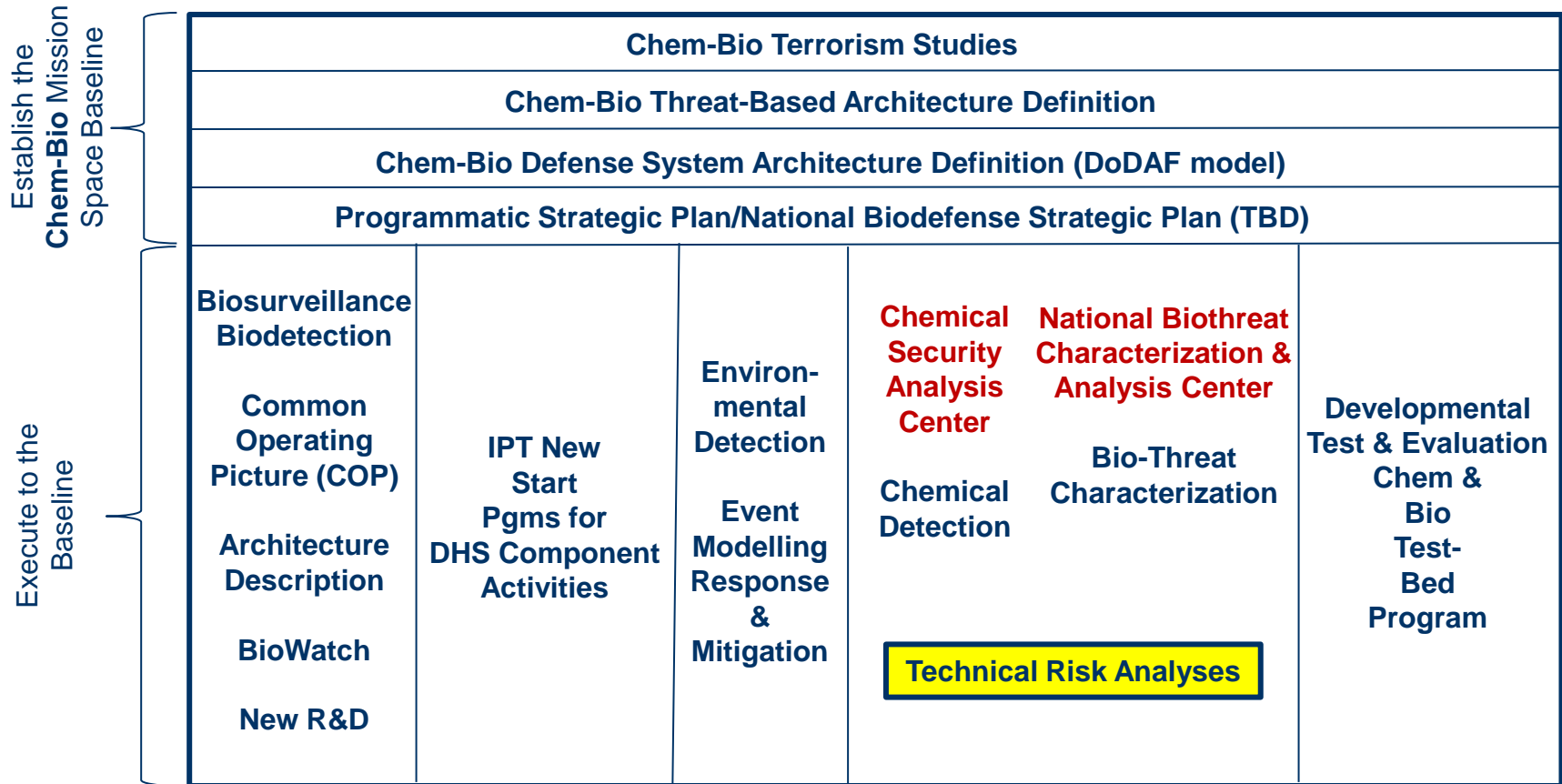
If yes:

- What are the technology gaps?
- What are the technology requirements?
- Where would it be deployed?
- How would it be deployed?
- What are the logistics requirements?
- What are the training requirements?
- Cost?

Systems Architectures

- **Need to describe the nation's surveillance, detection and response systems architectures for chemical and biological defense**
 - Who, what, how, when, where, etc., for national response in the event of a chem-bio based terrorist event
 - Task initiated in FY16 to describe the national threat based chemical-biological architecture as it currently exists
 - Second task initiated in FY16 to describe OV1-6 for chem-bio defense
 - DoD Architectural Framework (DoDAF) as the template
 - Each task more complex than originally thought
- **Results will guide future technology investments**

DHS S&T Chem-Bio Defense FY17 & Beyond



- Understand the Threat
- Detect the Threat
- Respond to the Threat



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