Chemical Biological Defense Program Overview

Chemical, biological, radiological, and nuclear (CBRN) threats are dynamic and ever-expanding. The rapid advancement and global proliferation of chemical and biological (CB) capabilities greatly extends the spectrum of plausible actors, agents, concepts of use, and targets. These advances enable states to develop unique CB threats with the intent of circumventing our current defenses, while simultaneously permitting non-state actors to pursue less sophisticated CB threats. To ensure an effective response to these threats, the Department of Defense (DoD) Chemical and Biological Defense Program (CBDP) continuously and actively develops CBRN defensive capabilities to stay ahead of evolving threats. This 2017 budget request includes $1.19 billion to allocate against valid capability requirements to achieve a strategy-driven balance of risk in accordance with National Defense Strategies, departmental-level objectives, and Service force development priorities.

Strategic Overview

The CBDP strategic direction reflects current defense policy set by public law, national strategies, DoD Directives and Instructions, and senior leadership guidance. The CBDP mission is to enable the Warfighter to deter, prevent, protect, mitigate, respond, and recover from CBRN threats and effects as part of a layered, integrated defense. This mission aligns with the DoD Strategy for Countering Weapons of Mass Destruction (CWMD), which outlines the elements and enablers of the Department's approach for countering CWMD. CBDP efforts support the continuous cycle of preparing, principally through investments that: "ensure staff expertise; and sustain the Department's science and technology, research and development, and acquisition competencies." CBDP executes its responsibility in support of the Department's strategic approach and provides capabilities supporting the three CWMD strategic lines of effort. These lines of effort are:

1) ***Prevent Acquisition*** focuses on ensuring that those not possessing WMD do not obtain them. One of the primary methods of increasing barriers to acquisition and proliferation of WMD will be through pathway defeat—activities focusing on the specific nodes and linkages in an adversary's WMD pathway.

2) ***Contain and Reduce Threats*** focuses on reducing risks posed by extant WMD. DoD will remain prepared to lead or support operations to locate, characterize, secure, exploit, and destroy WMD in a range of contingency environments and under varying security and political conditions.

3) ***Respond to Crises*** focuses on activities and operations to manage and resolve complex WMD crises. DoD will assume that hostile non-state actors who acquire WMD or material of concern will plan to use them, and the Department will react accordingly. DoD will be prepared to avoid or defeat WMD attacks and mitigate their immediate effects so as to allow effective operations to continue.

The CBDP supports these lines of effort through materiel and non-materiel capabilities that are interoperable within the Joint Forces and other DoD and United States Government partners countering WMD. The CBDP budget request reflects efforts to balance the dynamic tensions of budget, threat, and scientific development to provide a program that is agile and flexible so as to rapidly adapt to the evolving strategic landscape.

Strategic Objectives

This budget request supports the DoD Strategy for CWMD and advances the following CBDP strategic objectives:

- Early Warning - Develop advanced environmental surveillance and point-of-need diagnostic capabilities against CBRN threats, enabling the Warfighter to achieve information dominance in the CBRN domain and enabling rapid force protection decisions.

    - Biosurveillance – The CBDP is developing pre- and post-event capabilities to improve early warning and characterization of man-made and naturally occurring hazards in near real-time. Persistent surveillance will provide early indications and support effective consequence management of the emergence and re-emergence of infectious diseases, genetically engineered and synthetic biological agents, as well as chemical hazards.

    - Advanced Diagnostics – The CBDP resources a robust portfolio of CBR diagnostics that includes S&T, systems development, and procurement of point-of-need/point-of-care diagnostic equipment. Continuous assay development and procurement support fielded and developmental diagnostic and analytic platforms.

- Avoid, Prevent and Prepare for Surprise - Advancements in biology and chemistry as well as natural evolution can result in new CB agents and new threats the Warfighter must be prepared to counter. The CBDP identifies and studies such CB agents to scientifically characterize and validate the hazard they could pose to the Warfighter. The CBDP is committed to addressing surprise, both to avoid its occurrence and to rapidly mitigate its consequences. The enterprise aims to leverage cross-domain efforts, information, and assessments to manage surprise through scientific breakthrough, rapid fielding, and operational innovation. Focus areas include:

- Non-Traditional Agents (NTA) – The CBDP is developing technologies that address existing and emerging NTAs to address multiple capability gaps and provide multi-layered and integrated defenses. Enhanced warning, protection, and countermeasures save lives and enable more flexible consequence management.

- Synthetic Biology – Rapid advances in biotechnology open a broad range of potential new challenges from genetically engineered organisms. Rapid characterization of new threats and development of countermeasures remain hallmarks of the CBDP portfolio.

- Integrated, Layered Defense - The CBDP invests strategically in a set of distinct and complementary capabilities to defend against CBRN threats. Collectively, CBDP solutions are comprehensive and address the spectrum and time evolution of CBRN events. These solutions enable the Joint Force to maintain freedom of action in a CBRN environment and enable mission accomplishment.

    - Medical Countermeasures – Development of advanced vaccines, therapeutic drugs, and diagnostic capabilities that provide safe and effective medical defense against validated biological threat agents (bacteria, toxins, and viruses), emerging infectious disease, and traditional and non-traditional chemical agents.

    - Personal Protective Equipment and Collective Protection – Advances in materials and systems engineering will enhance the protective properties against a broader array of threats while reducing heat and logistical burdens. Modular and customizable solutions will be effective against a broad range of challenges and demonstrate applicability in varied environments.

    - Detectors and Sensors – The CBDP is developing the next generation of suitable, effective, and affordable broad-spectrum CB detection capabilities to detect current and emerging CB hazards. Development efforts focus on increasing accuracy, range, and effectiveness and ensuring that detector and sensor data integrate seamlessly with relevant information systems.

    - Hazard Mitigation – Efforts will address personnel decontamination, to include mass casualties and human remains, along with materiel decontamination, which includes sensitive electronics and aircraft. Novel decontamination approaches are focusing on broad applicability to chemicals or biologicals, while minimizing harm to individuals, sensitive equipment, and platforms.

FY17 Budget Request Highlights

- The FY 2017 Research, Development, Test and Evaluation (RDT&E) budget request of $885 million supports key efforts including:
  - $247 million to continue support of research and development of medical countermeasures vaccines and therapeutics addressing high priority biological threats.
  - $183 million supporting RDT&E efforts advancing environmental (detectors and sensors) and medical surveillance (diagnostic and analytical devices) capabilities providing enhanced situational awareness.
  - $90 million to support critical chemical and biological defense research, development, and test infrastructure and operations.
  - $83 million supporting biosurveillance, warning & reporting, and modeling and simulation capabilities.
  - $82 million supporting science and technology advancing protection, threat agent sciences, medical countermeasures, detection, and hazard mitigation capabilities to defend against Non-traditional agents.
  - $53 million to continue support of research and development of medical countermeasures focused on protecting and treating against traditional and non-traditional chemical agents.
  - $51 million supporting RDT&E for personnel/collective protection and hazard mitigation capabilities.
  - $45 million supporting basic research advancing fundamental knowledge and experimental research in the life and physical sciences.

- The FY 2017 Procurement budget request of $309 million supports key efforts including:
  - $107 million to procure modernized respiratory and ocular protection for ground and air forces.
  - $90 million to procure CBRN Dismounted Reconnaissance Sets, Kits, and Outfits (DR SKO) which allows warfighters to perform CBRN dismounted reconnaissance, surveillance, and site assessment of WMD suspect areas not accessible by traditional CBRN reconnaissance mounted platforms.
  - $23 million to procure Common Analytical Laboratory Systems providing a modular, scalable and adaptable analytical capability for a variety of operating and environmental conditions.
  - $21 million to procure modernized Collective Protection capabilities (Joint Expeditionary Collective Protection and CB Protective Shelters).
  - $14 million to procure the CBRN Uniform Integrated Protection Ensemble supporting enhanced protection for special purpose units.

Summary

The proliferation of WMD is among the greatest challenges facing the United States, and countering WMD is a top priority of the U.S. National Security Strategy. Accordingly, the CBDP continues to focus on developing enhanced levels of flexibility and adaptability to anticipate, identify, and quickly respond to the challenge. The CBDP continues to effectively meet today's highest priority needs for DoD CBRN defense solutions while shifting to establish the agility and flexibility necessary to rapidly adapt to the evolving strategic landscape. The CBDP's critical role in the U.S. Government's response to the Ebola epidemic in West Africa showcases that flexibility and preparedness. This ongoing transformation ensures that currently available technologies are produced, procured, and provided swiftly and that cutting-edge technologies are harnessed to provide improved capabilities in the future. This is achieved through developing operationally relevant capabilities for the Warfighter that are complementary and holistically reduce identified risks. The CBDP continues to enhance CBRN readiness to counter known and emerging threats and collaborates with other government agencies to foster exchange of knowledge and coordination of CB defense-related activities. This budget request supports the CBDP as a Joint Force enabler fulfilling the needs of the Warfighters to ensure that they are trained, equipped, and resourced to complete missions in CBRN environments now and in the future, preserving the security and freedom of our nation.