

Department of Defense Nuclear and Chemical and Biological Defense Programs: FY07 Overview

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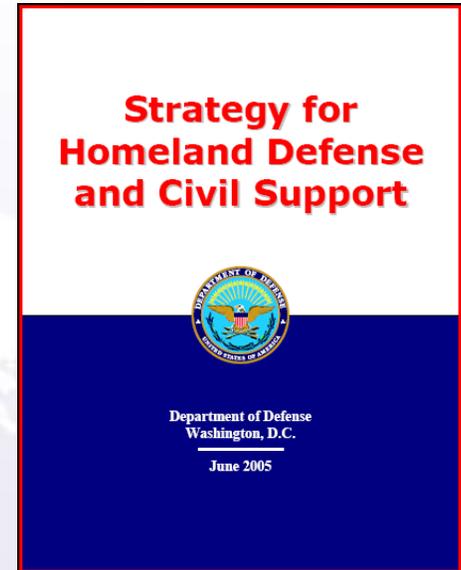
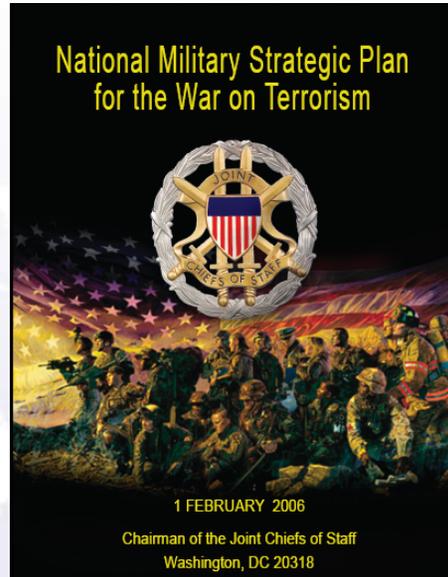
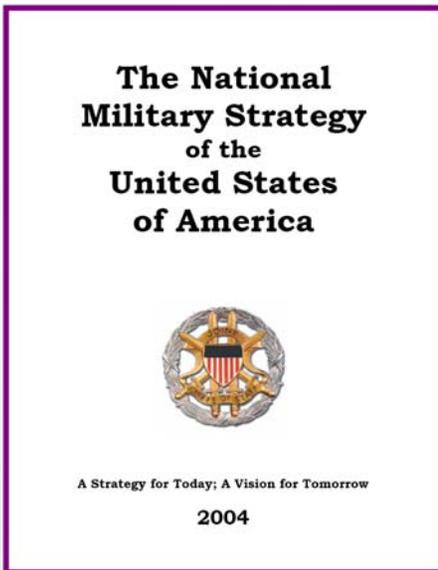
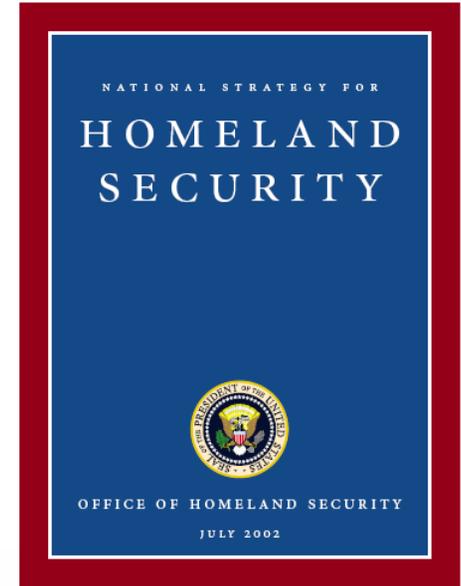
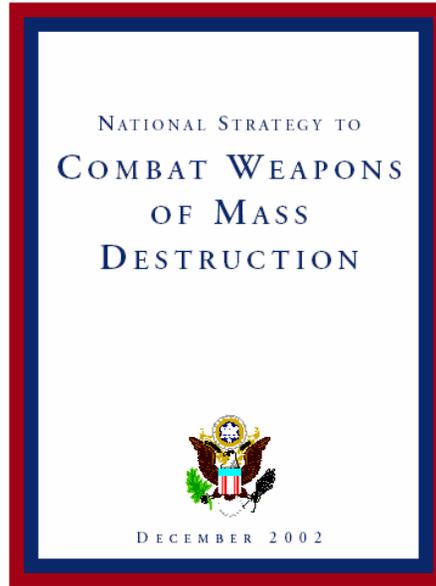
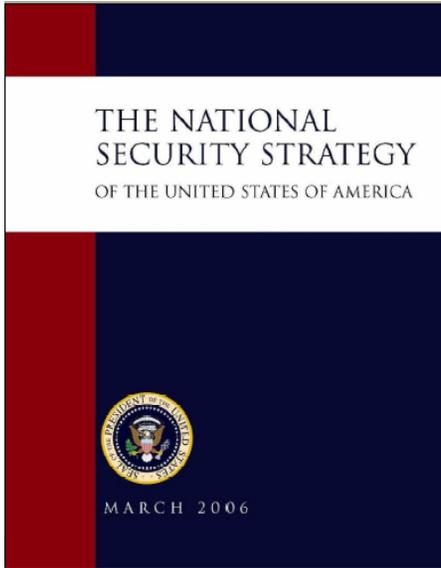
Chemical Biological Defense Program (CBDP) Overview



- **National Security Strategy**
 - Quadrennial Defense Review (QDR)
- **Organization**
- **Focus, Vision, Mission and Strategy**
- **Resources**
- **Themes**
- **Way Ahead**



Key Strategic Guidance



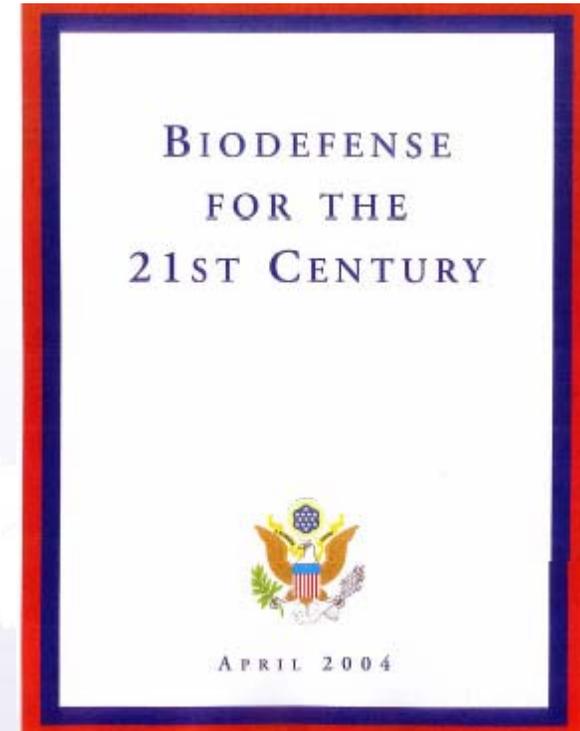


National Strategies Addressing Emerging Threats



Biodefense for the 21st Century, The White House, April 2004
(NSPD-33/HSPD-10)

- “Preventing and controlling future biological weapons threats will be even more challenging. **Advances in biotechnology and life sciences—including the spread of expertise to create modified or novel organisms—present the prospect of new toxins, live agents, and bioregulators that would require new detection methods, preventive measures, and treatments. These trends increase the risk for surprise”**
- “The proliferation of biological materials, technologies, and expertise increases the potential for adversaries to design a pathogen to evade our existing medical and non-medical countermeasures. To address this challenge, **we are taking advantage of these same technologies to ensure that we can anticipate and prepare for the emergence of this threat.”**





Quadrennial Defense Review (QDR):

Vision for Combating Weapons of Mass Destruction



The future force will be organized, trained, equipped, and resourced to deal with all aspects of the threat posed by weapons of mass destruction. It will have capabilities to:

- detect WMD, including fissile material at stand-off ranges;
- locate and characterize threats;
- interdict WMD and related shipments whether on land, at sea, or in the air;
- sustain operations under WMD attack; and
- render safe or otherwise eliminate WMD before, during or after a conflict.

The Department will **develop new defensive capabilities in anticipation of the continued evolution of WMD threats. Such threats include ... genetically engineered biological pathogens, and next generation chemical agents. The Department will be prepared to respond to and help other agencies to mitigate the consequences of WMD attacks.**



Quadrennial Defense Review (QDR): Implementing the Combating WMD Vision



To achieve the characteristics of the future joint force..., the Department will:

- Designate the Defense Threat Reduction Agency to be the primary Combat Support Agency for U.S. Strategic Command in its role as lead combatant commander for integrating and synchronizing combating WMD efforts.
- Expand the Army's 20th Support Command (CBRNE) capabilities to enable it to serve as a Joint Task Force capable of rapid deployment to command and control WMD elimination and site exploitation missions by 2007.
- Expand the number of U.S. forces with advanced technical render-safe skills and increase their speed of response.
- Improve and expand U.S. forces' capabilities to locate, track, and tag shipments of WMD, missiles, and related materials, including the transportation means used to move such items.
- Reallocate funding within the CBDP to invest **more than \$1.5 billion over the next five years to develop broad-spectrum medical countermeasures against advanced bio-terror threats**, including genetically engineered intracellular bacterial pathogens and hemorrhagic fevers.



Chemical Biological Defense Program Strategic Environment



- Defense of the Homeland
- Global War on Terror
- Proliferation of Weapons of Mass Destruction
- Challenge of Non-Traditional CB agents
- Bioshield

“The greatest threat before humanity today is the possibility of a secret and sudden attack with chemical, or biological, or nuclear weapons.”

*President George W. Bush
Remarks at the National Defense University
11 February 2004*



CBDP Vision and Mission

VISION

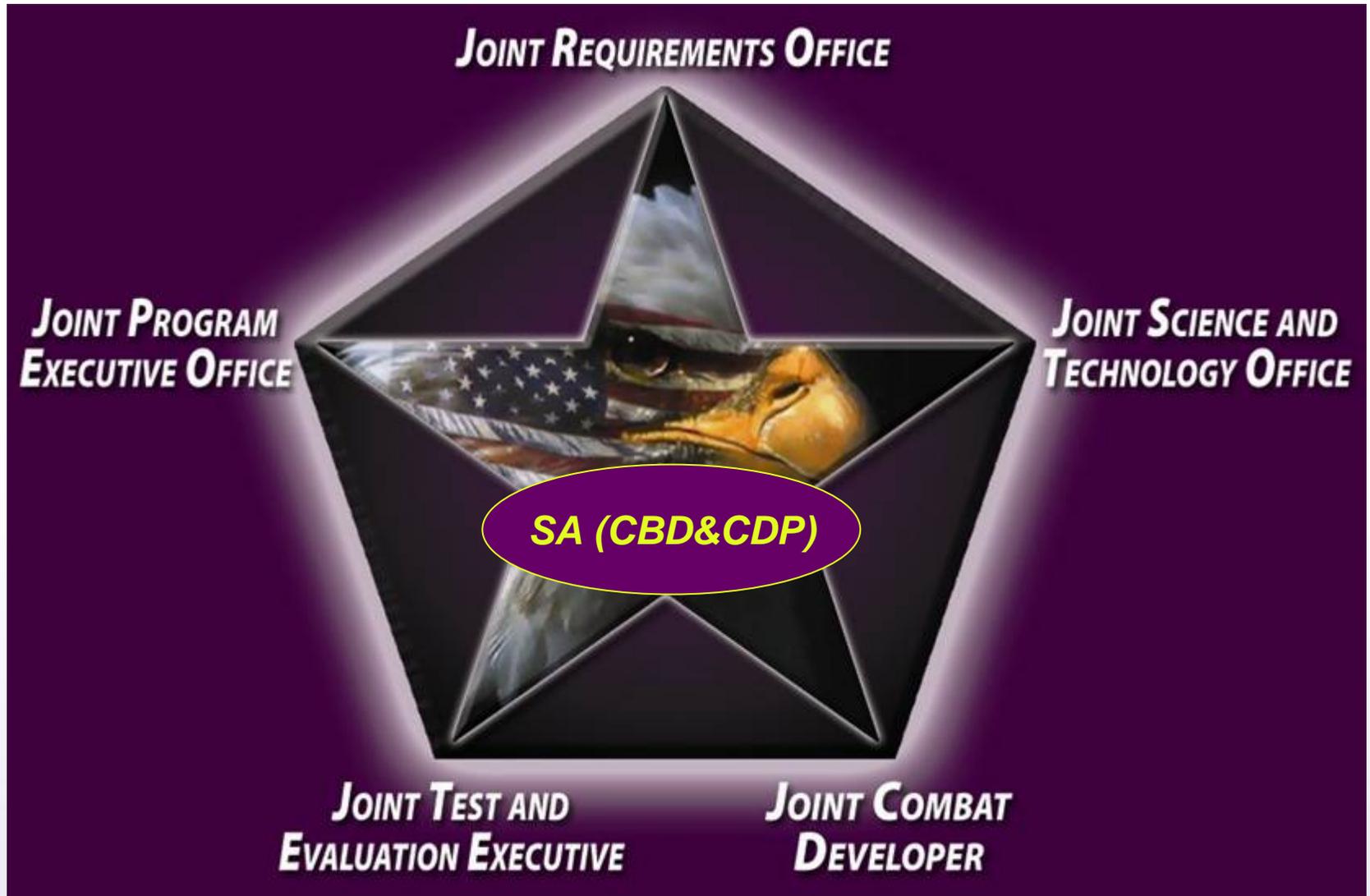
Combat weapons of mass destruction through a strong chemical and biological defense program.

MISSION

Provide chemical and biological defense capabilities to effectively execute the *National Strategy for Combating Weapons of Mass Destruction* . Ensure all capabilities are integrated and coordinated within the interagency community.



CBDP Organization





Chemical Biological Defense Program



- **Established by Congress (FY 1994 National Defense Authorization Act)**
- **Addresses critical organizational and technical shortfalls identified following Desert Storm**
 - **Single consolidated DoD wide program**
 - **Oversight centralized for efficiency and effectiveness**
 - **Initially concentrated on chemical threats and personal protective equipment**
- **Currently, the CBDP concentrates on**
 - **Countering enemy capabilities**
 - **Non-traditional agent technologies enhancing:**
 - **Detection**
 - **Protection**
 - **Medical countermeasures**
 - **Threat reduction**
 - **Eliminating unnecessary redundancies**
 - **Improving visibility for many valuable and economical initiatives**



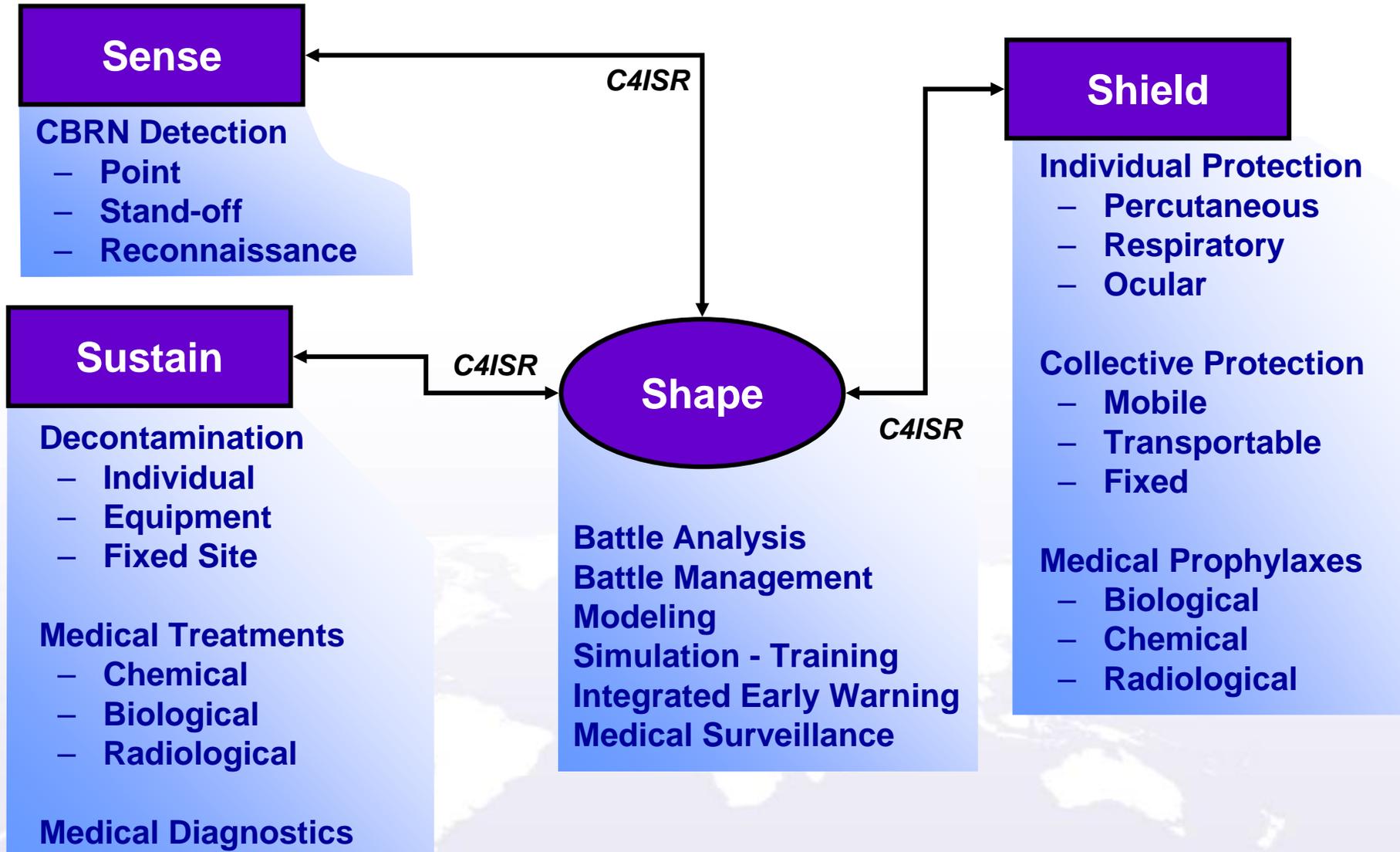
Interagency Activities

- **CBDP Coordinates With:**
 - Counterproliferation Program Review Committee (CPRC)
 - Technical Support Working Group (TSWG)
 - Department of Homeland Security (DHS), Science & Technology Directorate
 - National Institute of Allergies and Infectious Diseases (NIAID)
 - Centers for Disease Control (CDC)
 - U.S. Coast Guard

- **Various Levels of Coordination/Cooperation Exist with:**
 - National Security Council
 - Office of Science & Technology Policy
 - Department of Health and Human Services (including the Food and Drug Administration, and the Centers for Disease Control and Prevention)
 - U.S. Department of Agriculture
 - Department of Justice



CBRN Defense Operational Elements and Capabilities





Integration of CBRN Education and Training

VISION

A comprehensively educated and trained Nation unified to effectively manage CBRNE threats.

MISSION

Lead and guide the integration of the DoD CBRN Defense Program Education and Training Initiatives

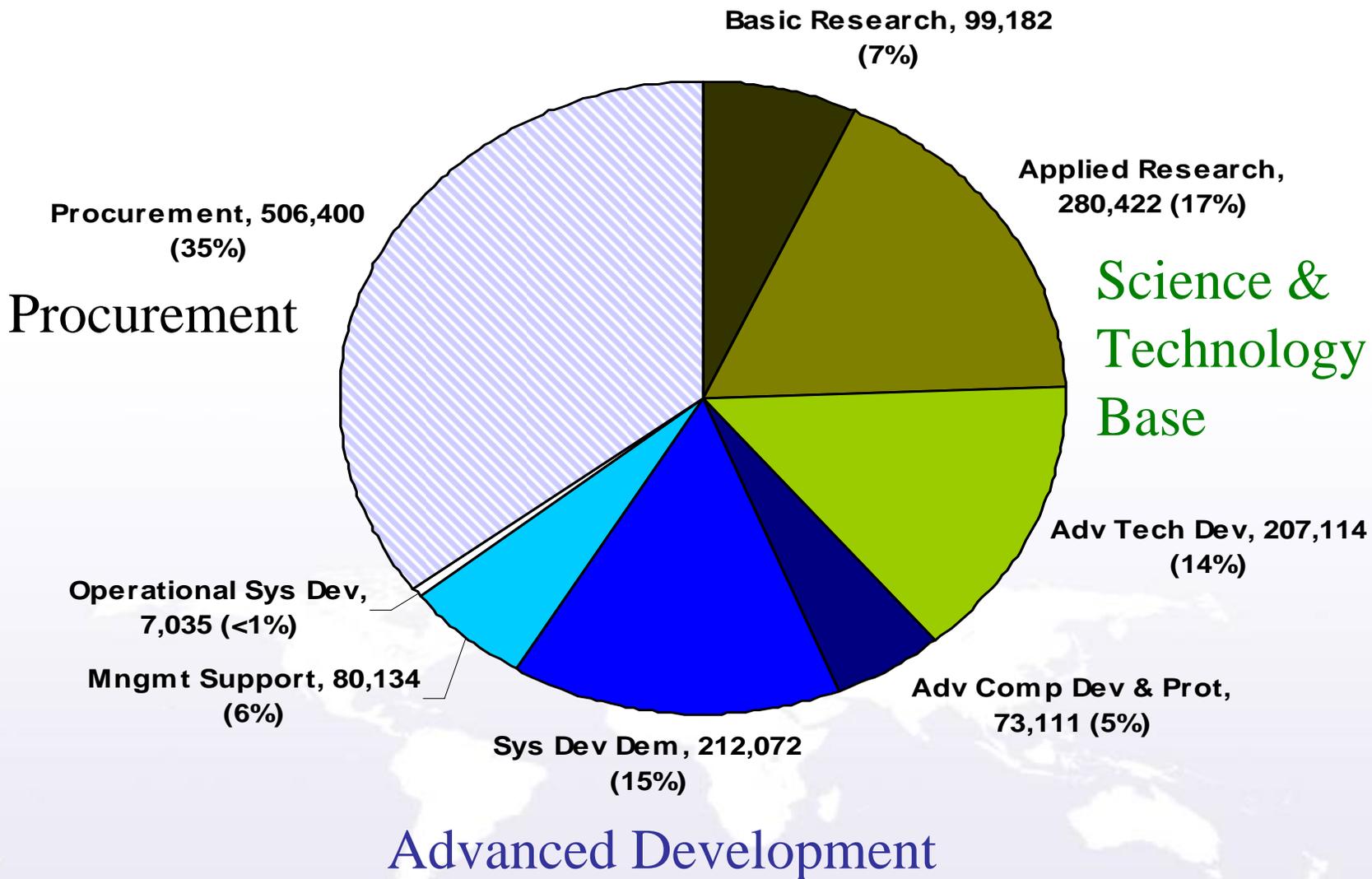
- **Short term goals (1-2 years)**
 - Identify all DoD CBRN Defense Education & Training Initiatives
 - Assess and Prioritize results
 - Synchronize DoD CBRN Education and Training at all levels
- **Long term goals (3-5 years)**
 - Expand initiative to address broader set of threats and missions:
 - CBRNE: (include “E” – High Yield Explosives)
 - Combating WMD (including interdiction, elimination, and other missions)
 - Expand integration with **Interagency** education & training activities



Chemical Biological Defense Program

Based on FY07 President's Budget Request (February 2006)

\$1.465 Billion





2006 QDR Built on the 2004 Enhanced Planning Process (EPP)

Key Results

Infrastructure Improvements	RDT&E Improvements
<ul style="list-style-type: none">• CB Test & Evaluation Facilities• NTA Test Chamber• USAMRIID (Defense Health Program, Military Construction)	<p>Additional Emphasis:</p> <ul style="list-style-type: none">• S&T for NTA detection• Bio detection• Medical Prophylaxis• Battle Analysis• Decontamination• Bio Defense Initiatives• Chem detection



Basis for Broad Spectrum Therapies for Novel Biodefense Threats



- **Biodefense 2025 Panel**
 - Highlighted issues related to biodefense and genetic engineering
- **National Intelligence Estimate**
 - Characterized the bioengineered threat
- **Enhanced Planning Process**
 - Identified FY06 funding for modest initiatives
- **QDR analysis and recommendations**
 - Established comprehensive solutions
- **Interagency review**
 - Scientifically feasible and executable
- **Department QDR decision: \$1.5B over 5 years**



Medical Countermeasures Against Advanced Bio Threats

Today's Threats

- Anthrax*
- Smallpox*
- Botulinum*
- Plague*
- Tularemia*
- Ebola/Filo*
- Hemorrhagic Fever*
- Encephalitis*
- SARS*
- Influenza*
- Ricin/SEB, others*

Modes of Action

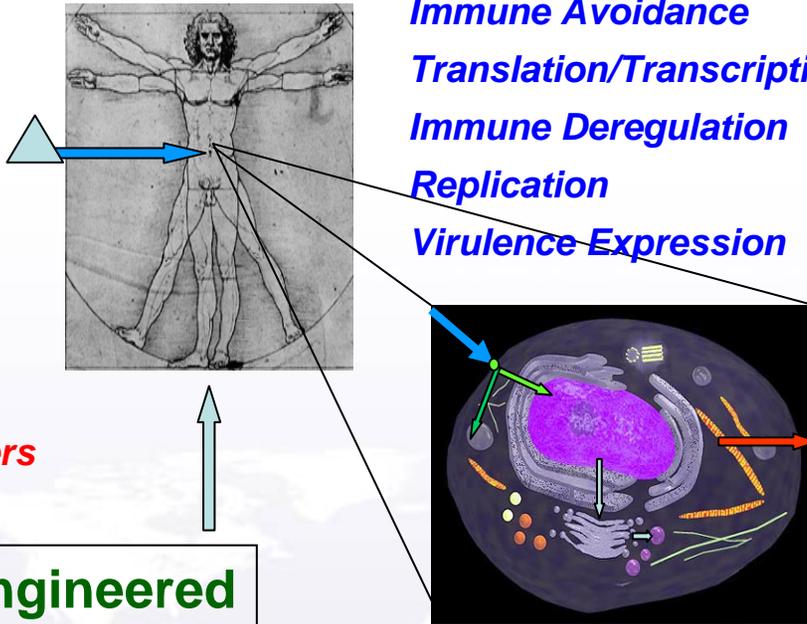
- Receptor Binding*
- Signal Transduction*
- Decoys*
- Immune Avoidance*
- Translation/Transcription*
- Immune Deregulation*
- Replication*
- Virulence Expression*

Parallel Systems Approach

Solutions

Target Agent Commonalities

- Block Key Receptors
- Inhibition by Small Molecules
- Modulate Immunity
- Change Gene Expression
- Block Protein Actions
- Modulate Physiologic Impacts



Bioengineered

One **PIECE** at a time → Process Analysis → Broad Spectrum



Solution Options Considered

- **Vaccines (\$1B for each of 20 threats, and needs about 10 years)**
 - Not affordable
- **Antibiotics**
 - Can be circumvented
 - Only good as an adjunct strategy
- **Immune therapeutics**
 - Since epitope specific – susceptible to modification
- **Molecular biology – Proven approaches to broad spectrum of threats**
 - DARPA and OSD successfully tested proof of concepts
 - Monkeys survived Ebola and several viruses stopped propagating



Strategy Components



- **Systems biology – Integrates molecular and informatics**
- **Identified multiple scientific proven approaches**
 - **Genomics**
 - Sequencing, resequencing, genomic inhibition
 - **Proteomics**
 - Antibodies against broadly conserved processes
 - **Immune Products**
 - Specific technologies under consideration
 - **Metabolomics**
 - Too early to apply
- **Industry/Academic partners**
- **“Darpaesque” execution**
- **Organization**
 - **Reports to the Secretary for oversight, visibility and accountability**



Deliverables



- **Two or more broad-spectrum therapeutics**
- **Genomic sequences of all pertinent known threats**
- **Platform for rapid response (characterization and manufacture of countermeasure against unknowns)**





CBDP: The Way Ahead

- Need to build on current strengths...
 - Integrated collection of systems
 - Multi-disciplinary approaches
 - Well developed doctrine and concepts for the military in operational environments
- ...while recognizing a changing environment
 - Laboratory and other infrastructure may need overhaul
 - Operational environment must consider homeland
 - DoD now a key player, but no longer the biggest investment
 - Emerging and non-traditional threats may be critical
 - Congress will continue to play an active role
 - Industry may be increasingly important, though DoD-unique assets need to be identified and maintained



CBDP: The Way Ahead



- **...and Planning for the Future**

- Need to balance investment between current risks (operational and procurement needs) and future risks (S&T and infrastructure)
- **Coordination with other agencies (DHHS, DHS, and others) for an effective national effort**
 - DoD may play key role in transitioning technologies from laboratory concepts to field-ready systems, especially medical systems
- **Broad-spectrum, dual-benefit approaches will need to be evaluated in all areas**

Back up slides



Offsets to Fund Broad Spectrum Therapies for Novel Biodefense Threats

- **Reduced activities in core CBDP (\$510M)**
 - Identified efforts within the program that were sent back to the tech base for further development
 - Reduced procurement of consumables that were beyond initial issue
 - Reduced medical biological S&T activities made less necessary by broad spectrum efforts
- **CBDP Installation Protection Program (IPP) (\$760M)**
 - \$535M in CBDP procurement and \$225M in Services O&M
 - IPP is being incorporated into an integrated national response capability with the DHS
 - Post-Katrina experience shows we must be fully part of the integrated response, and not just a base response
 - Revised IPP plan due to DEPSECDEF – June 2006
- **The Secretary identified an additional \$230M to complete funding our minimum requirement.**



Broad Spectrum Therapies for Novel Biodefense Threats

- \$100M funding in FY06 – Down Payment
- \$225M in FY07 – Funds Leading Edge Investment
 - **100% in Science and Technology**
 - Transformational Approaches will be applied – leverage genomics, proteomics and systems biology data explosion
 - Technical and program leadership from team of nationally recognized experts
 - **BW defense, microbiology, drug development**
 - **Will draw heavily from commercial and academic performers**
 - **Investment provided by offsets in procurement (primarily the Installation Protection Program and transfers from related science & technology investments**

Goal: Defeat of genetically engineered biological threat



CBDP Major Players



Dr. Dale Klein
ATSD(NCB)



Mr. Jean Reed
SA (CBD&CDP)



MG Howard Bromberg
JRO-CBRND



BG Steve Reeves
JPEO-CBD



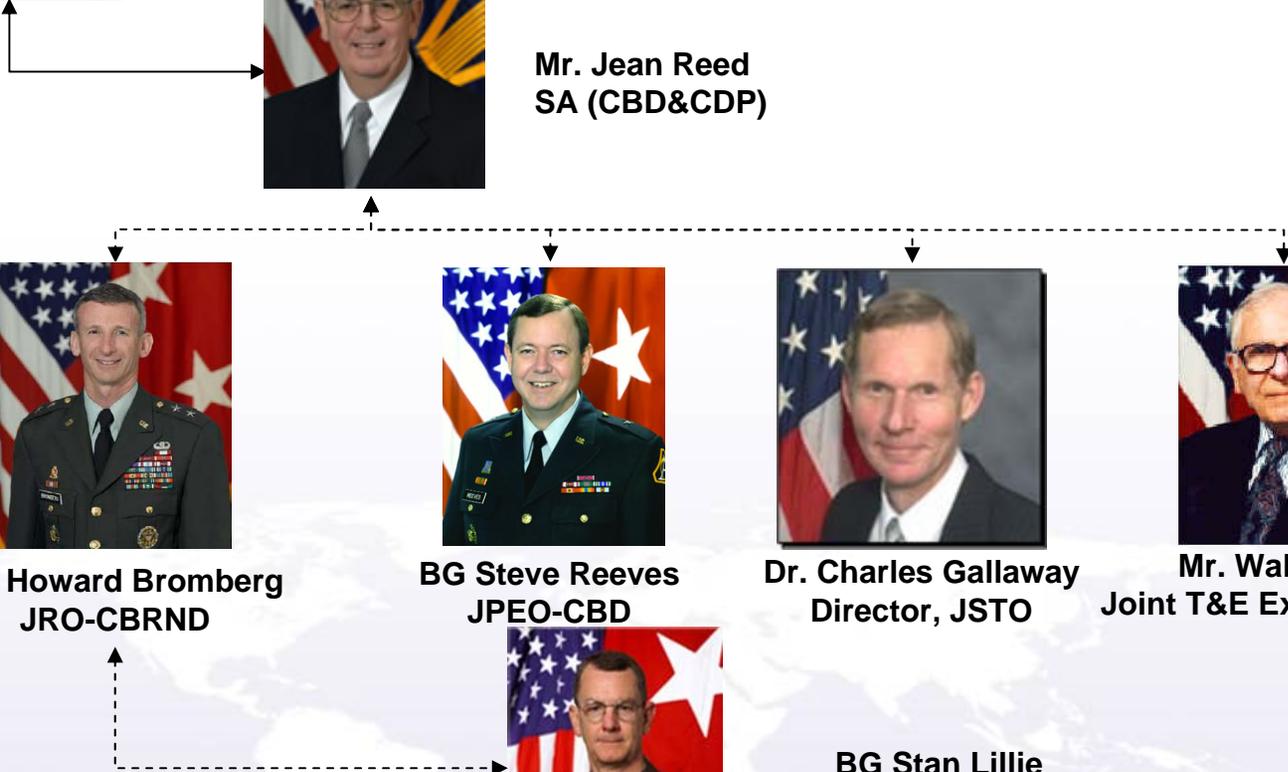
Dr. Charles Gallaway
Director, JSTO



Mr. Walter Hollis
Joint T&E Executive Agent



BG Stan Lillie
Joint Combat Developer



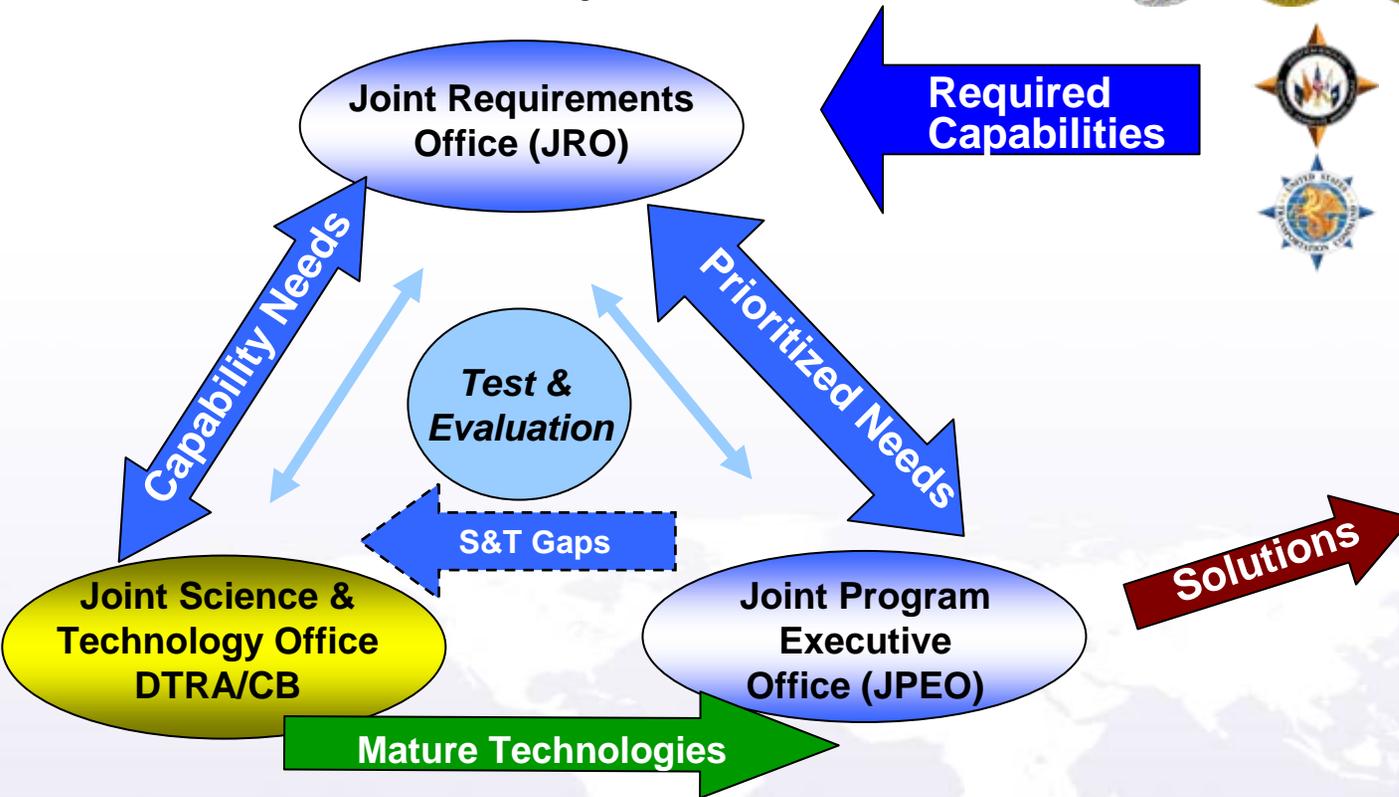


Program Process & Organization

OSD provides oversight

OSD Mission: Lead, Guide, and Integrate the CB Defense Program

- Combatant Commanders
- Services



Strategic Guidance

National Security / Defense Strategies

National Military Strategies

National Military Strategic Plans

QDR

Program Drivers

Strategic Planning Guidance

Joint Programming Guidance

ATSD(NCB) Program Strategy Guidance

Enhanced Planning Process

Joint Functional Concepts

Protection	C2	Battlespace Awareness	Force Application	Focused Logistics
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Joint Operating Concepts

Major Combat Ops	Stability	HLS	Strategic Deterrence
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Joint CBRN Defense Concept

Sense	Shape	Shield	Sustain
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External Drivers

Congress	Think Tanks	OGAs	Others
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Planning Documents

Mod Plan	RDA Plan	S&T Plans	Joint Log Plans	BCA
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Shapes

**Chemical
Biological
Defense
Program**

Force Planning Construct

2006 Quadrennial Defense Review

Steady State

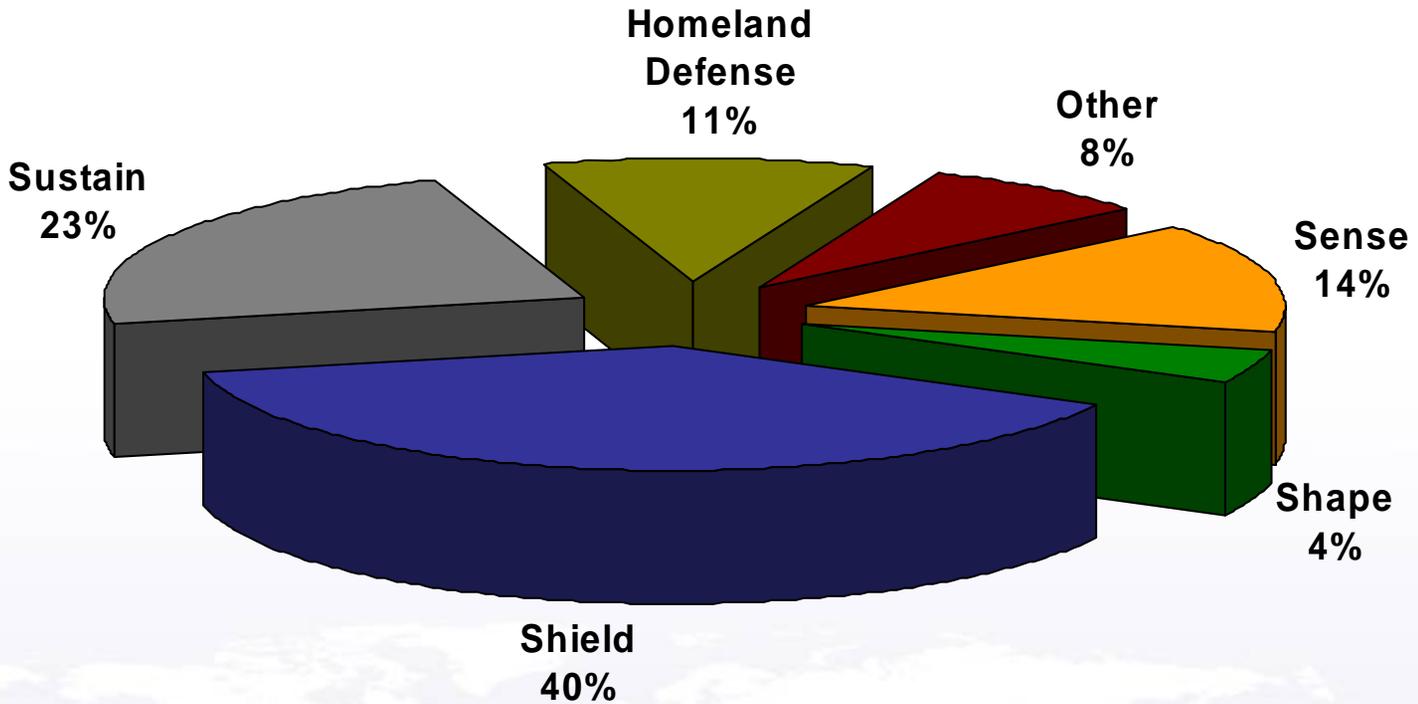
Surge





FY07 Resource Allocation

Capability Areas



■ Sense ■ Shape ■ Shield ■ Sustain ■ Homeland Defense ■ Other

Total Funding FY07: \$1.465B

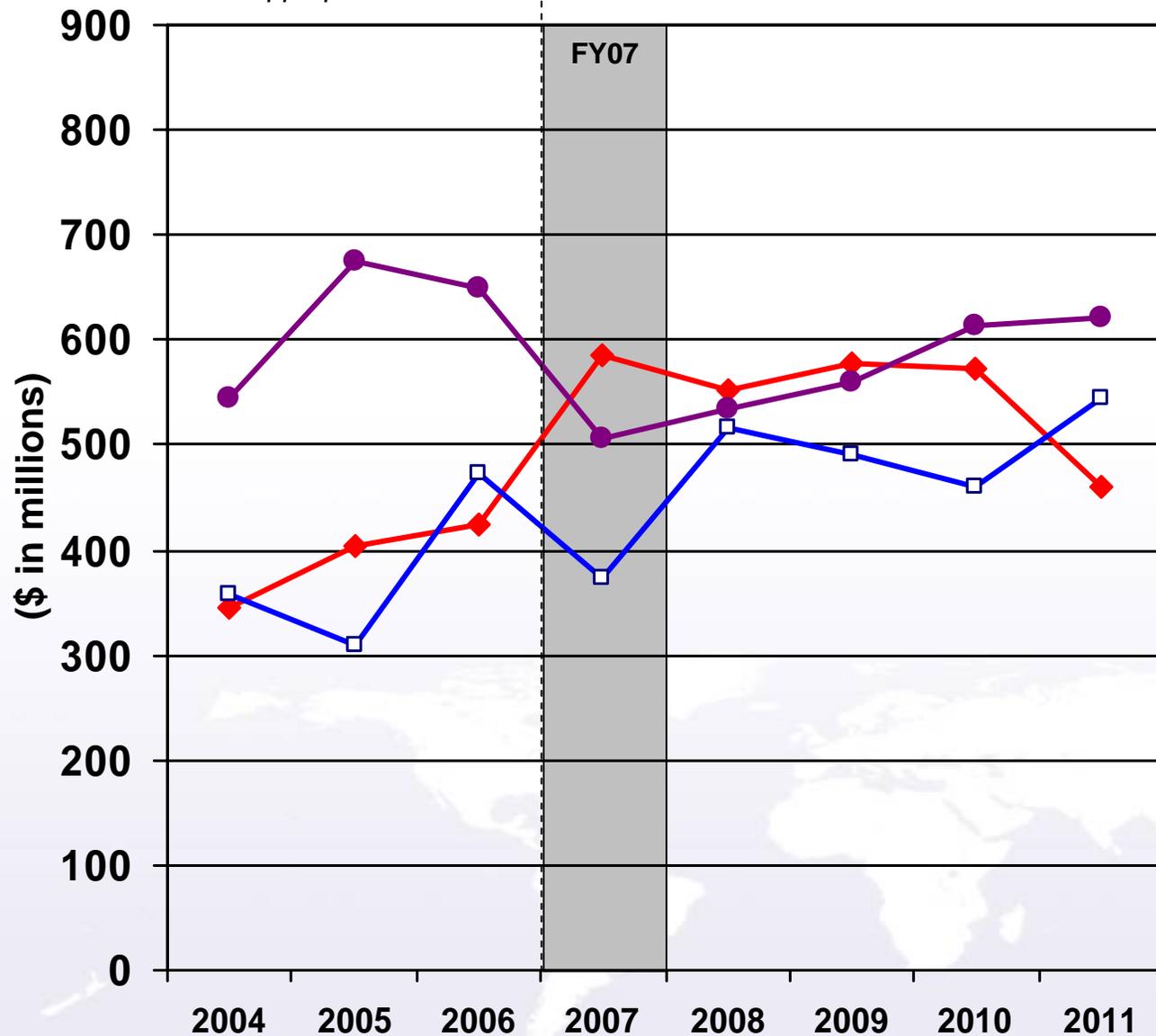


CB Defense Program Structure: FY2007 PB



Appropriation

Budget Request



FY07 Highlights

- Near-Term Emphasis to Address Future Challenges (NTAs, Emerging Threats, Transformational Medical Technologies) and Improve the T&E Infrastructure
- Long term trend to Provide Advanced Capabilities to the Warfighter



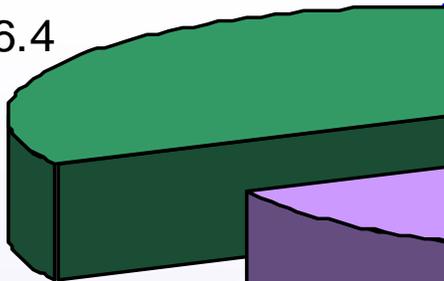


RDT&E Management Support (Budget Activity 6) (\$ in M)

Includes

- Joint Concept Development and Experimentation Program
- Joint Doctrine and Training Support,
- RDT&E Management Support, and
- Homeland Defense,

\$26.4

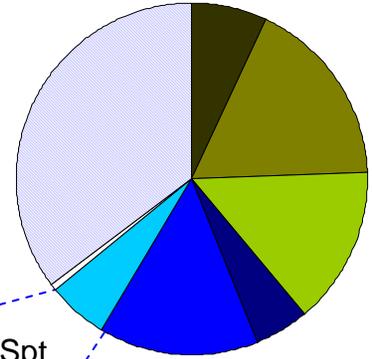


Major Range and
Test Facility Base
(Dugway Proving
Ground)

\$55.0



Mgmt Spt
\$80.134M
(6%)



Management account provides critical support for T&E Infrastructure in accordance with FY05 Statute to fund MRTFBs.



CB Defense Initiative Fund for FY06



- \$21 Million was Appropriated

(\$M)	HASC	SASC	Auth Conf	HAC	SAC	Approp Conf
Budget Activity (BA) One	\$10		\$9	\$9		\$7
BA Two	\$20		\$8	\$8		\$7
BA Three	\$15		\$8	\$8		\$7

- Will be awarded based on technical merit and operational priorities
- Report language
 - “... funds not be obligated for the Chem-Bio Initiative Fund until 15 days after a report, including a description of projects to be funded, is provided to the congressional defense committees.”

Initiative Fund provides flexibility to address rapidly changing technology



Defense Strategy

Security Environment: 4 Challenges

VULNERABILITY

Higher
Lower
LIKELIHOOD

Irregular

- ❑ Unconventional methods adopted and employed by non-state and state actors to counter stronger state opponents. *(erode our power)*
- (e.g., terrorism, insurgency, civil war, and emerging concepts like “unrestricted warfare”)

Catastrophic

- ❑ Surreptitious acquisition, possession, and possible employment of **WMD** or methods producing WMD-like effects against vulnerable, high-profile targets by terrorists and rogue states. *(paralyze our power)*

Traditional

- ❑ States employing legacy and advanced military capabilities and recognizable military forces, in long-established, well-known forms of military competition and conflict. *(challenge our power)*
- (e.g., conventional air, sea, and land forces, and nuclear forces of established nuclear powers)

Disruptive

- ❑ International competitors developing and possessing breakthrough technological capabilities intended to supplant U.S. advantages in particular operational domains. *(capsize our power)*
- (e.g., sensors, information, **bio** or cyber war, ultra miniaturization, space, directed-energy, etc)

No hard boundaries distinguishing one category from another



Broad Spectrum Therapies for Novel Biodefense Threats

- **Basic Research (BA1) \$51M**
 - Directed at critical pathways in pathogen & host response
 - Identify the novel points of intervention
- **Applied Research (BA2) \$109M**
 - Expand technologies – Microfluidics, nanotech, modeling
 - Develop artificial cell/artificial tissue models
- **Advanced Technology Development (BA3) \$65M**
 - Expand drug discovery efforts & evaluate additional compounds
 - Develop transgenic animal models or alternate animal model systems
 - Enable rapid regulatory approval and rapid clinical development



Installation Protection (Guardian) Study



- **Study will develop the following**
 - **Prioritized list of US military installations**
 - **Associated CBRNE capabilities packages for installation protection (IP)**
 - **Funding guidance to build and sustain an enhanced IP capability**
- **Focus of study**
 - **Utilizing both military and civilian assets for mission assurance against a range of CBRNE threats**
 - **How to make military assets available for civilian consequence management at local, regional and national levels**
- **Products**
 - **Area Analysis Findings**
 - **Needs Analysis Findings**
 - **Solutions Analysis Findings**
 - **Revised CBRNE IP plan to DEPSCEDEF – 30 June 2006**