

Department of Defense Chemical Biological Defense Program: Developing Capabilities in Support of National Strategies

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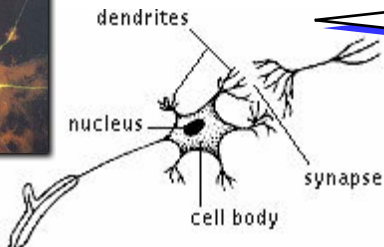
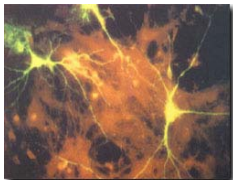
The Changing Nature of the Threat: Evolution of Chemical and Biological Agents

Commercial Chemical Compounds

Phosgene, Chlorine, Chloropicrin

Mustard (H) agents, Lewisite

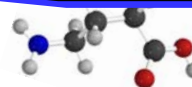
Cholinesterase Inhibitors



Tabun (GA)

G agents (GB, GD, GF)

V agents (VX)



Next Generation Agents

“Classical” Biological Agents

Bioregulators

Genetically Modified Agents



Advanced Biological Agents





CBDP Vision and Mission



VISION

Ensure DOD operations are unconstrained by chemical and biological effects.

MISSION

Provide chemical and biological defense capabilities in support of the National Military Strategies.



ATSD(NCB)'s Program Strategy Guidance for the CBDP

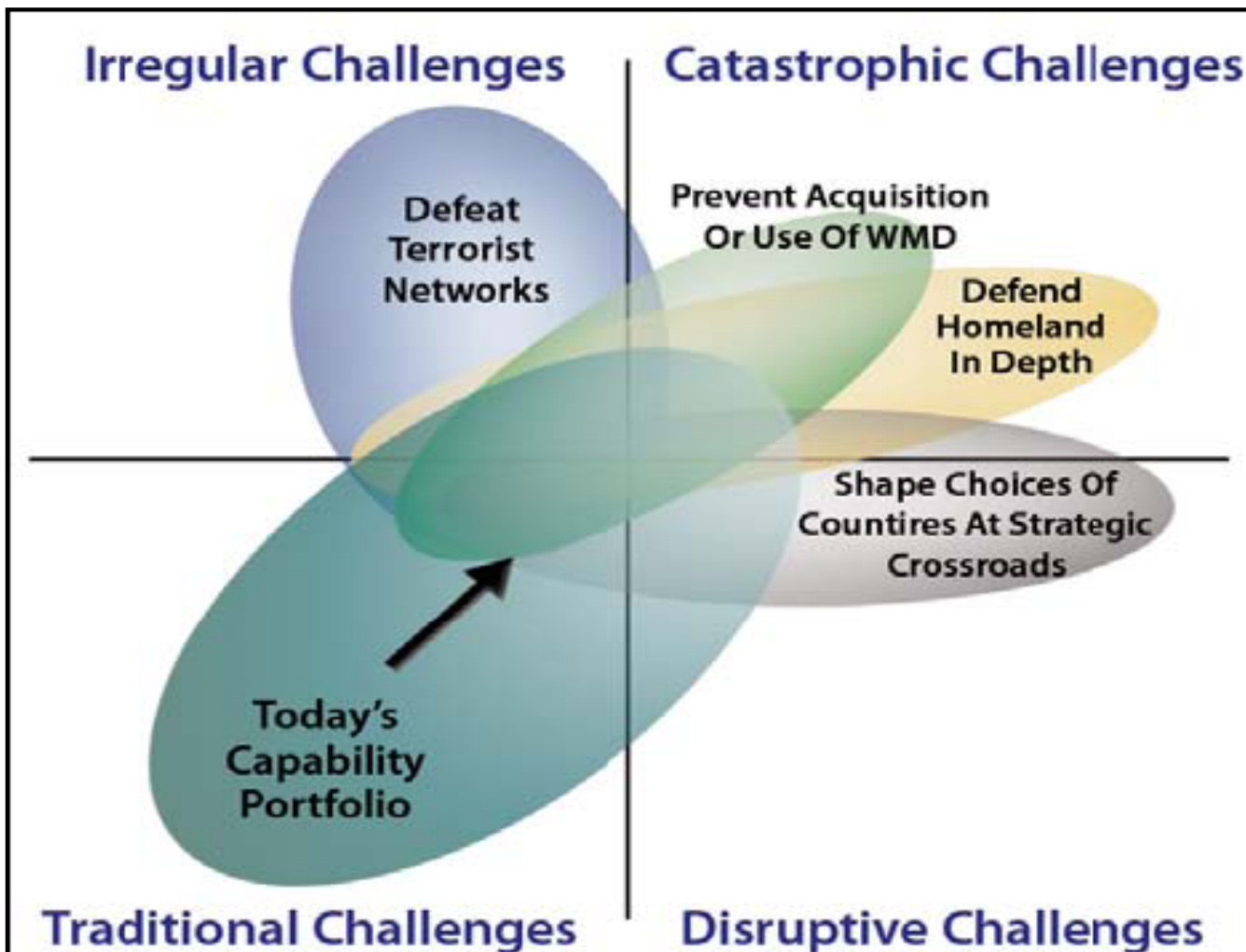


- Provide a balanced CBDP to support National Military Strategies and Departmental objectives to improve CBRN Defense readiness and reduce operational risk
- Build a comprehensive fiscal plan wherein *budgets* flow from programs, *programs* from capability needs, *capability needs* from missions, and *missions* from *national security objectives*

Pursue an investment strategy that seeks to reduce overall program risk, invest in revolutionary capabilities, hedge against future uncertainty and eliminate capability gaps



Program Alignment with Strategy



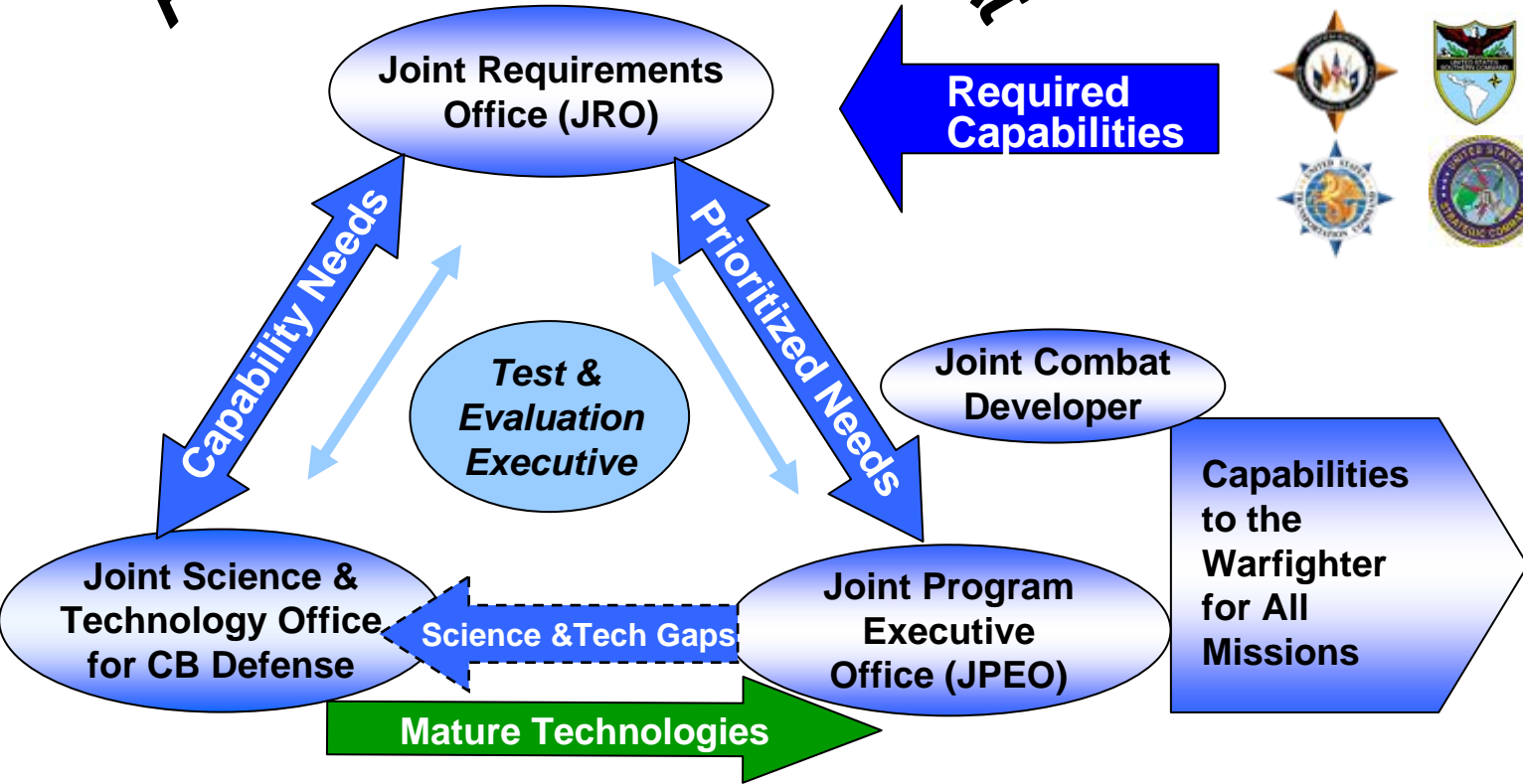


CBDP Process

- Combatant Commanders
- Services



ATSD(NCB) Oversight



Process based on managing total program risk



Leveraging Interagency Activities are Key to Achieving National Strategies

CBDP Coordinates With:



Counterproliferation Program Review Committee (CPRC)



National Institute of Allergies and Infectious Diseases (NIAID)



Technical Support Working Group (TSWG)



U.S. Coast Guard



Department of Homeland Security (DHS), S&T Directorate

Various Levels of Coordination/Cooperation Exist With:



U.S. Department of Agriculture (USDA)



Department of Health and Human Services (DHHS)



Office of Science & Technology Policy



Department of Justice



National Security Council (NSC)



International Partnerships are Leveraged to Support All of Phases of CB Defense



Foreign Comparative Testing



Cooperative Research and Development



MOUs & MOAs



Foreign Military Sales



Exchange of Personnel



Cooperative Production



Loans



Exchange of Information



CBRN Defense Operational Elements and Capabilities



SENSE



**Joint Bio Point
Detection System (JBPDS)**



**Joint Bio Standoff
Detection System (JBSDS)**

NBCRV



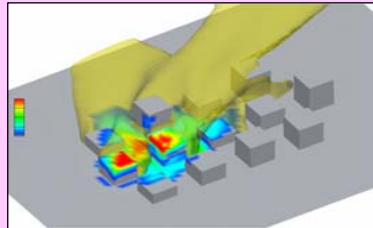
JCAD



SHAPE



**Joint Warning and
Reporting Network**



**Joint Effects
Model (JEM)**



**Joint Operations
Effects Federation
(JOEF)**

SHIELD



**Joint Vaccine
Acquisition Program**



JSLIST



JSGPM



CB Protected Shelter

SUSTAIN



**Joint Bio Agent
Identification &
Diagnostic System
(JBAIDS)**



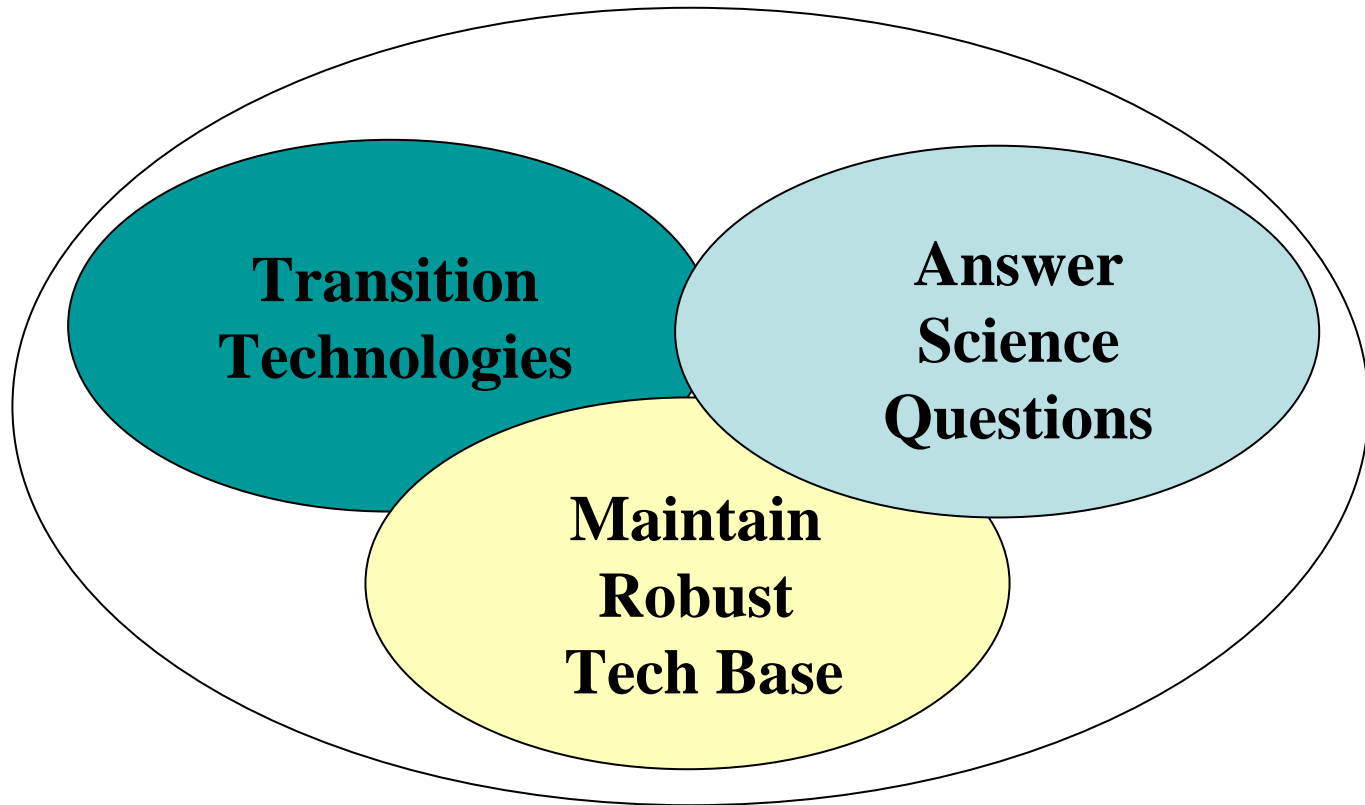
**Antidote Treatment,
Nerve Agent
Autoinjector (ATNAA)**



**Joint Service
Transportable
Decon System**



Scientific Discovery





CBDP Science & Technology (S&T) Initiatives



- **Identify and Exploit Revolutionary Technologies**
 - Transformational Medical Technologies Initiative (TMTI)
 - Transformational Countermeasures Technology Initiative (TCTI)
 - Nanotechnology Initiative

- **Recapitalization of S&T Infrastructure**
 - Test & Evaluation Facilities
 - NTA Test Chamber
 - U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) Recapitalization

Initiatives will enhance CBD S&T capabilities.



TMTI is a Major Medical Innovation

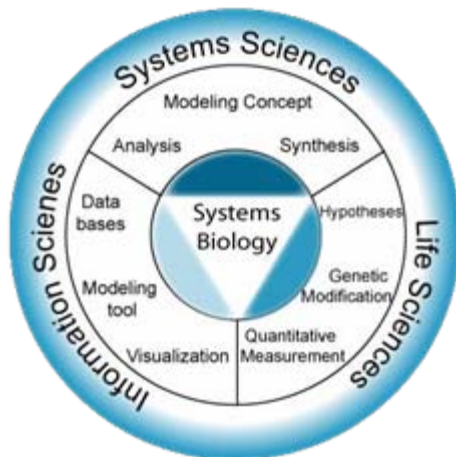


An innovative approach using revolutionary technologies to expedite the development of products to counter emerging biological threats

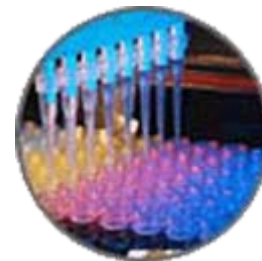
Thrust Areas for Research

- *Genomic Identification*
- *Small Molecule Drugs*
- *Protein Based Therapeutics/Biologics*
- *Host Immune Enhancement*
- *Nucleotide Therapeutics*

Overarching Research Approach



Product Goals



Platform Technologies



Genetic Sequencing of Pertinent Threat Agents



Broad Spectrum Counter-measures

One Drug—Many Bugs

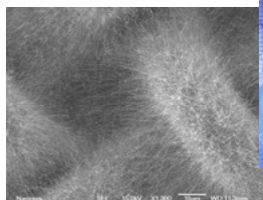


Program Status: Obligations and Expenditures

- **FY06**
 - 25 Awards: 25 in performance
 - OTA: Novartis awarded 10 July 07; GSK awarded 27 July 07
 - 97% obligated, 29% expended
 - Estimate to be at 50% expended at end of current fiscal year
- **FY07**
 - 10 Awards: 5 awards made, 5 in negotiation
 - OTA: Implicit Biosciences in negotiation; Peregrine Pharmaceuticals requested OTA
 - 40% obligated, 2% expended
 - Estimate to be at 66% obligated, 17% expended at end of current fiscal year
- **FY08**
 - Two RFIs released in July 2007, closed August 20, 2007
 - Resulting RFP and/or Sole Source efforts will begin sooner than in FY07
 - ~ 60% of FY08 funds will be applied as incremental funding on existing contracts resulting in quicker obligations

Transformational Countermeasure Technologies Initiative (TCTI)

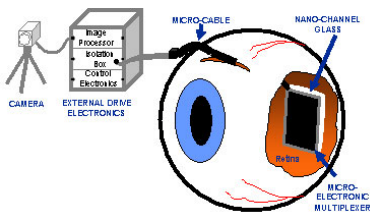
Basic Science Advances



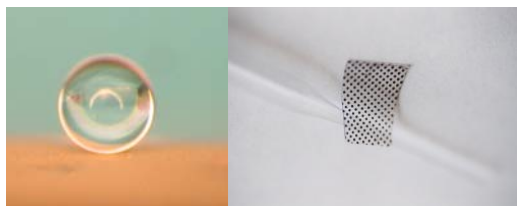
Nano-catalytic self-decon material



Bio-engineered Countermeasures



Meta-data information interface



Nano-scale protective coatings and fabrics

Integrated Cross-Cutting Technologies

- Multi-threat defense
- Integral design concept
- Interactive digital multi-faceted data architecture



Nanotechnology-Biotechnology-Information Technology-Cognitive Sciences (NBIC)

Broad Spectrum Applications



Future Combat Systems

- Hierarchical systems of systems
- Non-intrusive; minimal logistics



Consequence Management

Achieves An Integrated System Using Revolutionary Technologies While Maintaining the Highest Levels of Performance and Being Invisible to the User



Recapitalization of S&T Infrastructure

- Initiative underway to recapitalize and revitalize CBD S&T infrastructure, which is required to:
 - Counter expanding threats from novel and emerging threats.
 - Exploit advances in technology.
 - Speed the technology transition into systems acquisition programs.

U.S. Army Medical Research Institute of Infectious Diseases

Exterior



BL-4 Lab

Edgewood Chemical Biological Center's Advanced Chemistry Lab

Lab Exterior



Filtration System

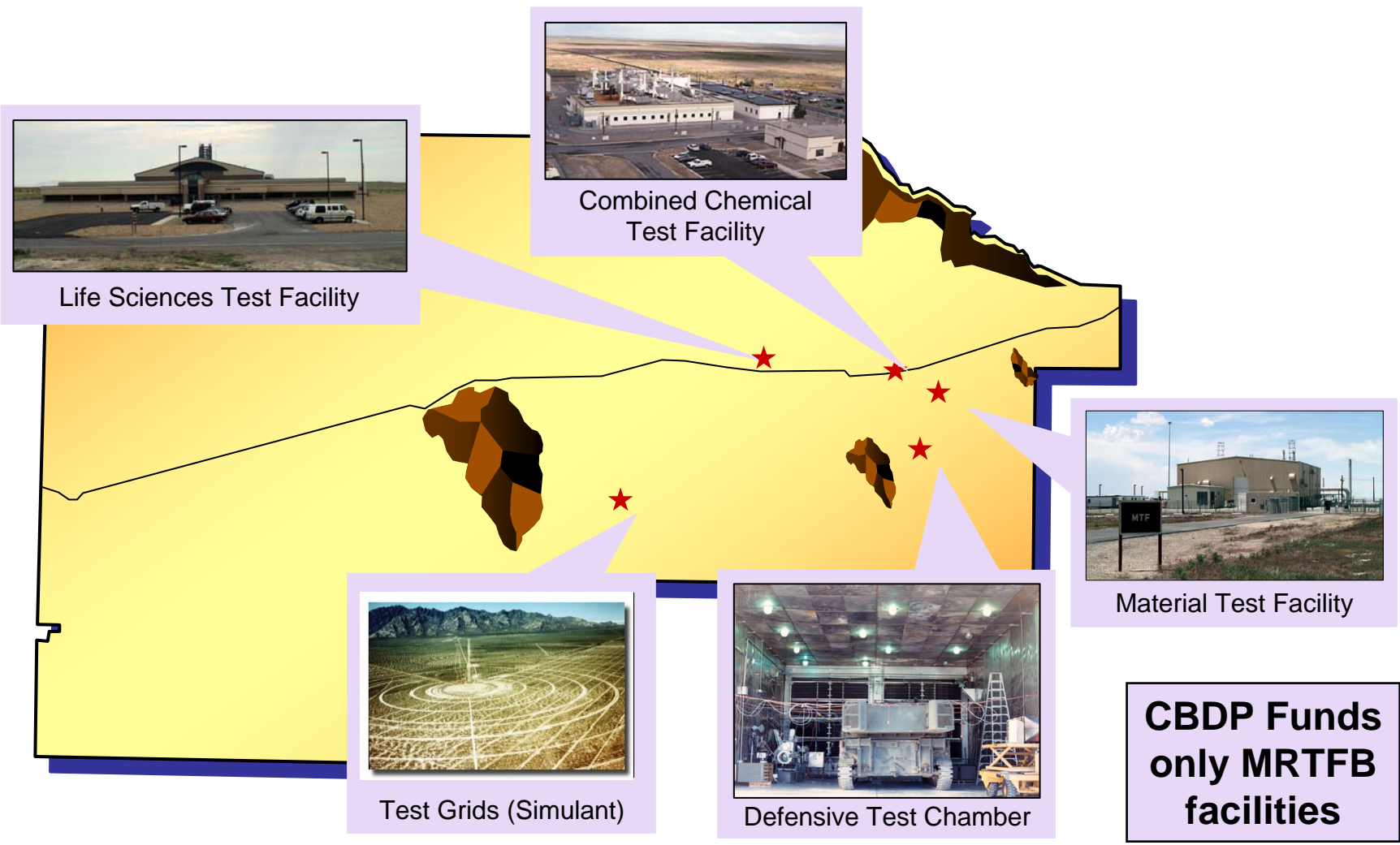


Lab Interior





CBDP Major Range & Test Facility Base (MRTFB) Dugway Proving Ground Key Facilities



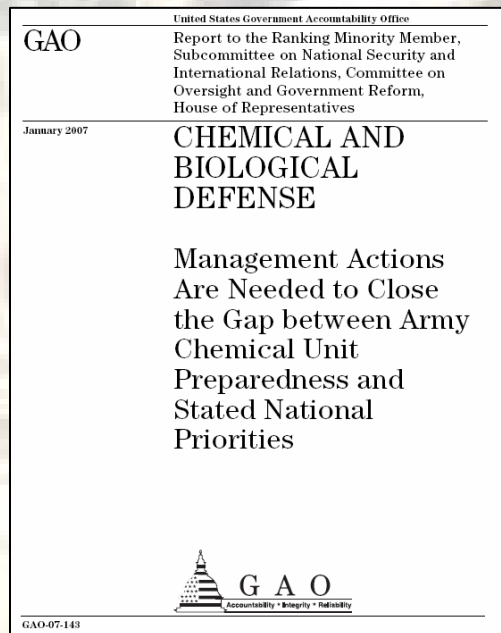
Readiness and Overall Unit Preparedness

Army Chemical Unit Preparedness

- **GAO Report, “Management Actions Are Needed to Close the Gap between Army Chemical Unit Preparedness and Stated National Priorities,” January 2007**
 - **GAO evaluated the Army’s chemical and biological units, including the extent to which (1) units tasked with providing chemical and biological defense support to combat units and commands are adequately staffed, equipped, and trained and (2) units also tasked with a homeland defense mission—especially National Guard and Reserve units—are adequately prepared for this mission.**

WMD-Civil Support Team (CST)

- **WMD-CST unfunded requirements identified during FY08-13 POM build. Requirement to be addressed during the FY10-15 POM build**





CBRN Defense Education & Training Integration Directorate



Congressional Study (H.R. 5122) for NBC Defense Training

- **House Armed Services Committee Report Language:**
 - The Committee directed ATSD(NCB) in coordination with Sec Army, Navy, and AF to:
 - Perform a gap analysis on Nuclear, Chemical, and Biological (NCB) defense training
 - Review NCB defense doctrine across the Military Services
 - Make recommendations implementing joint training, certification, and doctrinal alignment for NCB defense for active and reserve components
- Provide a Final Report to SecDef, and Senate & House Committees on Armed Services by 1 Oct 07





CBRN Defense Education & Training Integration Directorate



Congressional Study (H.R. 5122) for NBC Defense Education & Training Findings:

- Policy disconnects
- Lengthy processes that delay doctrine updates
- Doctrine – Requirement inconsistencies
- The need for advanced education
- Low priority placed on NBC defense training
- Need to improve realism



U.S. DEPARTMENT OF DEFENSE
CBRN DEFENSE
EDUCATION & TRAINING
INTEGRATION DIRECTORATE



The Way Ahead

- **Oversee implementation of the HR 5122 Report recommendations and plans of action**
- **Enhance CBRN Defense Education and Training Integration Partnership and Collaboration with:**
 - **USD(P&R); USD(P)**
 - **USSTRATCOM; JFCOM; and USNORTHCOM**
 - **Joint Staff**
 - **Army; Navy; Air Force; Marines**
 - **DoD Agencies; Academia; and Industry**





Chemical Biological Defense Program

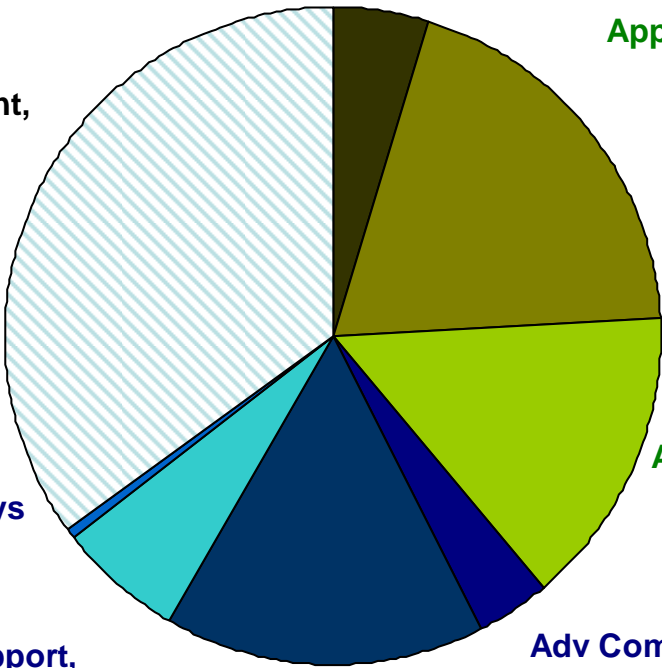
Based on FY08 President's Budget Request (February 2007)

\$1.570 Billion



Procurement

Science & Technology Base



Advanced Development



CBDP Priorities for FY08



- Stable funding for the **Transformational Medical Technologies Initiative (TMTI)** that exploits the advanced science and technology innovation necessary to successfully counter genetically engineered biological threats.
- Stable funding for the **Transformational Countermeasures Technologies Initiative (TCTI)** to provide an enhanced fully-integrated protective ensemble to protect the future warfighter in a highly mobile force
- Adequate long-term investment in the **Research, Development, Test, and Evaluation (RDT&E) infrastructure** to enhance RDT&E capabilities, including the modernization and construction of laboratories and test facilities to ensure timely development of advanced countermeasures against current and emerging chemical and biological threats.
- **Consistent resources for the overall program** to ensure that, year after year, we are able to field the improved defensive capabilities essential to ensure our military can operate in any environment, unconstrained by chemical or biological weapons.



CBDP: The Way Ahead



- **Need to build on current strengths...**
 - Integrated capabilities
 - Multi-disciplinary approach
 - Developed doctrine and concepts for operational environments
- **...while recognizing a changing environment**
 - Laboratory and other infrastructure may need overhaul
 - Operational environment must consider homeland security
 - 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**