DTRA S&T to Counter WMD Threats

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Nuclear Technologies Directorate

Science and Engineering Technology Conference
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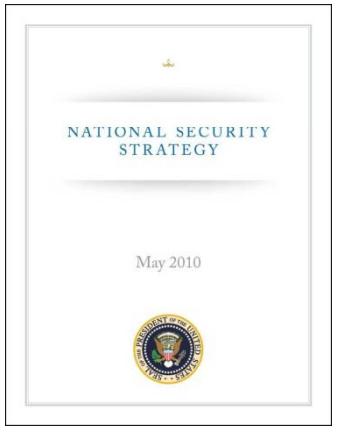
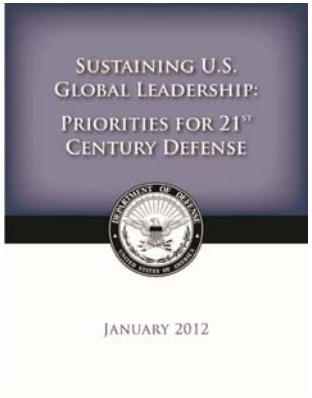
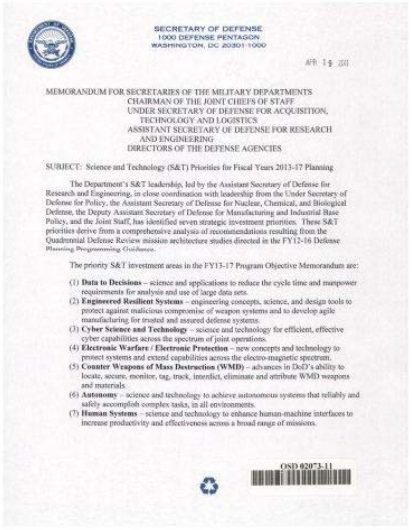
WMD threats high in current National priorities

"There is no greater threat to the American people than weapons of mass destruction, particularly the danger posed by the pursuit of nuclear weapons by violent extremists and their proliferation to additional states."





"Of particular concern are the proliferation of ballistic missiles and weapons of mass destruction (WMD)."


SECRETARY OF DEFENSE
1000 DEFENSE PENTAGON
WASHINGTON, DC 20301-1000

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARY OF DEFENSE FOR ACQUISITION, TECHNOLOGY AND LOGISTICS
ASSISTANT SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING
DIRECTORS OF THE DEFENSE AGENCIES

SUBJECT: Science and Technology (S&T) Priorities for Fiscal Years 2013-17 Planning

The Department's S&T leadership, led by the Assistant Secretary of Defense for Research and Engineering, in close coordination with leadership from the Under Secretary of Defense for Policy, the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense, the Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy, and the Joint Staff, has identified seven strategic investment priorities. These S&T priorities derive from a comprehensive analysis of recommendations resulting from the Quadrennial Defense Review mission architecture studies directed in the FY12-16 Defense Planning Programming Guidance.

The priority S&T investment areas in the FY13-17 Program Objective Memorandum are:

(1) **Data to Decisions** – science and applications to reduce the cycle time and manpower requirements for analysis and use of large data sets.
(2) **Engineered Resilient Systems** – engineering concepts, science, and design tools to protect against malicious compromise of weapon systems and to develop agile manufacturing for trusted and assured defense systems.
(3) **Cyber Science and Technology** – science and technology for efficient, effective cyber capabilities across the spectrum of joint operations.
(4) **Electronic Warfare / Electronic Protection** – new concepts and technology to protect systems and extend capabilities across the electro-magnetic spectrum.
(5) **Counter Weapons of Mass Destruction (WMD)** – advances in DoD's ability to locate, secure, monitor, tag, track, interdict, eliminate and attribute WMD weapons and materials.
(6) **Autonomy** – science and technology to achieve autonomous systems that reliably and safely accomplish complex tasks, in all environments.
(7) **Human Systems** – science and technology to enhance human-machine interfaces to increase productivity and effectiveness across a broad range of missions.

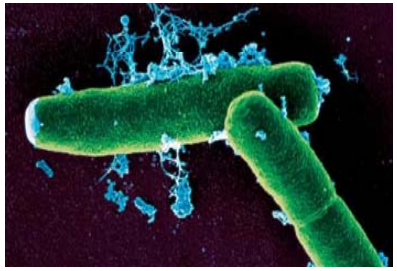
OSD 02073-11

"The priority S&T investment areas for the FY13-17 Program Objective Memorandum are...advances in DoD's ability to locate, secure, monitor, tag, track, interdict, eliminate, and attribute WMD weapons and materials."

The DTRA Mission

To safeguard the US and its Allies from Weapons of Mass Destruction (Chemical, Biological, Radiological, and Nuclear) and High Yield Explosives by providing capabilities to reduce, eliminate and counter the threat and mitigate its effects

Chemical



Biological

Radiological

Nuclear

High-Yield Explosives

We fulfill a unique and central role in the national effort to counter WMD

Nonproliferation | **Counterproliferation** | **Consequence Management**

DTRA is a Defense Agency, a Combat Support Agency, and a National Asset for Countering Weapons of Mass Destruction

Eliminate WMD Delivery Systems

Lockdown Nuclear Weapons and Materials

Support Arms Control Negotiations and Treaty Compliance

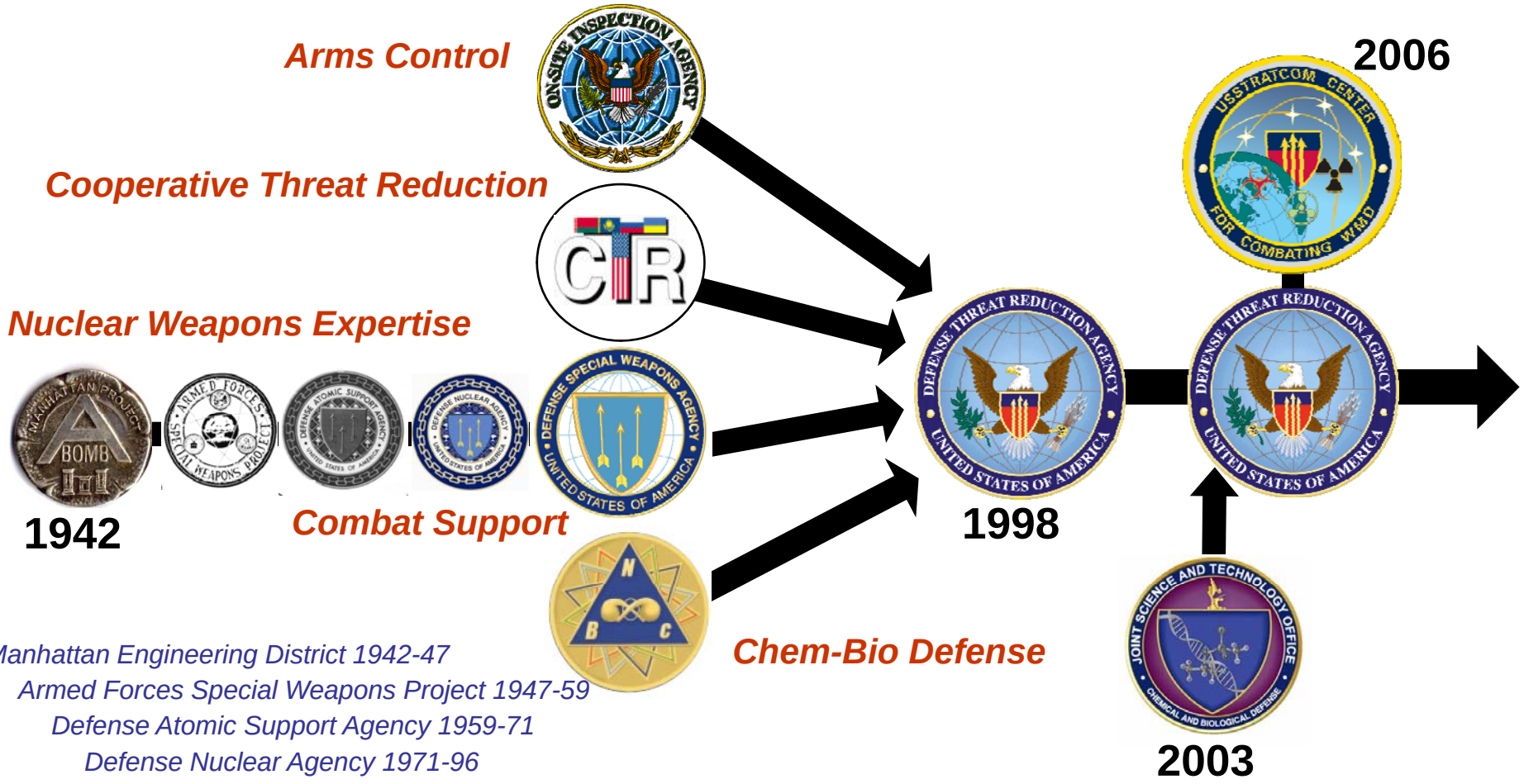
Capabilities to Detect, Track, and Interdict WMD

Post-Nuclear Detonation Forensics

Hard and Deeply Buried Target Defeat

Foreign Consequence Management

DTRA's lineage dates to WWII "Manhattan Project"



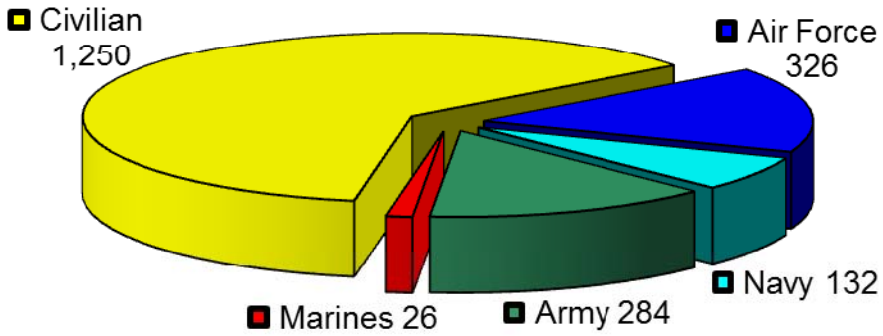
DTRA & SCC-WMD People and DTRA FY 2012 Budget*

Total DTRA Authorizations: 2,018 (768 Military & 1,250 Civilian)

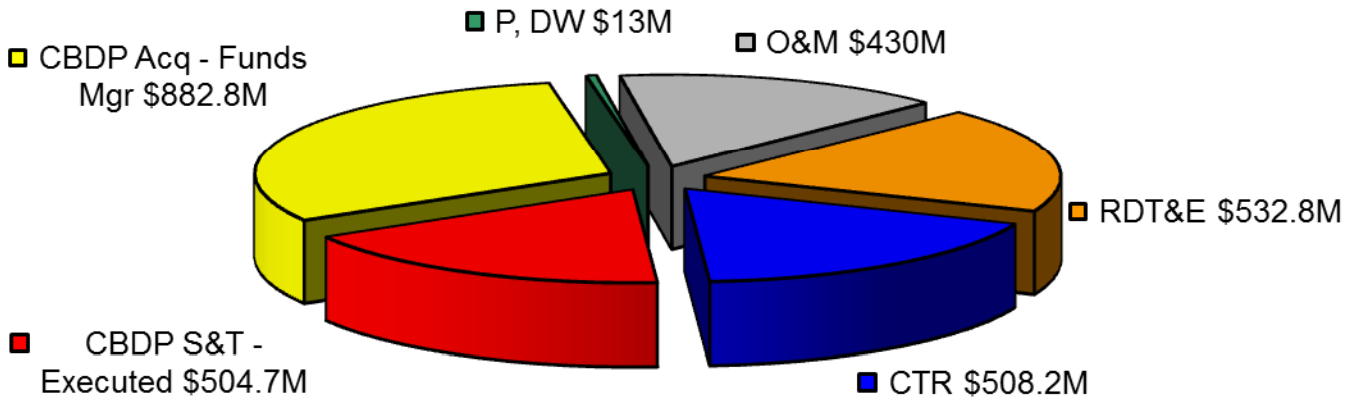
Total SCC-WMD Authorizations: 73 (53 Military & 20 Civilian)

Total Portfolio: $2.9B

DTRA Personnel

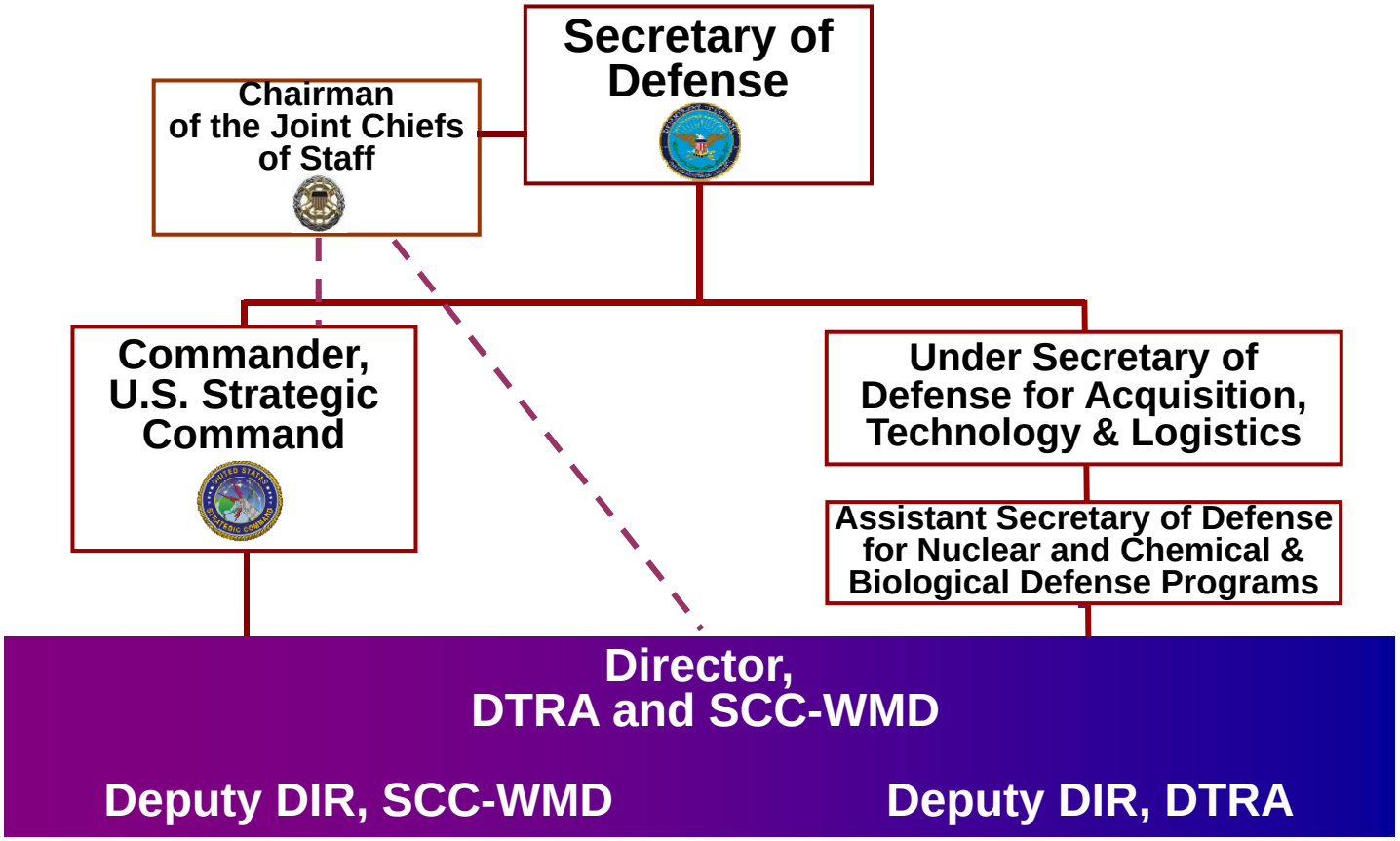


DTRA Budget



*Data is the FY 2012 Appropriated President's Budget. Does not include $52.3M reimbursable.

Command Structure and Relationships

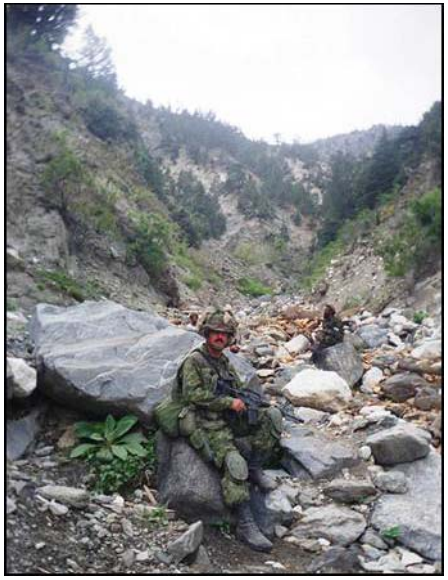


DoD's mission space is defined by military utility

- International and U.S.
- Terrorism and nation state
- Cooperative and non-cooperative states
- Permissive and denied environments
- Interdiction
- Materials and weapons
- Overt and covert
- Science through transition
- Fixed and expeditionary

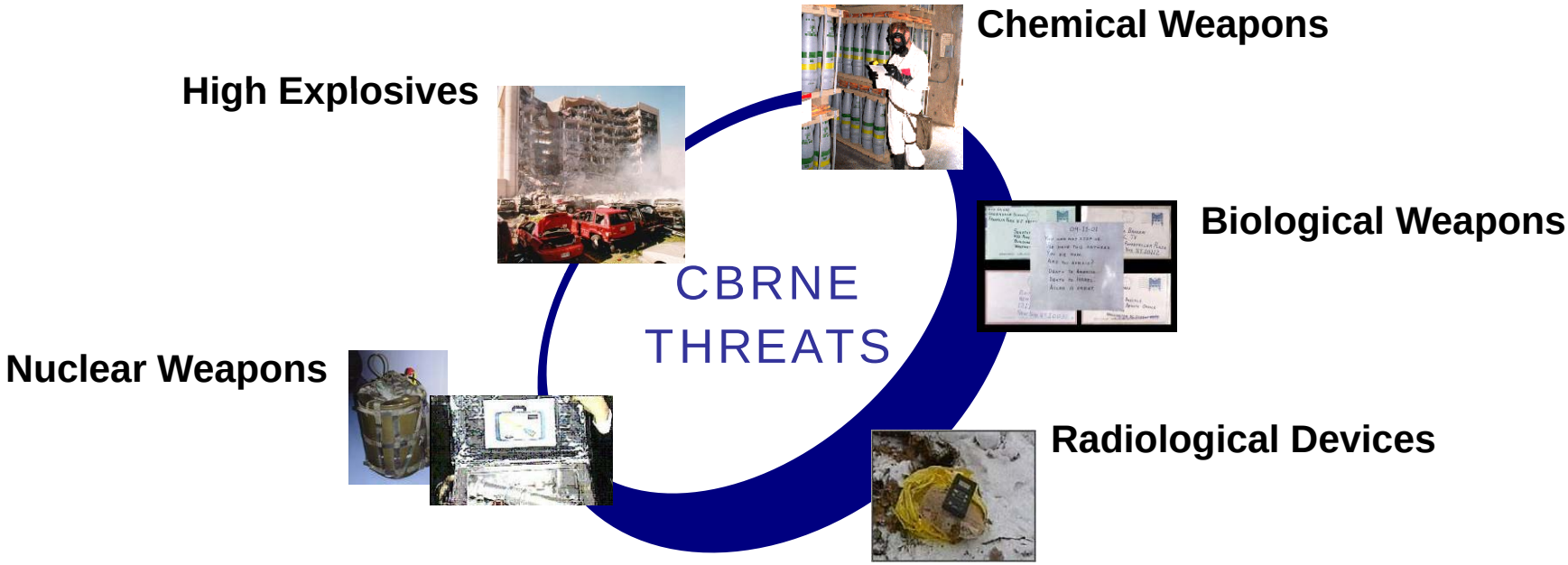
DOE

DHS

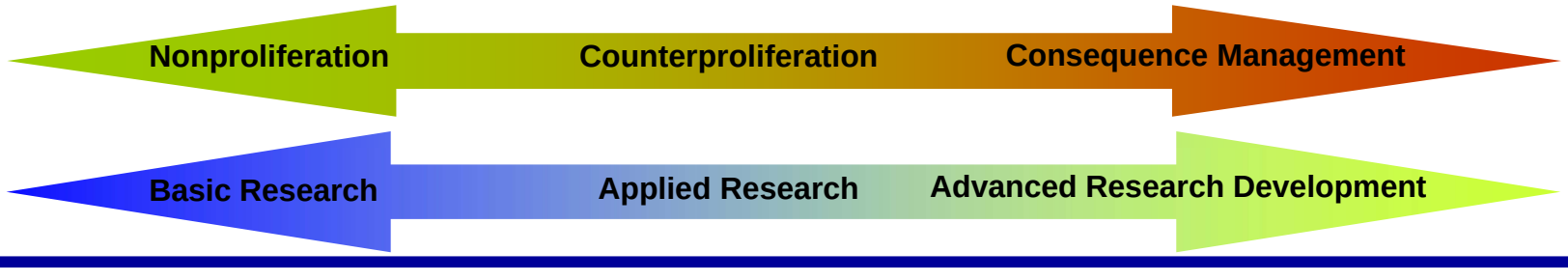


DoD

DTRA Research and Development



Across the spectrum of Counter-WMD and RDT&E



DTRA RDT&E Uniqueness

- DoD research leader on WMD
- Embedded in a Combat Support Agency
  - 24/7 Operations and Reachback Centers
- No laboratory infrastructure
  - Competitive = “Best of Breed”
- Strong interagency ties
  - DOE, DHS, DHHS, DOS, IC, etc.
- Co-located, co-managed w/USSTRATCOM SCC-WMD

DTRA J9 Organization

J9
Doug Bruder

BA
Basic & Applied Research
Joan Pierre

NT
Nuclear Technologies
Dr. Mike Kuliasha

CX
Counter WMD
Steve Dowling

CB
Chemical / Biological
Dr. Alan Rudolph

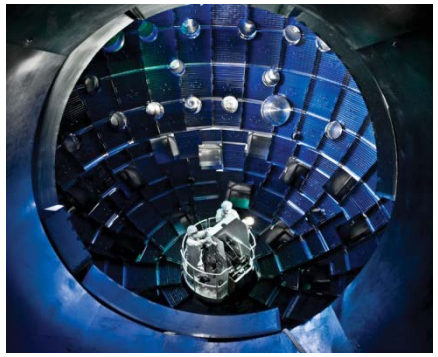
IS
Innovation & Sys Eng
CAPT J. Buckley

Basic and Fundamental Research

Identifying key enabling technologies related to WMD while working to grow the next generation of counter-WMD scientists via engagement through university-centric research

- **Basic Research Program**
  - Sponsor high payoff fundamental research; grow the next generation S&T workforce for combating WMD
  - 6.1 grants to universities and labs

- **Fundamental Research Program**
  - "Transition enabler" to bridge the gap between basic research and technology development
  - 6.2 awards to Universities and Research Institutions

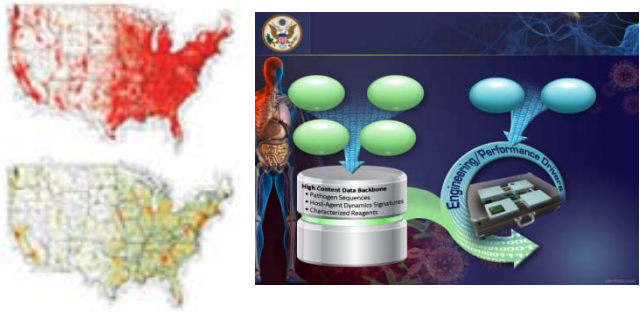


Chemical & Biological Technologies

Left of Event:

Buying down risk of threat

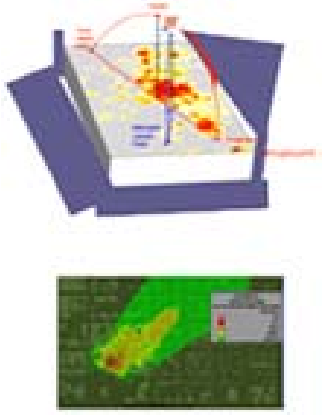
Disease Surveillance, Threat Detection & Point of Need Diagnostics



Threat Activity Sensing & Reporting

Adaptive Medical Countermeasures & Technologies

Rapid Response & Restoration Science and Technology



Right of Event:

Buying down risk of event

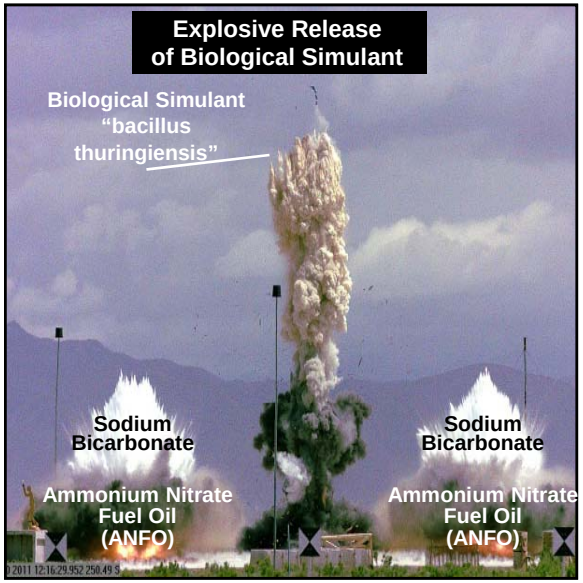
Counter-WMD Technologies

Research, develop and demonstrate innovative technologies and capabilities to **actively counter the full spectrum** of CBRNE threats

Offensive Weapons

Persistent ISR for WMD

Test Facilities & Technology



Advanced Energetics

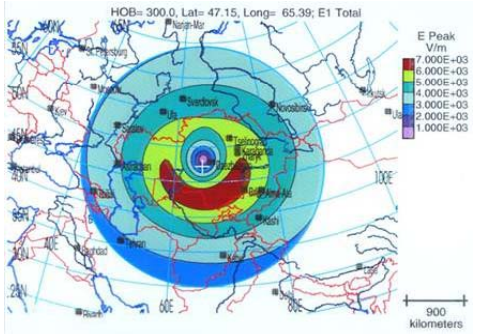
CWMD Terrorism Technology

Nuclear Technologies

Research and develop technologies to **enhance the safety, security, survivability, and performance** of U.S. assets and facilities in a nuclear environment

Nuclear Threat Detection

Nuclear Weapon Effects



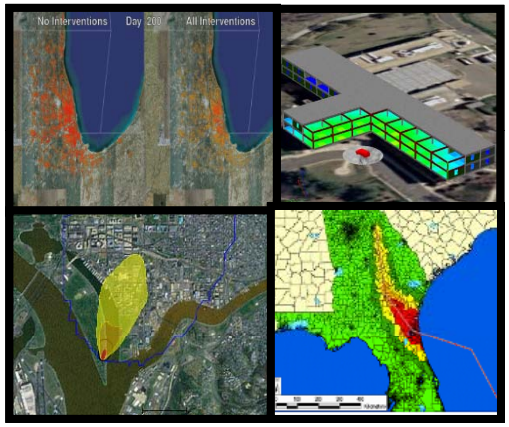
System Survivability, Radiation Hardened Microelectronics, and EMP Protection

Nuclear Forensics

Treaty Verification Technologies

Information Science and Applications

Develop, integrate and deploy decision support methods and capabilities supporting CWMD and consequence management missions:



24/7/365 Technical Reachback

Modeling & Simulation

InQTel

SBIR/STTR
SMALL BUSINESS INNOVATION RESEARCH
SMALL BUSINESS TECHNOLOGY TRANSFER

INNOCENTIVE

Enterprise Transition and Innovation Initiatives

IWMDT
CBRNE MODELING SIMULATION & ANALYSIS
TARGETING SUPPORT • NET-CENTRIC • CONSEQUENCE ASSESSMENT

Information Science and Applications

International Partnerships

Questions?

"Gentlemen, we have run out of money. Now we shall have to think."

Sir Winston Churchill (1874-1965)
Prime Minister of the UK
1940-45 and 1951-55