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GLOBAL EXPLOSIVE ORDNANCE DISPOSAL CONFERENCE AND EXHIBITION

“Combating Terrorist Use of Explosives”

April 27 - 30, 2010
Fort Walton Beach, FL

Agenda

Wednesday, April 27, 2010

Welcome Remarks

- Mr. Jim O’Neil, Deputy Vice Chairman, NDIA EOD Planning Committee; Executive Director, EOD Memorial Foundation

Keynote Remarks – *The Three Dimensional EOD Warrior – Defense, Diplomacy and Development*

- Colonel Leo Bradley, USA, Chief EOD & HMA, Office of the Assistant Secretary of Defense for Special Operations Low Intensity Conflict & Interdependent Capabilities

NATO EOD Working Group Update

- Wing Commander James P. Brudenell, Air Force of the United Kingdom Explosive Ordnance Disposal Working Group, North Atlantic Treaty Organization (NATO)

Science and Technology for Countering Improvised Explosive Devices

- Dr. Ruth Doherty, Program Executive Officer for Counter IED, U.S. Department of Homeland Security

Irregular Warfare

- Mr. David Johnson, Executive Director, Center for Advanced Defense Studies

Interagency Combating Terrorism Technology Support

- Mr. Gabriel Ramos, Deputy Director for Technology, Department of Defense Combating Terrorism Technical Support Office, Office of the Secretary of Defense

Interagency Improvised Explosive Device Defeat

- Dr. Edwin A. Bundy, Program Manager, EOD/Low-Intensity Conflict, Department of Defense Combating Terrorism Technical Support Office, Office of the Secretary of Defense

Thursday, April 29, 2010

Keynote Remarks – *Building Collaborations in Countering IEDs*

- Mr. Jim W. Blackburn, Assistant Capability Manager Engagement, European Defense Agency

Defense Threat Reduction Agency Support of the EOD Force

- Mr. Michael Barry, Explosive Ordnance Specialist, DTRA Combating Terrorism Division

SERVICES STATE OF THE UNION ON EOD

- **Navy** - Commander Eugene Rathgeber, USN, EODGRUONE, Navy Expeditionary Combat Command
- **Marine Corps** - Lieutenant Colonel Marc Tarter, USMC, EOD Action Officer/Occ Sponsor, Office of the Director, Logistics Plans, Policies and Strategic Mobility, Headquarters, U.S. Marine Corps
- **Air Force** - Lieutenant Colonel Laurie Richter, USAF, EOD Program Director, Headquarters, U.S. Air Force A4/7

EOD Training Panel

- Lieutenant Colonel Jeffrey LaCaze, USA, Director, U.S. Army EOD Land Warfare Center of Excellence

Friday, April 30, 2010

Coalition Joint Task Force Troy (Iraq) Efforts to Defeat Explosive Ordnance and Improvised Explosive Devices

- Colonel Patrick J. Kelly, USA, Commander, 71st Ordnance Group EOD

Ground Forces Panel

- Colonel Thomas J. Langowski, USA, 52d OD GP EOD

Explosive Ordnance Disposal Directorate Brief

- SGM Frey

GLOBAL EXPLOSIVE ORDNANCE DISPOSAL Conference and Exhibition

“Combating Terrorist Use of Explosives”



LOCATION

Emerald Coast Conference Center
1250 Miracle Strip Parkway SE
Fort Walton Beach, FL 32548

ATTIRE

Appropriate dress for the conference is business coat & tie for civilians and Class A uniform or uniform of the day for military personnel.

ID BADGES

During conference registration and check-in, each attendee will be issued an identification badge. Please be prepared to present a valid picture ID. Badges must be worn at all conference functions.

PROCEEDINGS

Conference proceedings will be available online approximately two weeks after the event. You will receive an e-mail notification once the proceedings are available for viewing.

SPEAKER DONATION

In lieu of Speaker gifts, a donation has been made to the EOD Memorial Foundation.

CONTACTS

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Global Explosive Ordnance Disposal Conference and Exhibition

April 27 - 30, 2010
Emerald Coast Conference Center, Fort Walton Beach, Florida

“Combating Terrorist Use of Explosives”

Tuesday, April 27

12:00 – 6:30 PM **Conference Registration**
5:00 – 6:30 PM **Opening Reception in Exhibit Hall**

Wednesday, April 28

7:00 – 8:00 AM **Continental Breakfast in Exhibit Hall**
7:00 – 6:30 PM **Conference Registration**
8:00 – 8:30 AM **Welcome Remarks**
Mr. Eugene Squires, Chairman, NDIA EOD Planning Committee; Senior Partner, Squires & Fulcher, LLC Management Consultants

Mr. Jim O’Neil, Deputy Vice Chairman, NDIA EOD Planning Committee; Executive Director, EOD Memorial Foundation

8:30 – 9:15 AM **Keynote Remarks – The Three Dimensional EOD Warrior – Defense, Diplomacy and Development**
Colonel Leo Bradley, USA, Chief EOD & HMA, Office of the Assistant Secretary of Defense for Special Operations Low Intensity Conflict & Interdependent Capabilities

9:15 – 10:00 AM **NATO EOD Working Group Update**
Wing Commander James P. Brudenell, Air Force of the United Kingdom Explosive Ordnance Disposal Working Group, North Atlantic Treaty Organization (NATO)

10:00 – 10:30 AM **Networking Break in Exhibit Hall**
10:30 – 11:15 AM **So Who is the “Pointy End of The Spear” Today?**
Mr. Gary Motsek, Assistant Deputy Under Secretary of Defense (Program Support), Office of the Under Secretary of Defense (Acquisition, Technology and Logistics)

- 11:15 – 12:00 PM **Science and Technology for Countering Improvised Explosive Devices**
Dr. Ruth Doherty, Program Executive Officer for Counter IED, U.S. Department of Homeland Security
- 12:00 – 1:30 PM **Networking Lunch in Exhibit Hall**
- 1:30 – 2:15 PM **Improvised Explosive Devices – Strategic Weapons of Influence for Irregular Warfare**
Colonel Karl Reinhard, USA, Executive Officer to the Director, Joint Improvised Explosive Device Defeat Organization
- 2:15 – 3:00 PM **Irregular Warfare**
Mr. David Johnson, Executive Director, Center for Advanced Defense Studies
- 3:00 – 3:30 PM **Networking Break in Exhibit Hall**
- 3:30 – 4:00 PM **Interagency Combating Terrorism Technology Support**
Mr. Gabriel Ramos, Deputy Director for Technology, Department of Defense Combating Terrorism Technical Support Office, Office of the Secretary of Defense
- 4:00 – 4:30 PM **Interagency Improvised Explosive Device Defeat**
Dr. Edwin A. Bundy, Program Manager, EOD/Low-Intensity Conflict, Department of Defense Combating Terrorism Technical Support Office, Office of the Secretary of Defense
- 4:30 – 5:00 PM **Interagency Irregular Warfare Support**
Mr. Richard Higgins, Program Manager, Irregular Warfare Support, Department of Defense Combating Terrorism Technical Support Office, Office of the Secretary of Defense
- 5:00 – 6:30 PM **Reception in Exhibit Hall**

Thursday, April 29

- 7:00 – 8:00 AM **Continental Breakfast in Exhibit Hall**
- 7:00 – 5:00 PM **Conference Registration**
- 8:00 – 8:15 AM **Welcome Remarks**
Lieutenant General Donald Wetekam, USAF (Ret), Group Vice President, Maintenance, Repair and Overhaul, AAR Corporation
- 8:15 – 9:00 AM **Keynote Remarks – Building Collaborations in Countering IEDs**
Mr. Jim W. Blackburn, Assistant Capability Manager Engagement, European Defense Agency
- 9:00 – 9:45 AM **EOD's Vital Role in Protecting the Force**
Rear Admiral Archer M. Macy, Jr., USN, Director, Joint Integrated Air & Missile Defense Organization, Deputy Director for Force Protection, J-8, The Joint Staff
- 9:45 – 10:15 AM **Networking Break in Exhibit Hall**
- 10:15 – 11:00 AM **Defense Threat Reduction Agency Support of the EOD Force**
Mr. Michael Barry, Explosive Ordnance Specialist, DTRA Combating Terrorism Division

11:00 – 3:00 PM **SERVICES STATE OF THE UNION ON EOD**

11:00 – 11:45 AM

Army

Brigadier General Ernest C. Audino, USA, Director, G-33 Current Operations,
HQDA ODCS G-3/5/7

11:45 – 12:30 PM

Navy

Commander Eugene Rathgeber, USN, EODGRUONE, Navy Expeditionary Combat
Command

12:30 – 1:30 PM

Networking Lunch in Exhibit Hall

1:30 – 2:15 PM

Marine Corps

Lieutenant Colonel Marc Tarter, USMC, EOD Action Officer/Occ Sponsor, Office of the
Director, Logistics Plans, Policies and Strategic Mobility, Headquarters, U.S. Marine Corps

2:15 – 3:00 PM

Air Force

Lieutenant Colonel Laurie Richter, USAF, EOD Program Director, Headquarters, U.S. Air
Force A4/7

3:00 – 3:30 PM

**Networking Break in Exhibit Hall
(Last Chance to View Exhibits)**

SIMULTANEOUS BREAKOUT PANELS

3:30 – 5:00 PM

BREAKOUT PANEL (LOCATION: GENERAL SESSION ROOM)

Joint and Coalition Operations Panel

Moderator – Colonel Leo Bradley, USA, Chief EOD & HMA, Office of the Secretary of
Defense for Special Operations Low Intensity Conflict & Interdependent Capabilities

- Warrant Officer Quentin Paske, Air Force of Australia

- Warrant Officer Class 2 Matt Tanner, Army of Australia

Wing Commander James Brudenell, Air Force of United Kingdom

- Lieutenant Colonel Leland Browning, USA, US Head of Delegation for NATO EOD

3:30 – 4:15 PM

BREAKOUT PANEL (LOCATION: ISLAND ROOM)

EOD Training Panel

Lieutenant Colonel Jeffrey LaCaze, USA, Director, U.S. Army EOD Land Warfare Center
of Excellence

4:15 – 5:00 PM

BREAKOUT PANEL (LOCATION: ISLAND ROOM)

EOD Technology Panel

Major D. Landon Phillips, USAF, Chairman, EOD Military Technical Acceptance Board
Officer in Charge, USAF Detachment 63, NAVEODTECHDIV

5:00 PM

Adjourn for the Day

Friday, April 30

- 7:00 – 8:00 AM **Continental Breakfast in Foyer**
- 7:00 – 12:00 PM **Conference Registration**
- 8:00 – 8:15 AM **Welcome Remarks**
Mr. Jim O’Neil, Deputy Vice Chairman, NDIA EOD Planning Committee; Executive Director, EOD Memorial Foundation
- 8:15 – 9:00 AM **Keynote Remarks – Coalition Joint Task Force Paladin (Afghanistan) Efforts to Defeat Explosive Ordnance and Improvised Explosive Devices**
Command Sergeant Major Randall Hefner, USA, CSM, CJTF-Paladin
- 9:00 – 9:30 AM **Coalition Joint Task Force Troy (Iraq) Efforts to Defeat Explosive Ordnance and Improvised Explosive Devices**
Colonel Patrick J. Kelly, USA, Commander, 71st Ordnance Group EOD
- 9:30 – 10:00 AM **Networking Break in Foyer**
- SIMULTANEOUS BREAKOUT PANELS**
- 10:00 – 12:00 PM **GROUND FORCES PANEL (LOCATION: GENERAL SESSION ROOM)**
- Moderator** – Major General Walt Davis, USA, Deputy Director, Army Capabilities Integration Center, Training & Doctrine Command
- Colonel Thomas J. Langowski, USA, 52d OD GP EOD
 - Colonel Patrick J. Kelly, USA, 71st OD GP EOD
 - Lieutenant Colonel Walt Romine, USMC, Marine Forces Command: EOD Officer
 - Master Gunnery Sergeant, Michael Todd, USMC, HQMC, EOD MOS Manager
 - Command Sergeant Major Randall Hefner, USA, CSM, CJTF-Paladin
- 10:00 – 12:00 PM **NAVAL AND AIR FORCE PANEL (LOCATION: SUNSET ROOM)**
- Naval Forces**
- Moderator** – Mr. Ken Falke, Chairman, A-T Solutions, Inc.
- Commodore Theodore Lucas, USN, EODGRU ONE
 - Commodore Dale G. Fleck, USN, EODGRU TWO
- Air Forces**
- Moderator** – Mr. Dan Tompkins, Safety Officer, ECC
- Lieutenant Colonel Tim Bongiovi, USAF, Commander, 23 CES/CC
 - Major Joshua Tyler, USAF, NAF CE Officer
 - Chief Master Sergeant (Select) James Brewster, USAF, 4 CES Flight Superintendent
 - Chief Master Sergeant Robert Hodges, USAF, EOD Career Field Manager
 - Chief Master Sergeant Jerry Shelton, USAF, AFCENT EOD Functional Manager
- 12:00 PM **Conference Adjourns**

DTRA's Support to the Explosive Ordnance Disposal (EOD) Community

29 April 2010

***Emerald Coast Conference Center
Fort Walton Beach, FL***



Making the world safer



Agenda

- What and who is DTRA?
 - Cooperative Threat Reduction (CTR)
 - Small Arms & Light Weapons (SALW)
- Improvised Explosive Devices (IEDs)
- IED Attack and Defeat Cycles
- The IED Threat: Persistent and Evolving
- Commonalities & Differences between High Explosive (HE) and Chemical, Biological, Radiological, and Nuclear (CBRN) type devices
- How DTRA Become Involved with IEDs
- DTRA Support to the EOD Community
- DTRA's Ongoing IED related R&D technology projects



Defense Threat Reduction Agency

DTRA

The Defense Threat Reduction Agency (DTRA) is a combat support agency of the U.S. Department of Defense (DoD). Founded in 1998, the agency headquarters is located in Fort Belvoir, Virginia. DTRA employs 2,000 men and women, both military and civilian, at more than 14 locations around the world.

DTRA's Mission

To safeguard the United States and its allies from weapons of mass destruction (WMD) (chemical, biological, radiological, nuclear and high-yield explosives (CBRNE)) by providing capabilities to reduce, eliminate, and counter the threat and mitigate its effects.



Cooperative Threat Reduction (CTR)

CTR's non-proliferation effort reaches across the European, Central, and Pacific Commands' AORs – and may possibly expand to other Commands – to eliminate, secure and interdict nuclear, chemical and biological materials that could be used against the United States, its partners, allies, and friends.



OSD Policy establishes guidance and coordinates necessary agreements for all CTR activities.

DTRA is the implementing agent; responsible for all aspects of program, contract, and funding management.



CTR Program Areas

- Strategic Offensive Arms Elimination



- Nuclear Weapons Safety & Security

- Biological Threat Reduction Program



- WMD Proliferation Prevention

- Chemical Weapons Elimination





Small Arms & Light Weapons

- Small arms: weapons designed for personal use:
 - Revolvers, rifles, sub-machine guns, assault rifles, LMGs
- Light weapons: designated for use by several persons serving as a crew:
 - Mortars (< 100mm), crew served MGs, Man-Portable Air Defense Systems (MANPADS), recoilless rifles, crew-served grenade launchers, man-portable rocket/missile systems/anti-tank guns
- Ammunition and Explosives:
 - Small Arms Ammunition for small arms), shells and missiles for light weapons, all grenades, landmines, explosives





What is an IED?

- IED: An explosive device used in an unconventional manner by terrorist, guerrilla, criminal, or commando forces
 - Design: from crude to very sophisticated
 - CAN include explosive material OR chemical, biological or radiological payloads
 - Only limited by the imagination of the builder
 - Size, shape, container, lethality, initiators/triggers



Radio Controlled IED



Suicide Bomber Vest



Improvised Rocket Launcher

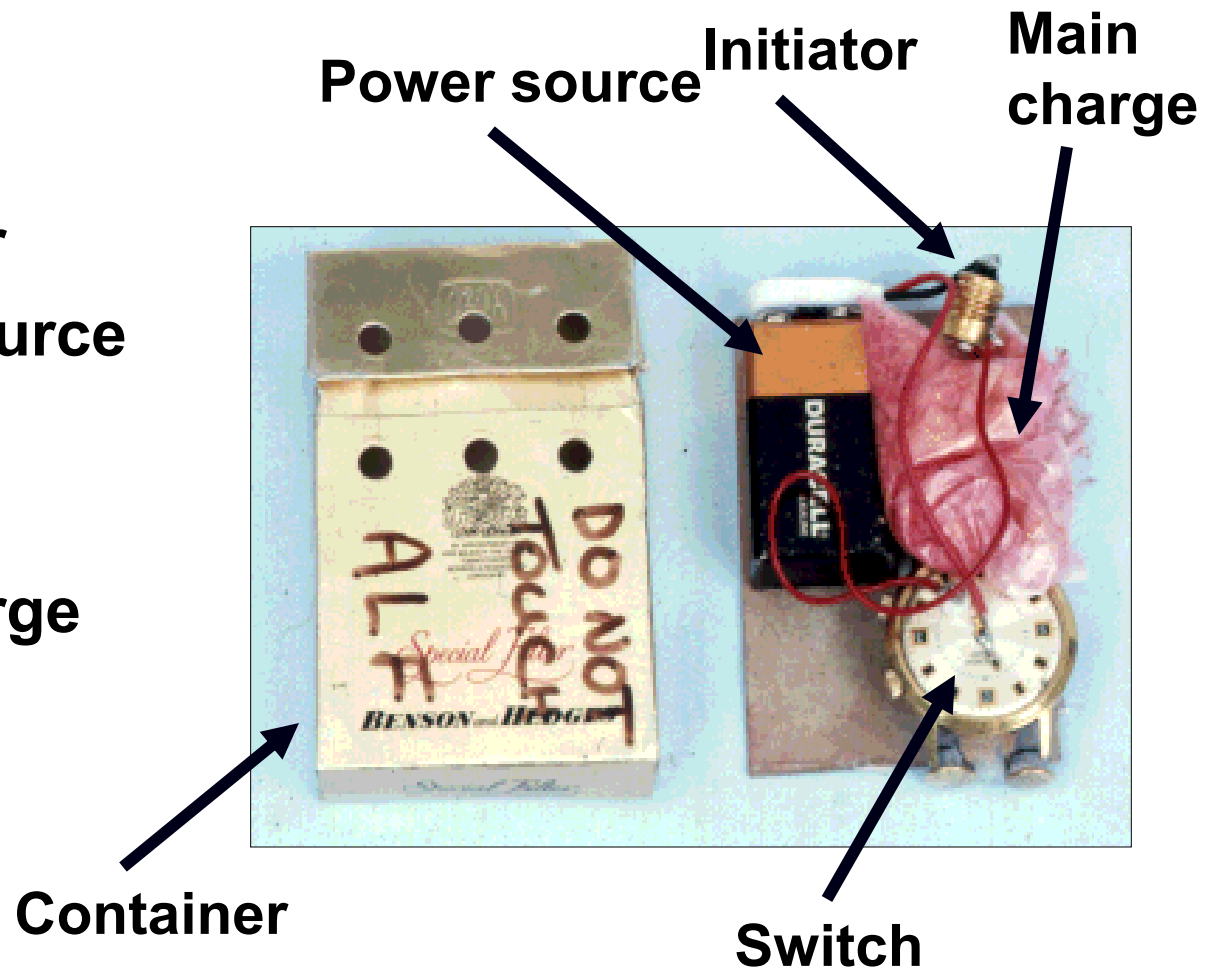


Vehicle IED VBIED



IED Components

- **Components**
 - **Container**
 - **Power source**
 - **Switch**
 - **Initiator**
 - **Main charge**





IEDs – A Persistent Threat

- **For a few years, the single largest cause of U.S./Coalition casualties**
- **Use by Jihadists has steadily increased over the last 7 years**
 - **Used in a large number of attacks on coalition forces**
 - **Specifically targeting critical forces:**
 - **First Responders**
 - **EOD**
- **The breadth of use has expanded since their first appearance in Iraq in 2003**



IEDs – An Evolving Threat

- Explosives are readily available to terrorists, including advanced explosive charges
- Advanced sensor and remote detonation technologies
- There are multiple arming and firing systems

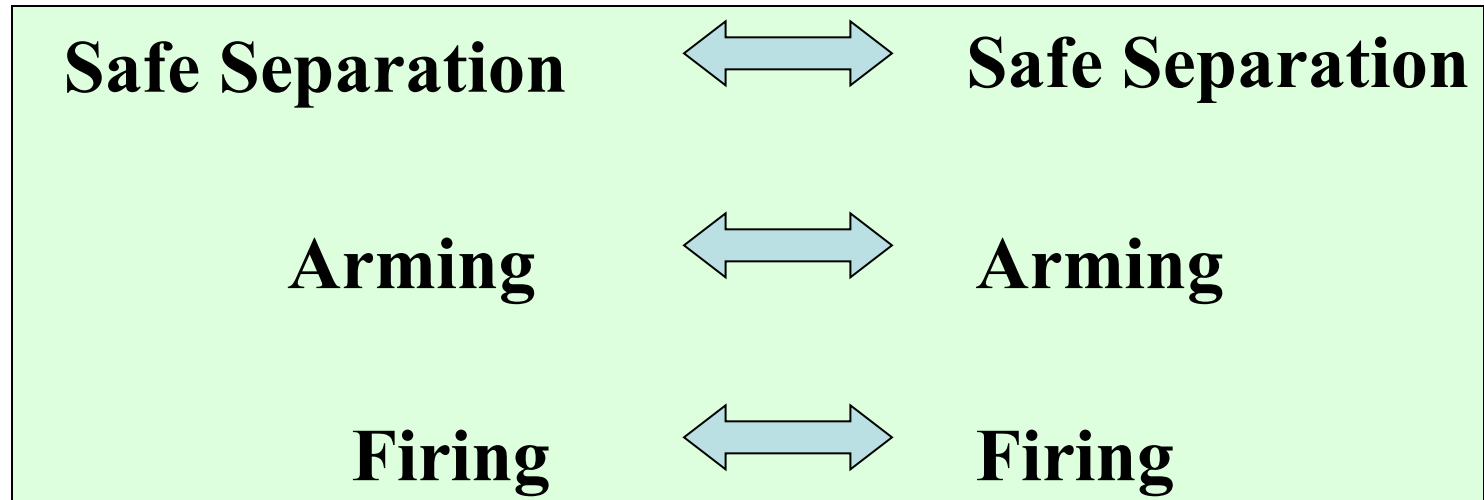




Commonalties & Differences

IEDs

WMD Dispersal Devices



High Explosives



?



CBRN

- Render Safe Procedures
- Can Often Blow-in-Place
- Current TTPs

- Can NEVER BIP
- Modified TTPs
- MUST Render Safe



How DTRA Became Involved in IEDs

- Commands requested DTRA assistance
- DTRA Liaison Officer deployed to OIF
- Delivered first equipment shipment
- Delivered additional shipments
- Maintained Liaison Officer presence in theater
- Currently supporting Allied forces on WMD matters



Phase I – COTS Solution

- Provided modified Commercial Off The Shelf (COTS) technologies directly to deployed OEF/OIF forces
- Delivered new EOD support tools into theater (over 2700 items)
- Proved concept for X-ray backscatter interrogation
- Proved concept for disposable robot
- Hosted 1st International IED Workshop



Phase I - Tactical Optics Solutions

- Thermal Imagers
- Video Cameras
- Range Finders
- Stabilized Binoculars
- Wireless Camera Systems
- Spotting Scopes



Phase I - Other Solutions



Disposable Robot



Segway



Phase II - Rapid Development and Tng

- Material Solutions
 - Portable Forensics Kit
 - Non-Intrusive Detection
 - Vehicle Borne IED Defeat System
- Mobile Training Teams (MTTs) to train the trainer



Phase II - Mobile Training Teams (MTT)

- Provided familiarization training related to DTRA sponsored equipment
- Provided to deploying EOD Forces with DTRA sponsored equipment
- Assisted in developing IED training scenarios
- Enabled development of tactics, techniques and procedures (TTPs)
- Enabled the development and validation of new concepts of operations





Phase III – Prepare for the Future

- Investigate, introduce and implement long-term technology development to counter the IED threat
- Support the warfighter
- Prepare for the possibility of the WMD IED



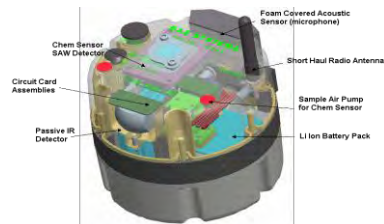
Phase III – Other Technologies

Vessel Boarding & Inspection System



Broadband wireless connectivity, two way communications, streaming video and WMD sensor data from host ship through inspection of boarded vessel of interest

Multi-Nodal Unattended Ground Sensor



Hand emplaced multi-modal (acoustic, seismic, PIR and chemical (CWA and TICS)) sensing wireless nodes for situational awareness and intrusion detection

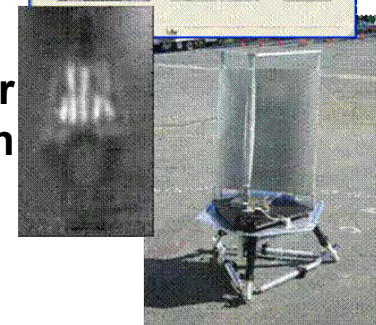
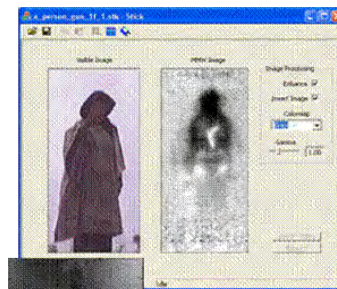
Deployable Technical Intelligence Laboratory



State-of-the-art, immediately deployable, self-contained forensics laboratory for combat operations, contingency missions, and training

Prototype Passive Millimeter Wave Imaging System

Suicide bomber detection





Phase III – Other Technologies

- Engineered Neutralization and Dispersion Source (ENDS) - creates a synergistic blast/fragment load environment that is severe enough to dismember and neutralize the IED without precipitating high-order detonation
- Developed a system to detect and identify concealed radioactive emissions in extreme environments
- Developed an enzyme method for detecting the presence of blood, nerve, and blister agents
- Working on a low-cost system for rapid screening of suspect areas with near real-time identification of explosives



What Does This All Mean?

It means that with the continued emphasis on combating WMD and securing the homeland, the Defense Threat Reduction Agency will play an increasingly important role in the ability locate, access, diagnose and defeat improvised explosive devices.



Fielded Efforts

- DTRA has expended significant resources to put tools into the hand of the operator. The following slides depict some of these efforts
 - Detection Tools
 - Diagnostic Tools
 - Access Tools
 - Defeat tools



Detection Tool - XPAK

- Trace Explosives Detector
- Real time
- Built in GPS
- Detects Commercial Explosives
- Future Development
 - Smaller
 - Lighter
 - Detect HME





Device Information systems

- HME Data base – everything you wanted to know about home made explosives
- CB Data base- all inclusive chemical and biological searchable data base
- Data Extraction Tool- Works with Triage system to help characterize device design and rapidly identify potential Improvised Nuclear Devices



Diagnostic Tool – Ltwt X-Ray Generator

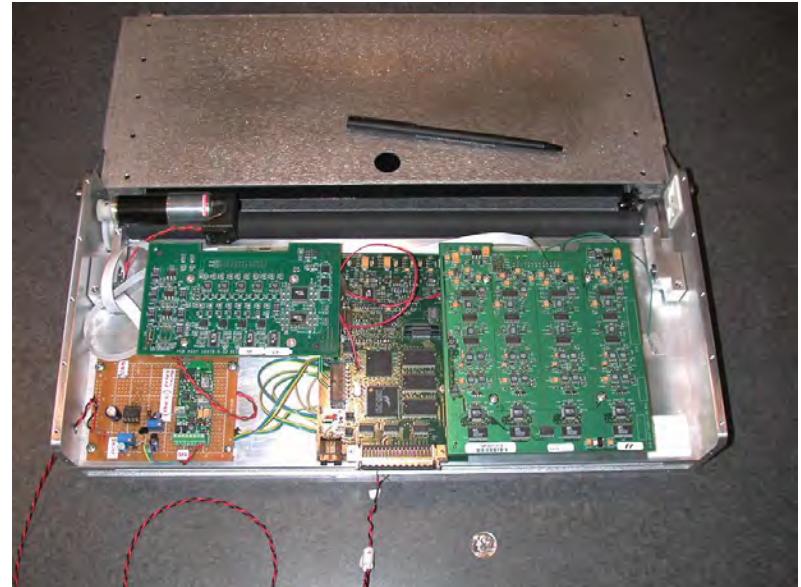
- May replace XR150
- Improved lightweight X-ray system
 - Lighter
 - More reliable
 - Higher energy
- Currently in development at LANL





Diagnostic Tool – Scanner

- Lightweight Phosphor panel digital scanner
- 7 pounds
- Battery powered
- Back packable





Diagnostic Tool – Digital Probe

- Improved performance
- Modular probe extensions
- Increased sensitivity across dynamic range
- Passive Diagnostic tool





Diagnostic Tool – Torion GCMS

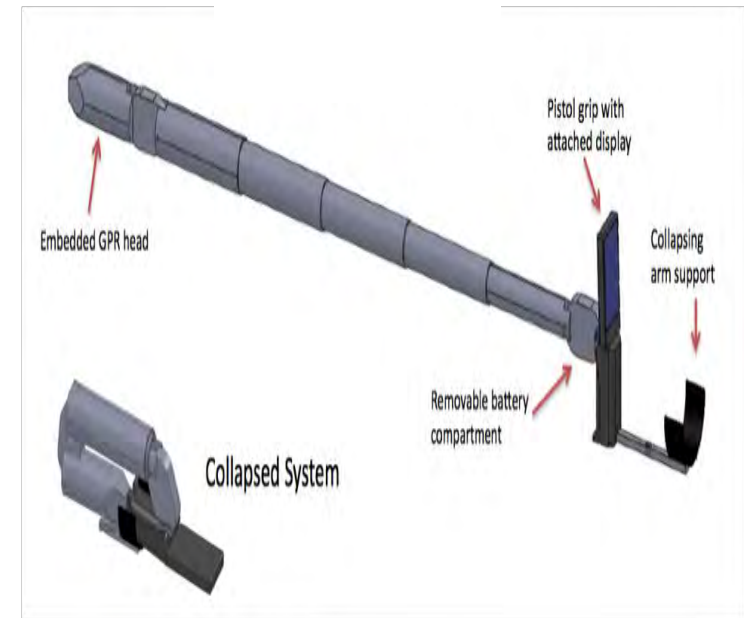
- **Gas Chromatograph
Mass Spectrometer**
 - Near Real Time <1AMU resolution
 - System is totally self-contained
 - Weighs less than 28 pounds
 - Battery or fixed power operated
 - Easy to operate with a simple three button navigation
 - Ideal for rapid screening of chemicals including VOCs/SVOCs
 - Explosives, chemical warfare agents, and hazardous substances





Diagnostic Tool – Metal Detector

- Smaller and lighter
- Folding and telescoping design
- Active/passive and merged modes
- 5lbs or less





Access Tool – Conex Cutter

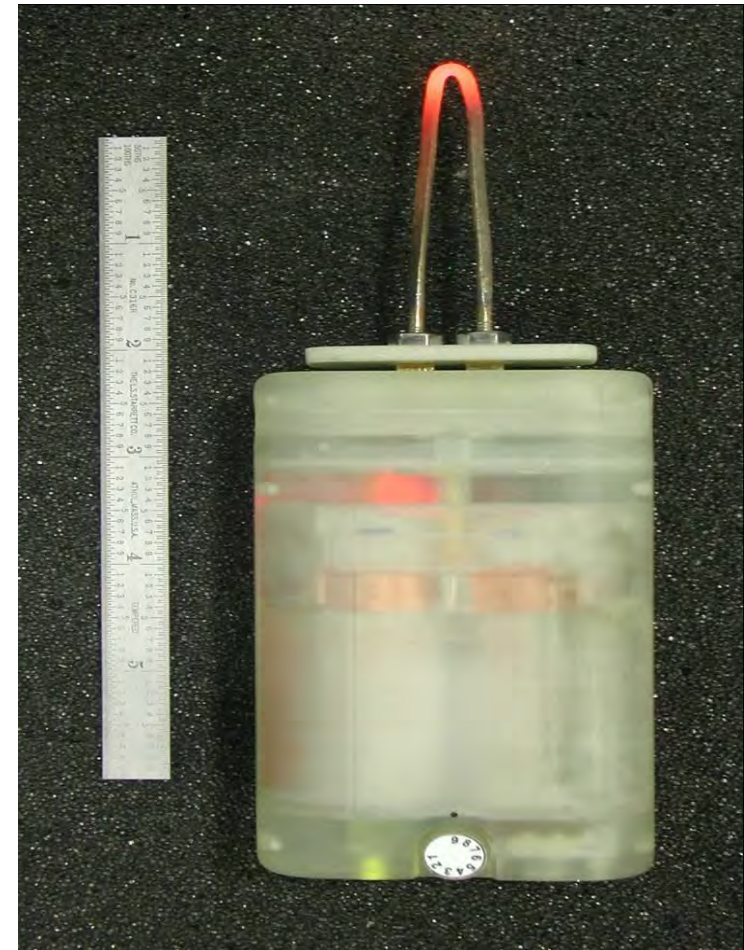
- Lightweight
- High mechanical advantage
- Cuts a 2' X 2' square access panel in 1/8" conex skin in under 2 minutes





Access Tool – Smart Knife

- Battery powered
- Quick recharge
- Almost instant on
- Multiple blades for various type cuts
- Rapid temperature adjustment





Mechanical Tools – Coaxial Cutter

- Light weight
- Expandable in length
- Multiple heads for different applications
- Used on smaller coax





Mechanical Tools– Medium Coaxial Cutter

- Light weight
- Expandable
- Multiple heads for various applications
- For medium size coax





Mechanical Tools– Heavy Coaxial Cutter

- Light weight
- Expandable
- Multiple heads for various applications
- For large heavy duty coax





Mechanical Tools – Coaxial Cutter Shaft

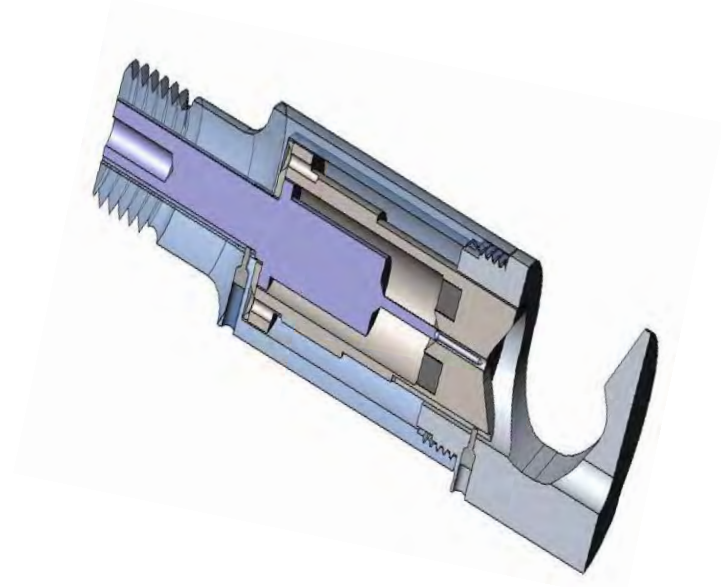
- Flexible shaft for use with a variety of co axial cutters
- Expandable to give greater flex





Mechanical Tools – Shorting Tool

- Insulated Shorting Tool Head
- Allows precise placement of shunting pins





Defeat Tool – Precision Aim Suite

- Single integrated system
- Constructs 3d view of target
- Allows exceptional accuracy with a variety of disruption charges





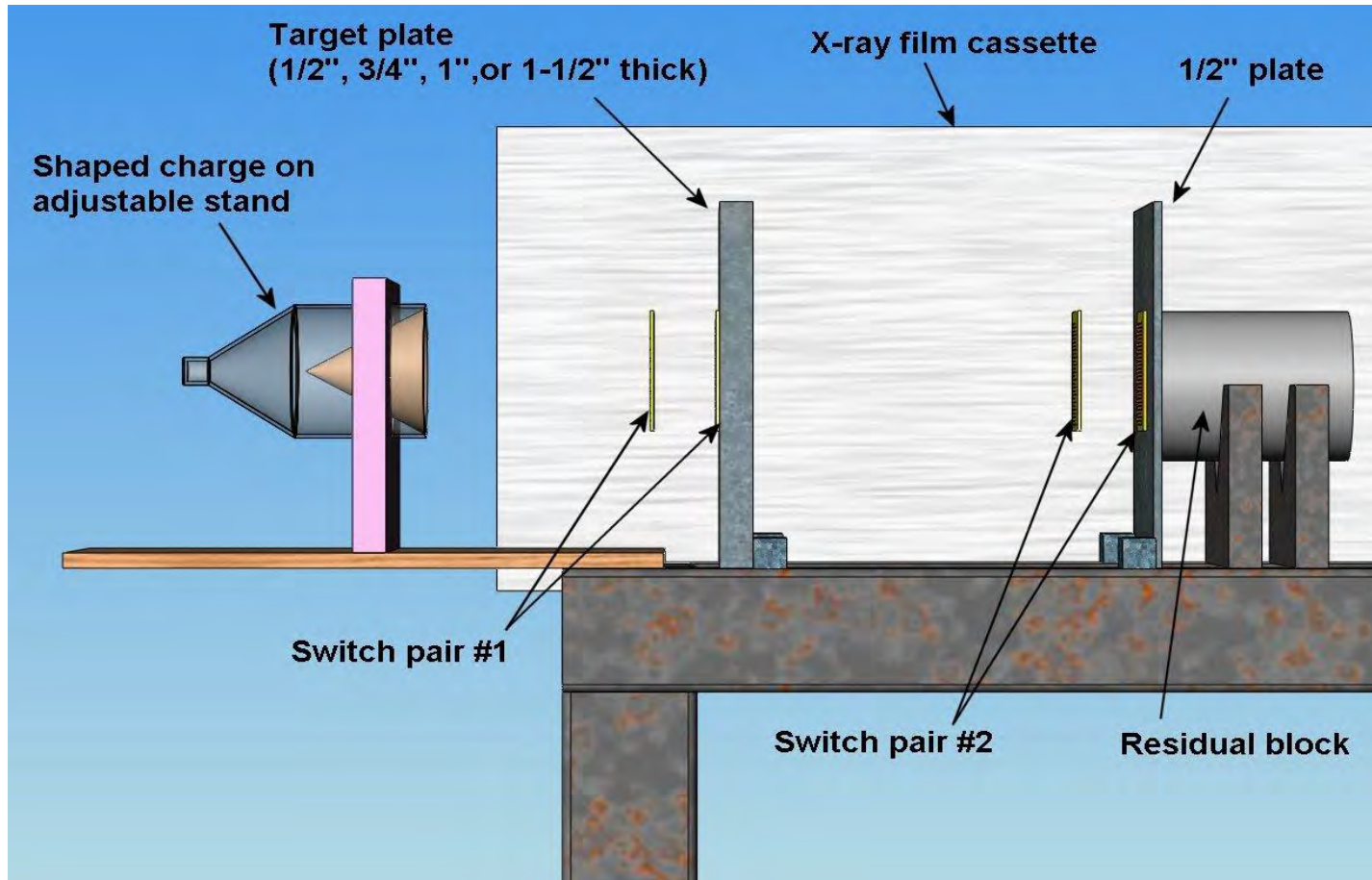
Defeat Tool – Shaped Charges

- Various types of shaped charges





Testing and Evaluation





Additional Support to EOD

- Technical Support Groups
- Equipment Testing



TSG Mission

- Provide training in radiological detection and monitoring to designated personnel.
- Conduct test and evaluation of Radiological detection equipment.





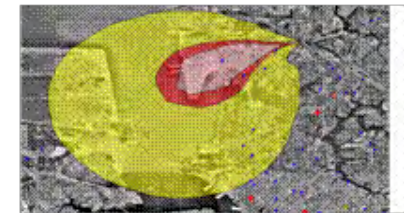
TSG Locations

- Washington Technical Support Group
 - Located at Fort Belvoir, Virginia
 - Provides training for forces in CONUS
 - Conducts Test and Evaluation of Equipment
 - Supports other TSGs and NTNF
- European Technical Support Group (ETSG)
 - Located in Stuttgart, Germany
 - Conducts training of EUCOM designated forces
- Pacific Technical Support Group (PTSG)
 - Located in Pearl City, Hawaii
 - Conducts training of PACOM designated forces
- CENTCOM Technical Support Group (CTSG)
 - Located in Manama, Bahrain
 - Conducts training of CENTCOM designated forces

Questions?



Making the World Safer...



...by combating weapons of mass destruction

Briefing to Global EOD Conference

European Defence Agency
Building Capabilities for a Secure Europe



European Defence Agency Building Collaborations in CIED

Jim Blackburn

29 April 2010

European Defence Agency
Building Capabilities for a Secure Europe



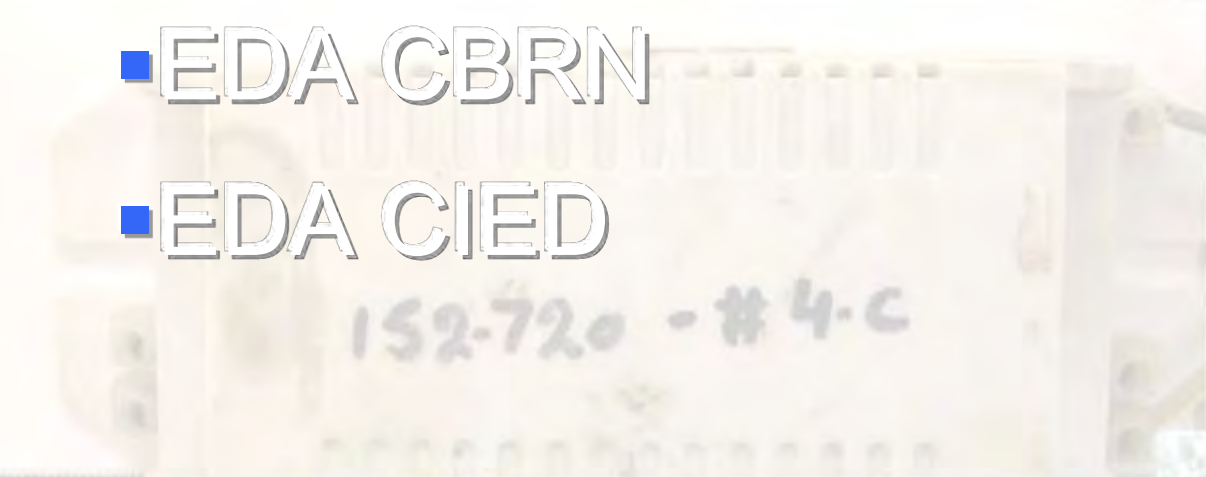
Programme

- EDA Background
- Ongoing EDA Projects
- EDA CBRN
- EDA CIED



Programme

- EDA Background
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- EDA CBRN
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EUROPEAN-US DEFENCE EXPENDITURE - GENERAL

	Europe*	US**
GDP:	€11,3 Trillion	€ 10,5 Trillion
Total Defence Expenditure:	€201 Bn	€491 Bn
Personnel Expenditure:	€110 Bn	€100 Bn
Operations & Maintenance:	€43,3 Bn	€169,2 Bn
Equipment Procurement:	€29,1 Bn	€83,0 Bn
Research & Development:	€9,7 Bn	€58,0 Bn
(Includes: Research & Technology):	€2,6 Bn	€13,6 Bn

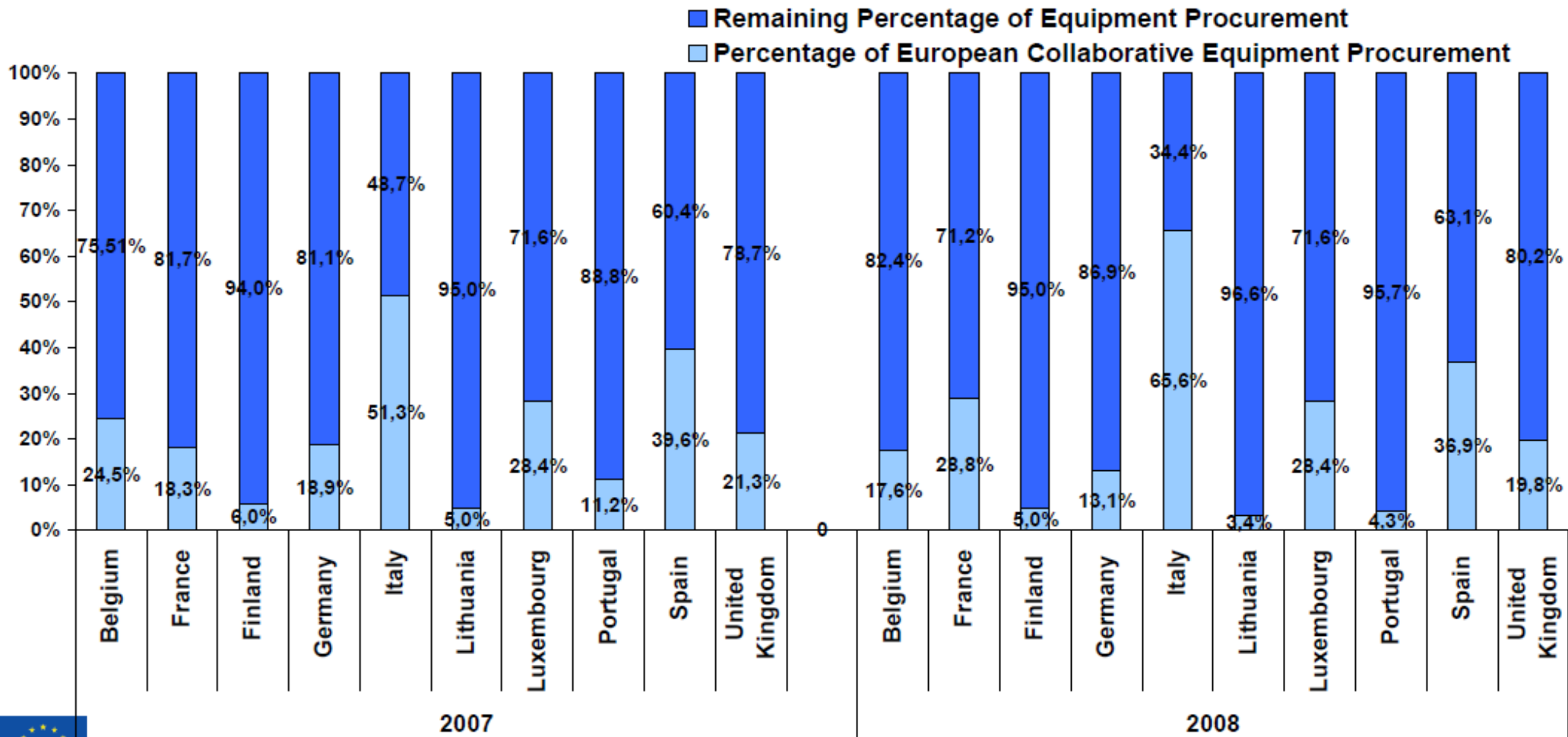
■ *Europe means 26 EDA participating Member States

■ **Euro/Dollar exchange rate is based on average for 2006: rate of 1,2556



Collaboration

European Collaborative Equipment Procurement as a Percentage of Total Equipment



EDA Participating Member States pMS



Participating Member States

EDA

NATO

Partnership
for Peace
(PfP) States:

- AT
- FI
- SE
- IE
- MT
- CY

- BE
- DE
- RO
- ES
- FR
- UK
- CZ
- HU
- PL
- BG

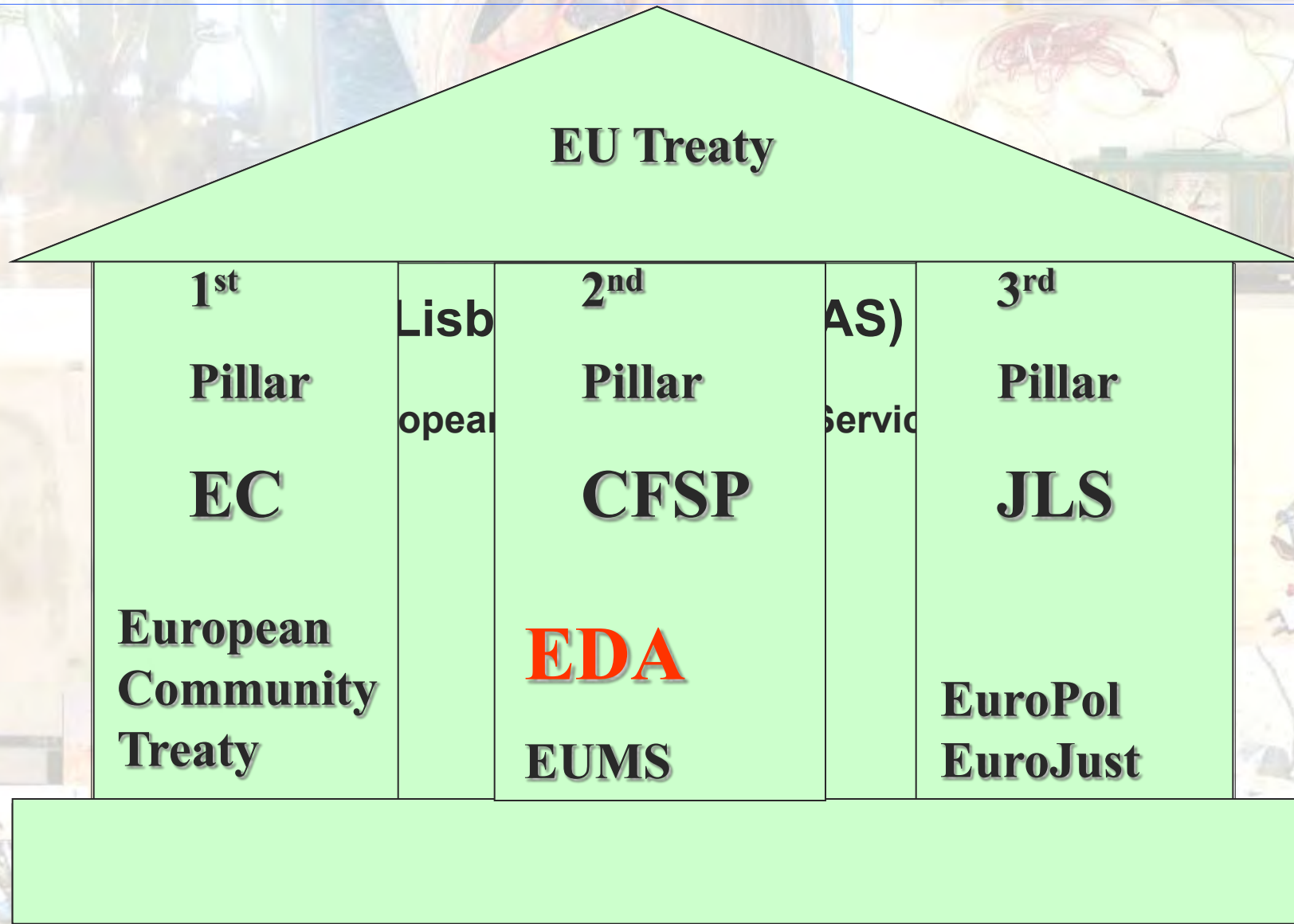
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- NL
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- LT
- LV

- CA
- US
- IS
- NO
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- TU
- AB
- HV

- AE
- AU
- AZ
- BA
- GE
- JO
- MK
- NZ
- SG
- UA

ISAF

The EDA in the European Institutions



Mission and functions

Development of defence capabilities
in the field of crisis management

“... to support the Council and
the Member States in their effort to
improve the EU’s defence capabilities
in the field of crisis management
and to sustain the ESDP as it stands
now and develops in the future.”

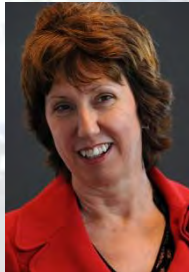
Improve the EU’s defence capabilities

Promotion & enhancement of
European armaments cooperation

Enhancement of effectiveness
of European Defence Research
and Technology (R & T)

Strengthening DTIB for the creation of an
internationally competitive
European Defence Equipment Market

■ EDA Structure



**HR Baroness Ashton
Head of EDA**



Chief Executive

Media / Comms

Planning / Policy

Deputies Chief Executive

Director R&T

Director Armaments

Director Capabilities

Director Industry/Markets

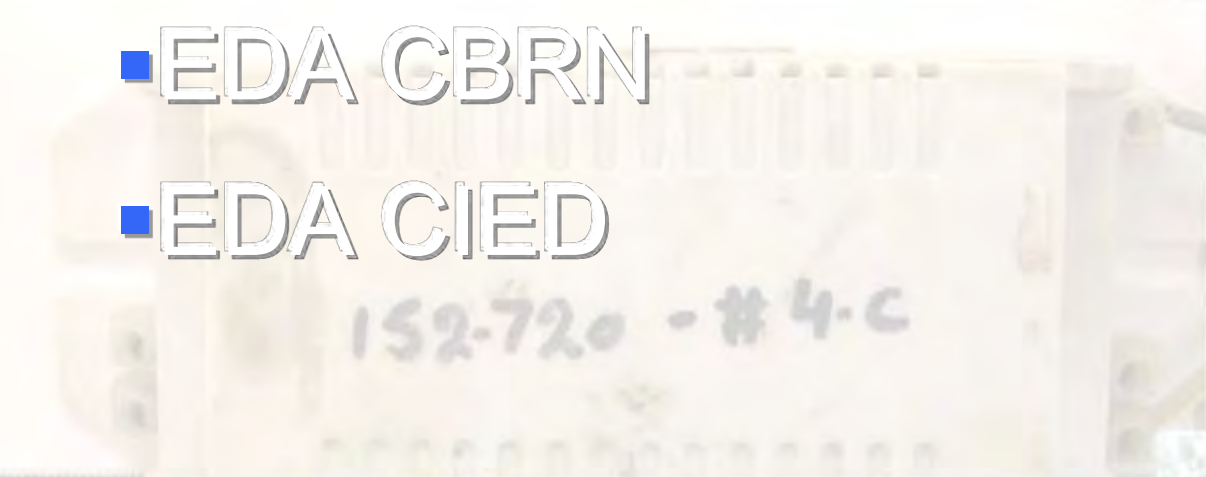
Director Corporate Services

EDA Background

- Small Agency approximately 110 people
- Small budget only for enabling activities
- Only exists for member states to enhance their capabilities
- No inherent EU Capability is being built – resides entirely in Member States
- Can only do what member states want to do
- Collaborative Forum
- Can inject proposals

Programme

- EDA Background
- Ongoing EDA Projects
- EDA CBRN
- EDA CIED



EDA Industry & Markets

- European Defence Equipment Market EDEM
- European Defence Technological and Industrial base EDTIB
- Electronic Bulletin Board EBB
 - Code of Conduct (> 1 M€)
 - Code of Best Conduct in the Supply Chain

152-720 - #4-C

Armaments Cooperative Strategy

- More and Effective Cooperation
 - Promote Cooperative Programmes
 - Ensure the future of the EDTIB
 - Improve effectiveness and efficiency
- Strategic Approach
 - CST, CSR & CPP
- Setting the Preconditions
 - Harmonised Military Requirements
 - Member States Share Plans

Armaments Cooperative Projects

- On Going efforts
 - European Secure Software Radio
 - Mid Air Collision Avoidance System
 - Active Protection Systems for Armoured Vehicles
- Category B
 - Multinational Space based Imagery
 - Naval Mine Counter Measures
 - BIO EDEP
 - Heavy Lift Helicopter
 - Helicopter Availability

Armaments Transversal Issues

- Military Airworthiness
- European Defence Test and Evaluation Base
- Matchmaking Database
- SDR Certification
- Armaments Strategy
- EDA / OCCAR Interface
- Standardization

■ EDA R&T – 12 technological areas

■ Capability-Technology Area = CapTech

■ 12 CapTechs in 3 major blocks reflecting Capabilities

■ IAP = Information Acquisition & Processing

■ ----> *Knowledge*

■ GEM = Guidance, Energy & Materials

■ ----> *Engage*

■ ESM = Environment, Systems and Modeling

■ ----> *Manoeuvre*

▪EDA R&T – 12 technological areas

Information, Acquisition & Processing	Guidance, Energy & Materials	Environment, Systems & Modelling
IAP01 Components	GEM01 Materials & Structures	ESM01 Naval Systems & their Environment
IAP02 RF Sensor Systems & Signal Processing	GEM02 Energetics, Missiles & Munitions	ESM02 Aerial Systems & their Environment
IAP03 Optical Sensor Systems & Signal Processing	GEM03 Ground Systems & their Environment	ESM03 Systems of Systems, Space, Simulation & Experiment
IAP04 CIS & Networks	GEM04 Guidance & Control	ESM04 Human Factors & CBR Protection

▪R&T Directorate : 16 people

EDA Research & Technology

■ Ad Hoc Cat A

• JIP FP

- 20 Contributing members (inc NO)
- joint budget 55M€.
- 3yrs initial programme.
- 8 contracts let to date

• JIP ICET

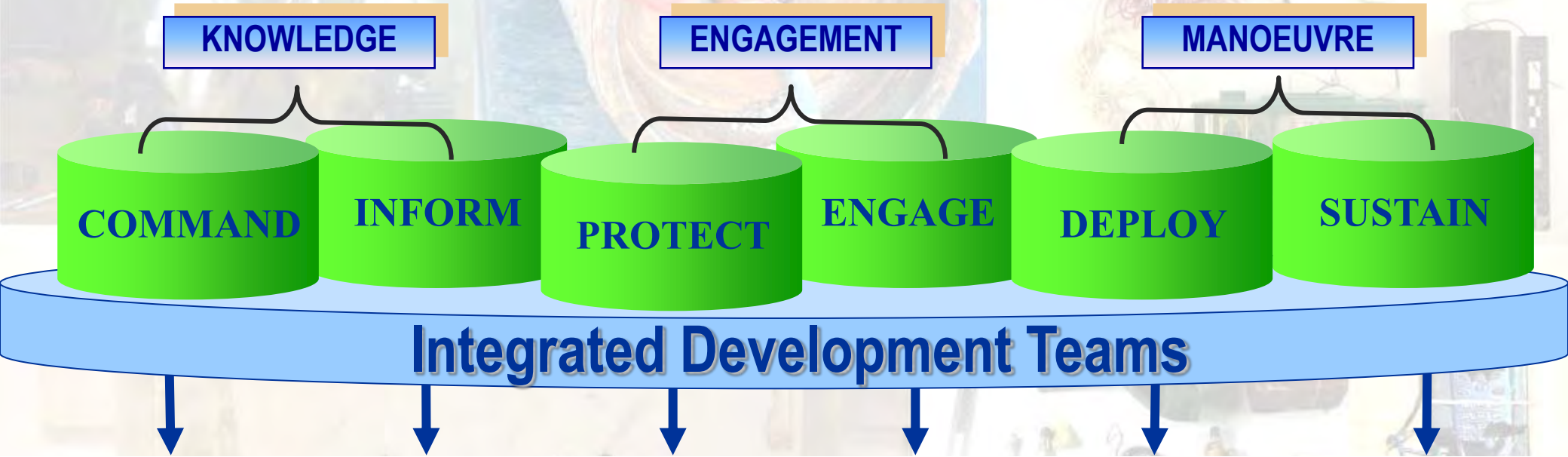
- 11 cM (including NO)
- Joint budget 15.58M€
- Call 1 resulted in the selection of 4 proposals that are contracted in Q4/2009.
- Call 2 ended 16 October 16 2009

■ Ad Hoc Cat B projects

- Contract signed – 26
- Awaiting contract – 3
- In preparation – 22

■ OB R&T Contracts – 5 total value 1.4M€

Integrated Development Teams (IDT) Project Teams (PT)



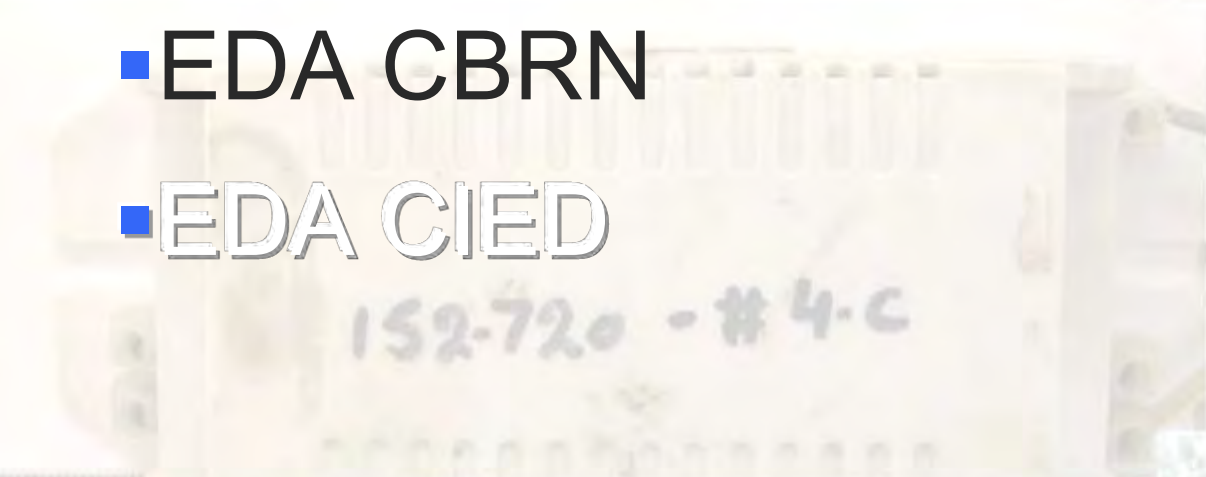
Project Teams

Various Lines of Development:

- Concepts & Doctrine (e.g. NEC, ISTAR Architecture, CBRN Detection, Seaborne Logistics, etc.)
- Training (e.g. Intelligence Understanding of Mission Environment, Helo Pilots Advance Training, etc.)
- Armament Cooperation (e.g. Maritime Airborne Unmanned System, 21 Cent. Soldier System, etc.)
- Operational Cooperation (e.g. Radio Spectrum Management, Information Management, etc.)
- Industrial Cooperation (e.g. Third Parties Logistic Support, etc.)

Programme

- EDA Background
- Ongoing EDA Projects
- EDA CBRN
- EDA CIED



CBRN

- PT CBRN DIM
- Ad Hoc Project Cat B BIO EDEP PREP
- PT CBRN CM
- PT CBRN EOD



PT CBRN EOD

- Taken over from the Equipment Capability Programme (ECAP) in the Western European Armaments Group (WEAG)
- Made significant Progress in concepts, training and standardisation.
- Looking to move into wrap everything together into a Common Staff Target to present this to a package to the Member States.
- Will still take forward RDD, IND and MNT.




Programme

- EDA Background
- Ongoing EDA Projects
- EDA CBRN
- EDA CIED






EDA CIED

Aim





-  Develop capabilities in common
-  Better use resources and ensure that a plan and staff structure exists for ESDP operations; in order
-  Enhance capability of the pMS to Counter an IED Campaign.

Strategic Context

-  One of the top 12 CDP actionable points.
-  Many pMS involved in current operations involving IEDs.
-  Capability Development needed quickly, but enduring.

PT Members AT, BE, CZ, DE, EE, **ES**, FI, FR, IE, IT, NL, PL, RO, SE, SK, UK

3rd Parties

-  EU Commission
-  EU Council
-  EuroPol
-  NATO

Guidelines for Developing a National CIED Capability

💣 Search

💣 **Defeat the System**
Exploitation / Weapons Intelligence

💣 Route Clearance

💣 IEDD (Including Manual Neutralisation Techniques)

💣 Mitigation

💣 TTPs

💣 ECM

Current & Planned Work

- CSDP Concept
- EU Commission to conduct an overarching review of EU CIED multi-nationally and multi-agency. (Civ / Mil) – Proposals for examination.
 - Level 3 CIED Exploitation (EU)
 - Information / Intelligence Sharing
 - Interoperable Framework, Common Capability Requirements
 - Common Standards
 - External links
- Manual Neutralisation Techniques
 - Kick off meeting 27 Jan
 - 2010 - Awareness Training
 - 2011 – Exercise
- Lessons Learned 8 & 9 June 2010

Search Route & Clearance

■ Search continue 5 year plan

- 2009 – Intermediate TTT Course Rome. **Complete**
- 2010 – Advanced Search Advisors Course: 5 – 30 Jul.
- 2011 – Basic Search TTT.
- 2012 – Specialist Search.
- 2013 – CBRN Search.
- Fits with Italian National Plan
- Courses run at Italian National CIED COE (Eng School)
- Run by Ex-Brit Mil RESA s
- EDA funded for pMS

■ Route Clearance

- Kick Off 10 June 2010 TALISMAN Briefing
- pMS to express interest by end May
- Possible IT lead

Exploitation

■ Level 3

- Discussed in Overarching EU CIED Review
- Currently 1 Bespoke Laboratory in the EU (UK)
- National Crime Laboratories.

■ Level 2

- EDA may spend 1m€ on Laboratory (demonstrator) this FY
- France as Lead Nation
- CSDP Pooled Asset
- Could be made available to ISAF


■ Level 1 - Nil

Potential CIED Exercise 2011

- Exercise format to be agreed
- Possible multiple vignettes
 - Strategic Civ / Mil over view seminars
 - Operational Exercise of CIED Staff Branch
 - Tactical level scenarios for CIED based on
 - Search
 - IEDD (Including MNT)
 - Scene Management
 - Exploitation
- To follow and build on IE CIED (IEDD)
- Possible venues being examined

EDA Role

- Providing a collaborative platform for pMS to develop capabilities
 - Coming together to fulfill “National Responsibilities”
- EDA Can:
 - Address conceptual issues, but not doctrine.
 - Establishment of training courses and running of 1 off pilot training.
 - Reach agreement on pan-European standards
 - The in depth development of 1 off capabilities and capacities
 - Provide a platform for pMS to find “Economies of scale” in training
 - Work on Category B Programmes
 - Be responsive to pMS requirements.
- EDA Cannot:
 - Provide on going enduring training
 - Be seen to be work FOR NATO, but MUST work WITH NATO
 - Work specifically for single or exclusive groups of Member States (within reason)



"PREPARE
TO MEET THY
GOD"

1000

Questions or Comments?

EDA





THE DEPARTMENT OF DEFENSE

Defense, Diplomacy and Development

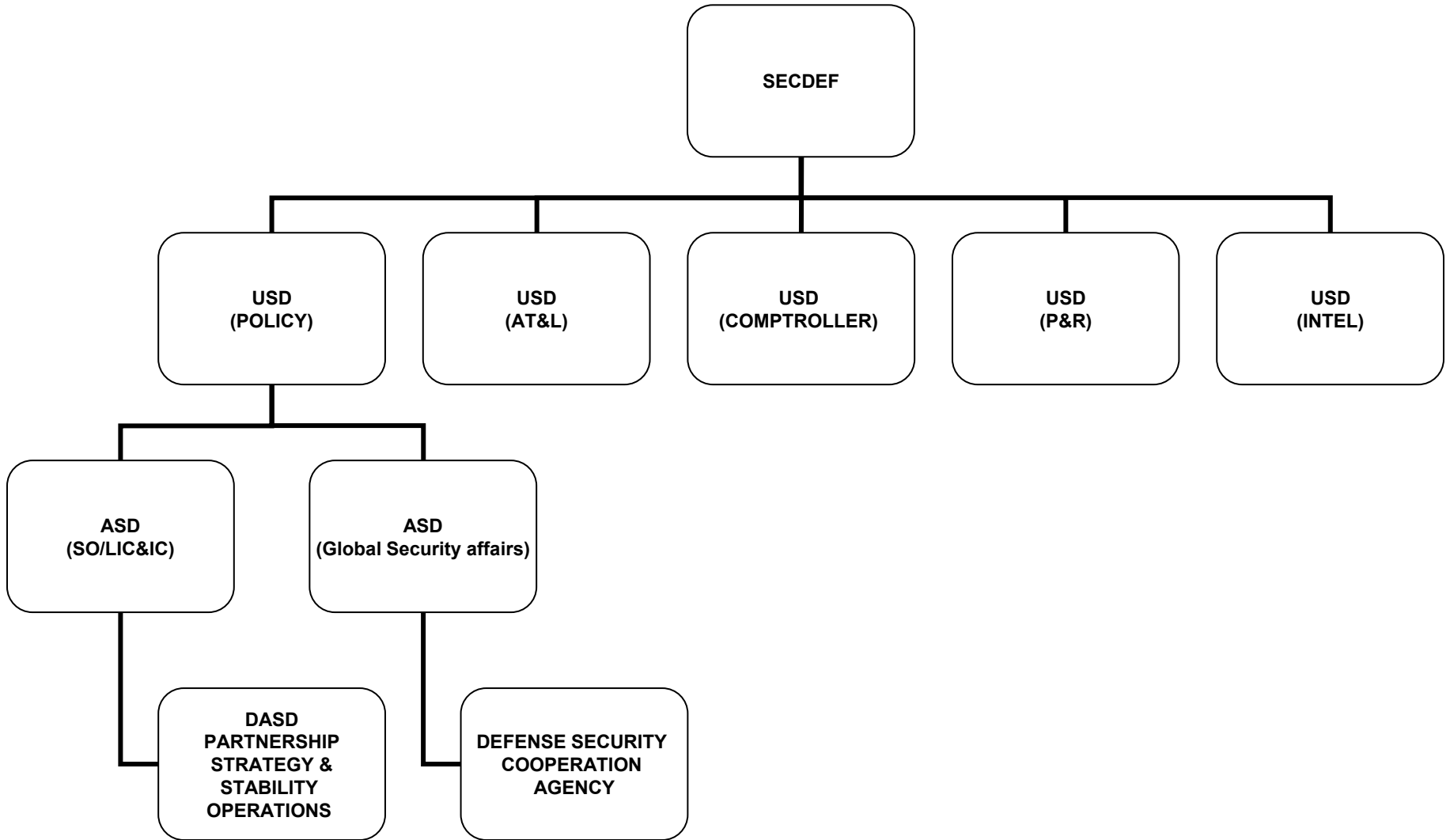
Colonel Leo Bradley

Chief, Explosive Ordnance Disposal & Humanitarian Mine Action
OASD Partnership Strategy & Stability Operations



POLICY

Office of the Secretary of Defense





Definitions

- ❑ **Explosive ordnance disposal:** (JP 1-02, NATO) The detection, identification, on-site evaluation, rendering safe, recovery, and final disposal of unexploded explosive ordnance. It may also include explosive ordnance which has become hazardous by damage or deterioration. Also called **EOD**.



POLICY

Definitions

- ❑ **explosive ordnance** (JP1-02, NATO): All munitions containing explosives, nuclear fission or fusion materials, and biological and chemical agents. This includes bombs and warheads; guided and ballistic missiles; artillery, mortar, rocket, and small arms ammunition; all mines, torpedoes, and depth charges; demolition charges; pyrotechnics; clusters and dispensers; cartridge and propellant actuated devices; electro-explosive devices; clandestine and improvised explosive devices; and all similar or related items or components explosive in nature.

- ❑ **unexploded explosive ordnance** (JP1-02, NATO) Explosive ordnance which has been primed, fused, armed or otherwise prepared for action, and which has been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material and remains unexploded either by malfunction or design or for any other cause. Also called UXO. See also explosive ordnance. (JP 3-15)



POLICY

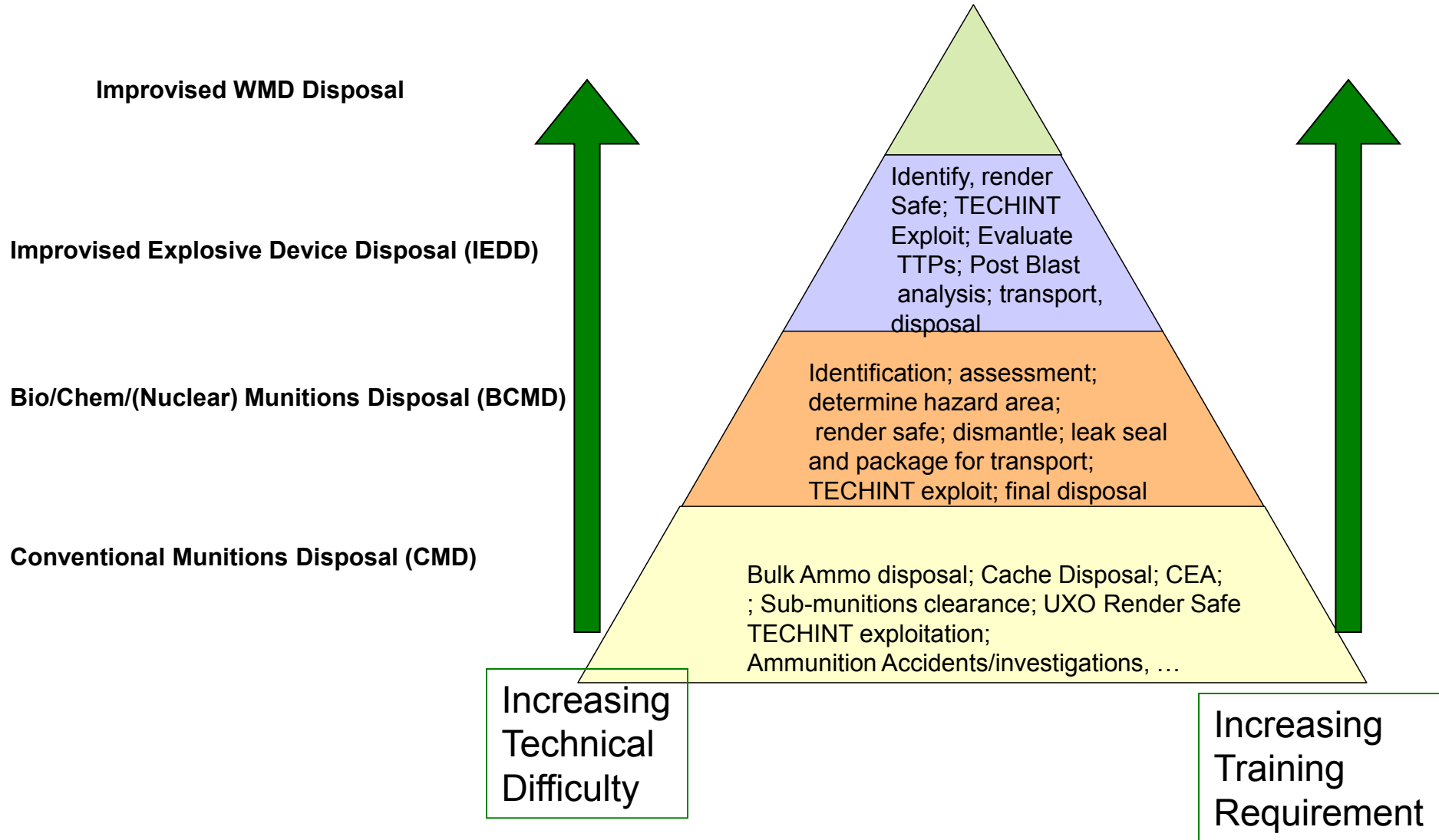
Definitions

- ❑ **explosive ordnance disposal procedures** (JP 1-02, NATO) Those particular courses or modes of action taken by explosive ordnance disposal personnel for access to, diagnosis, rendering safe, recovery, and final disposal of explosive ordnance or any hazardous material associated with an explosive ordnance disposal incident.
 - a. access procedures — Those actions taken to locate exactly and gain access to unexploded explosive ordnance.
 - b. diagnostic procedures — Those actions taken to identify and evaluate unexploded explosive ordnance.
 - c. render safe procedures — The portion of the explosive ordnance disposal procedures involving the application of special explosive ordnance disposal methods and tools to provide for the interruption of functions or separation of essential components of unexploded explosive ordnance to prevent an unacceptable detonation.
 - d. recovery procedures — Those actions taken to recover unexploded explosive ordnance.
 - e. final disposal procedures — The final disposal of explosive ordnance which may include demolition or burning in place, removal to a disposal area, or other appropriate means.



POLICY

EOD Capability Development





POLICY

EOD Partnering

- EOD
- C-IED
- HMA





POLICY

The ERW Problem



Unsecured Explosive Ordnance is a Leading Cause of Global and Regional Instability



Mines and Development

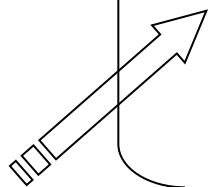
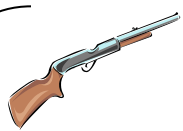
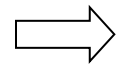
- ❑ Landmines and other explosive remnants of war (ERW) impede post-conflict reconstruction and development efforts in many mine-affected countries because they:
 - threaten community safety
 - hinder the safe return of internally displaced persons (IDPs) and refugees to their communities
 - damage infrastructure essential for economic development and increase rebuilding costs
 - limit access to health care, education and other basic social services
 - prevent the use of assets vital to sustainable livelihoods. For example, water sources, irrigation channels and land used for agriculture, grazing, housing/resettlement and commerce
 - deter public and private investment and economic development through increased uncertainty, cost and delays resulting from suspect presence of landmines



Stability Ops: Disarm, De-mobilize, Reintegrate

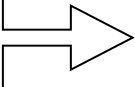
POLICY

Armed Military/ Insurgent Forces

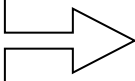


Abandoned Explosive Ordnance (AXO)

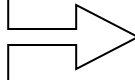
Weapons/ Equipment



Munitions



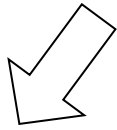
Personnel



Depot: Collect, inventory, inspect, store, re-issue, dispose

Ammunition Depot: Collect, inventory, inspect, re-issue, demil, dispose, store

Personnel: Identify, integrate into Armed Forces, re-train, demobilize, re-integrate

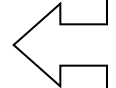


UXO

Landmines

Disposal

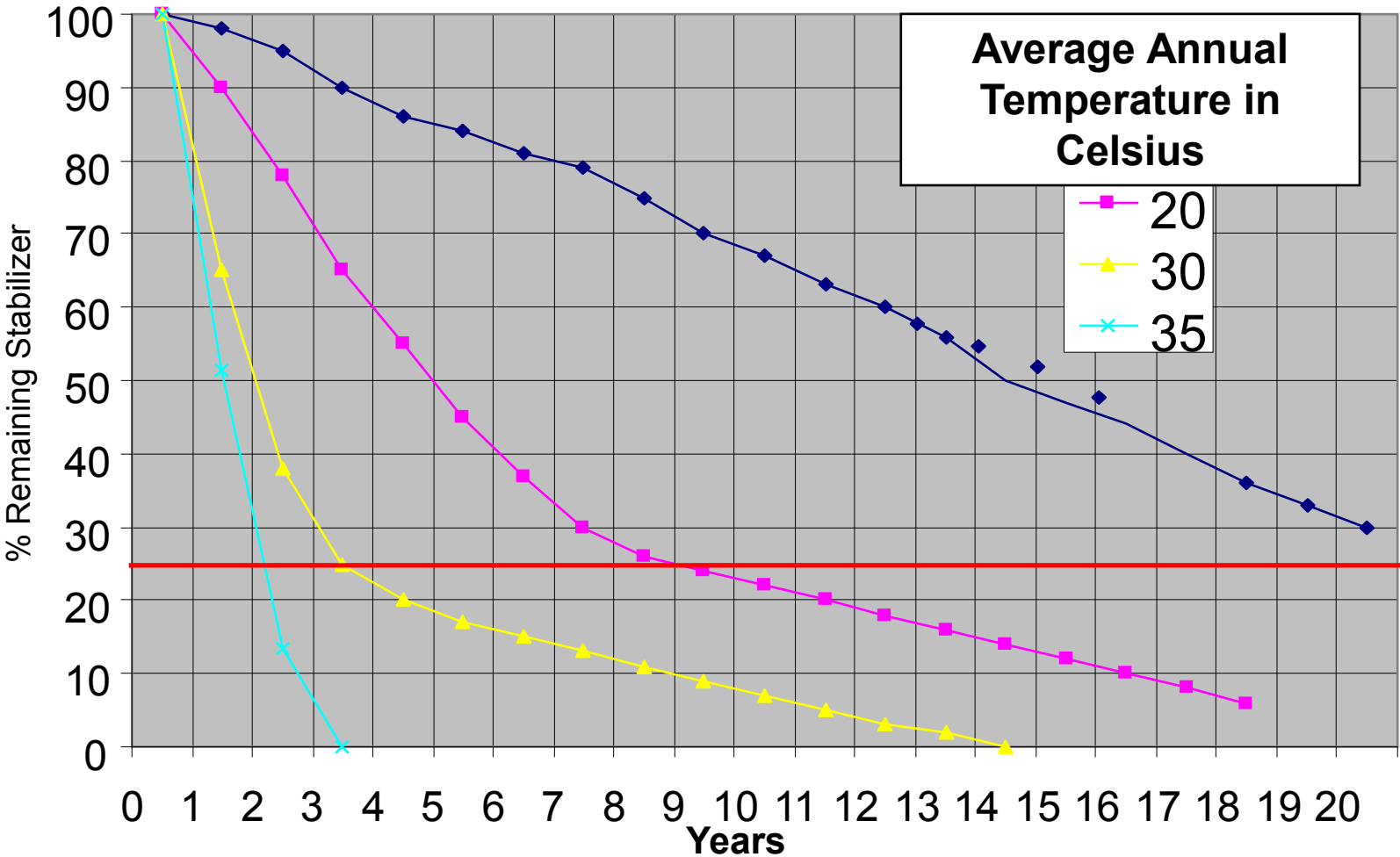
Some Trained in EOD and demining





POLICY

Propellant Stabilizer Degradation





Dangerous Depots

❑ 2008

- 10 July - Kagan, Uzbekistan: 3 KIA, 21 WIA
- 3 July - Sophia, Bulgaria: 6KM evacuation
- 15 March – Albania: 24 KIA, 300+ WIA destroyed 400 homes

❑ 2007

- 29 December - Medellin, Columbia: 2 KIA, 7 WIA
- 26 July Aleppo – Syria: 15 KIA, 50 WIA
- 17 June - Mbandaka, Democratic Republic of Congo: 3 KIA, 52 WIA
- 7 April - Khartoum, Sudan: no reported casualties. Airport closed temporarily
- 22 March - Maputo, Mozambique: 100+ KIA, 500+ WIA



POLICY

U.S. Tactical Explosive Mishaps



DOHA



FOB MAREZ



FOB FALCON





DOD Humanitarian Mine Action

- ❑ **The DoD Humanitarian Mine Action Training Program**
 - Authorized by 10 USC 407
 - Planned and executed by GCC as part of TSC plan
 - DSCA approves and funds through Overseas Humanitarian, Disaster, and Civic Aid (OHDACA) appropriations
 - OSD SO/LIC&IC provides policy oversight and coordinates with DOS weapons removal and abatement program

- ❑ **Humanitarian Demining Research and Development (HD R&D) Program**
 - Executed by Army's Night Vision and Electronic Sensor Lab
 - Develops, demonstrates and validates demining technology
 - Provides equipment prototypes to NGOs and partner nations
 - Technology is evaluated against actual threats in real world environment



POLICY

DoD HMA Process

Preconditions for U.S. Assistance

- ❑ **Host Nation must submit a formal request for assistance through the U.S. Embassy**
 - Hostilities have ceased
 - Workable peace agreement is in place
- ❑ **USG Policy Coordination Committee (PCC) Sub-group on Humanitarian Mine Action**
 - Chair – DoS, Office of Weapons Removal and Abatement
 - Co-Chair – DoD, Office of Stability Operations Capabilities
- ❑ **Policy Assessment Visit (PAV)**
 - Representatives from DoS / OSD / COCOM conduct PAV. Based on results of this visit, USG decides whether to initiate/restart a HMA program with that country.
 - If approved, COCOM conducts a....
- ❑ **Requirements Determination Site Survey (RDSS)**
 - ...which identifies specific goals, objectives and resource requirements



POLICY

DoD HMA Process

DoD Development of Country Programs

- Country Team and COCOM coordinate possible initiatives**
- COCOM Prioritizes proposals and submits to OSD**
- OSD staffs proposals with DoD/State/interagency and approves appropriate projects**
- COCOM tasks units to execute projects**
- Country team and COCOM evaluate effectiveness**



Humanitarian Demining Prohibitions

No member of the US armed forces will:

“engage in the physical detection, lifting, or destroying of landmines or other explosive remnants of war (unless the member does so for the concurrent purpose of supporting a US military operation); or

provides such assistance as part of a military operation that does not involve the armed forces.

Title 10, United States Code, Section 407



POLICY



HUMANITARIAN DEMINING TRAINING CENTER

U.S. DEPARTMENT OF DEFENSE

www.wood.army.mil/hdtk/

Angel Belen – Acting Director

Angel.belen@us.army.mil

573-563-6199



HDTC Role in HMA

- ❑ **Train U.S. Military Forces to provide Train-the-Trainer Humanitarian Mine Action instruction in Mine Affected countries.**

- ❑ **Collect and disseminate information on Mine Action for U.S. Government agencies to facilitate execution of the U.S. Humanitarian Mine Action Program.**

- ❑ **Provide SME in support of U.S. Government Policy and Agendas**

- ❑ **Train to the International Mine Action Standards**



Demining Training Course

- Mine Identification
- Mine detection by visual means
- Mine detection operations and equipment
- Mine detection by probing
- Unexploded Ordnance Identification and Disposal
- Procedures for marking lanes and minefields
- Demolitions
- Booby Traps
- Demining Tools
- Demining Site Set-up
- Clearing Process
- Demining/Disposal
- Minefield Handoff



Tactical Countermining VS. Humanitarian Demining

❑ Tactical countermining

- Focuses on enhancing force mobility
- Minefields must be rapidly detected in all possible conditions
- Breaching provides for rapid clearance without the need to find every mine

❑ Humanitarian demining

- Detection of each landmine more important than the speed of movement
- Goal of demining is to locate and destroy all landmines/ERW within a large designated area
- Economic considerations are important in deciding if and when a specific minefield will be cleared
- Safety is the most important consideration
- Casualties are unacceptable



POLICY

Burundi ERW Training





POLICY

Kagan ASP Response

- ❑ 21 Jul 08- ARCENT notified by Defense Attaché .
- ❑ Uzbeks requested three types of equipment: land mine detectors, water metal detectors, and bomb suits.
- ❑ DATT's guidance was —let's get there first with the most stuff.”
- ❑ 03 Aug 08- Pre-Deployment Site Survey Team (2 pax) on site.
- ❑ 21 Aug 08- the Training Team (5 pax) with equipment arrived in Uzbekistan.
- ❑ 28 Aug 08 all Uzbek / USEMB objectives were met





DoD Humanitarian Demining Research & Development Program



www.humanitariandemining.org

Sean Burke – Program Manager

sean.burke@nvl.army.mil

703-704-1047



POLICY

HD R&D Organization



**Assistant Secretary of Defense
Special Operations and
Low-Intensity Conflict**

Program Funding, Guidance

- Provides Program Guidance and Oversight
- Approve requests for in-country assessments
- Approve requests for operational field evaluations
- Liaison with other Government agencies (DoS)



**Night Vision and Electronic
Sensors Directorate
Countermine Division**

Program Execution

- Determine Requirements
- Structure Program
- Develop/Demonstrate Prototype Equipment
 - Contracts with Industry
 - In-House Developments Using NVESD Personnel and Shop Facilities
- Perform In-Country Assessments
- Conduct In-Country Operational Field Evaluations
- Assist with Transition Prototype Equipment into Operational Use
- Inform demining community

A cooperative effort



HD R&D Program Objectives

Develop, Demonstrate, and Validate Technologies to be Used in International Humanitarian Demining by:

❑ Assessing Existing Technologies

- Assess commercial off-the-shelf equipment
- Integration of mature technologies (e.g. sifting implements)
- Thorough evaluation of new technologies

❑ Developing New Technologies

- Integrate, adapt, and modify commercial off-the-shelf equipment to particular demining missions
- New development of equipment if no suitable commercial version exists

❑ Transitioning Technologies Into the Field





FY09 Operational Field Evaluations (OFEs)

Iraq
Sifting Technology

Afghanistan
HSTAMIDS
MANTIS
Orbit Sifter
Sifting Buckets

Thailand
Air Spade
Beaver
Peco Cutter
SDTT
Tempest
Uni-Disk

PR - Vieques
Nemesis M3

Yemen
Improved Backhoe

Ecuador
Long Tools
Tempest

Chile
Air Spade
Multi-Tool Excavator

Angola
Air-Spade
Detonation Trailer
HSTAMIDS
JCB Loadall
Mine Stalker
RMC

Cambodia
Badger
Explosive Harvesting
HSTAMIDS (3 orgs)
Long Tools
MAXX+
Sifting Buckets
Storm
Tempest

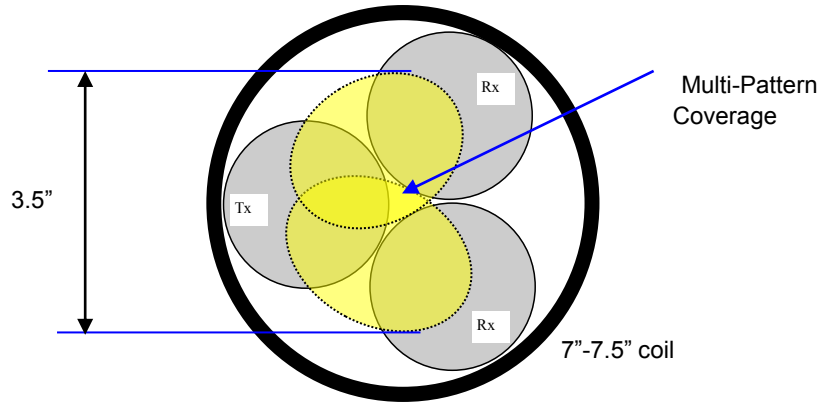
Vietnam
Large Loop
MDA
Peco Cutter
Shinn/Birdseye Cutters
Walking Tractor

39 Systems in 10 Countries

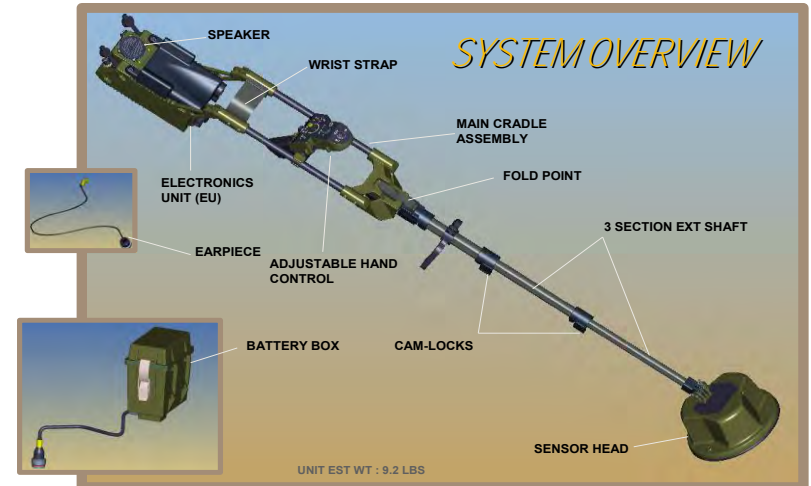


AN/PSS-14

POLICY



The HD program is upgrading the AN/PSS-14 dual sensor hand-held mine detector employed by U.S. Forces in OEF/OIF in order to provide better detection capability and enhanced training and tactics, techniques, and procedures (TTPs).





POLICY

Explosive Harvesting Program

- ❑ De-mils excess ordnance into demo charges
- ❑ Meets almost all of the NGOs requirement for donor charges
- ❑ Produces scrap metal available for sale





POLICY

Explosive Harvesting Program





Questions?



COL Leo Bradley
Leo.Bradley@osd.mil
703-697-5607

NATO EOD Working Group Update

**Joint EOD and Search
Wg Cdr James Brudenell - Royal Air Force**

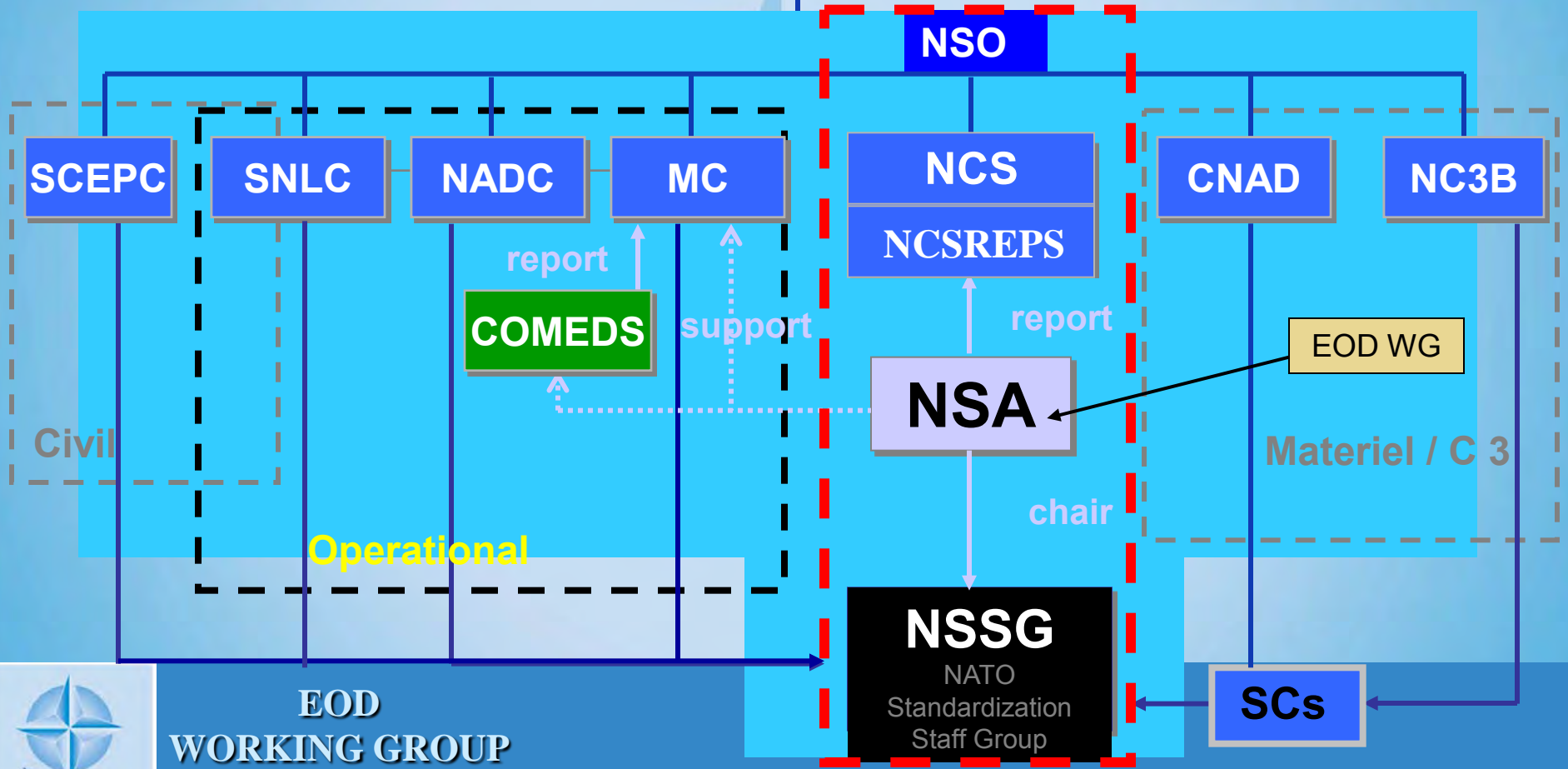
- Introduction to the NSO and NSA
- Military Committee Land Standardisation Board (MCLSB) Working Group (WG) Structures
- Development of NATO's C-IED Philosophy
- EOD WG priorities support to the current C-IED Fight



NATO Standardization Organization

NSA

NAC



- *Why Standardisation?*
To enhance the Alliance's operational effectiveness
- *Why Interoperability?*
To allow forces and force partners to train, exercise and operate effectively together gaining the best results from resources used



Main Objectives

- Alliance authority on standardisation and the focus for alliance standardisation efforts
- Develop and maintain NATO standardisation policy
- Identify and address priority areas for standardisation
- Contribute to standardisation requirements in NATO Force Planning
- Monitor the implementation of NATO Standards



Aims of Standardisation

**To Improve Cooperation
To Eliminate Duplication
& so achieve
Interoperability**

Aims of Standardisation

**To Improve Cooperation
To Eliminate Duplication**

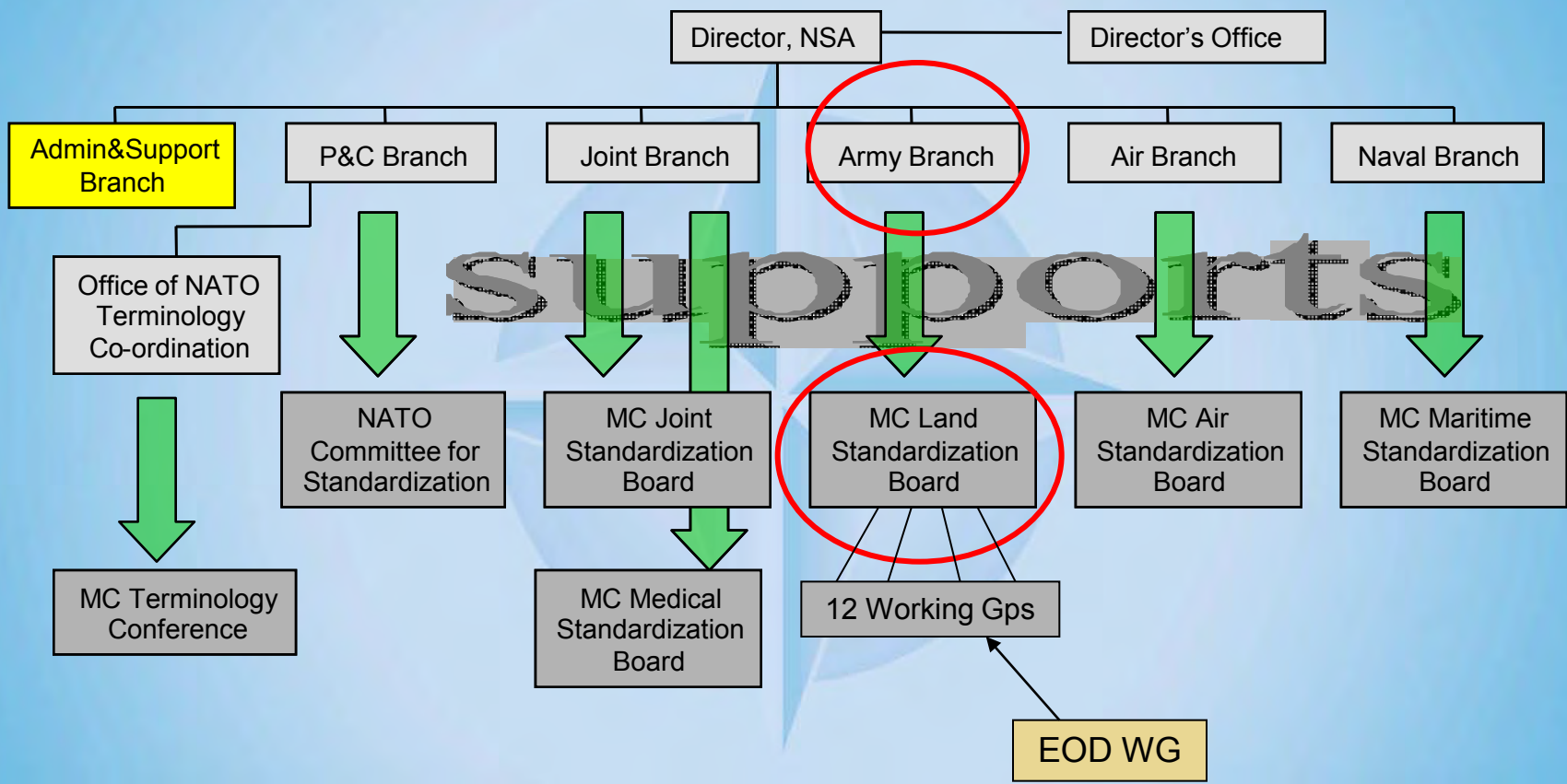
& so achieve

Interoperability

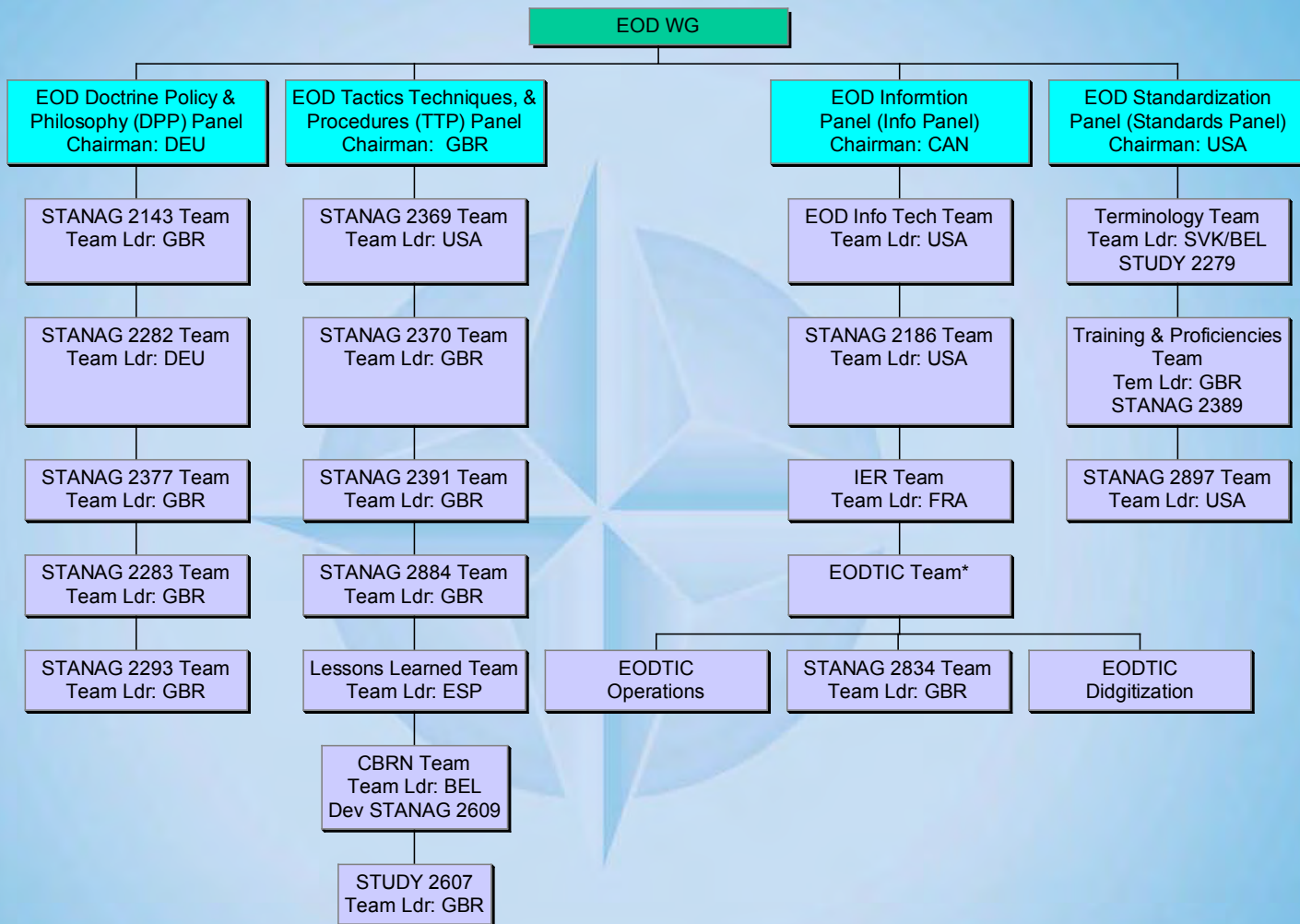
Greater Flexibility

Greater Operational
Effectiveness

Shared Costs



MCLSB EOD WG Structure



Countries Represented by NATO EOD WG Delegations

19 countries represented
total NATO membership of 28
independent countries

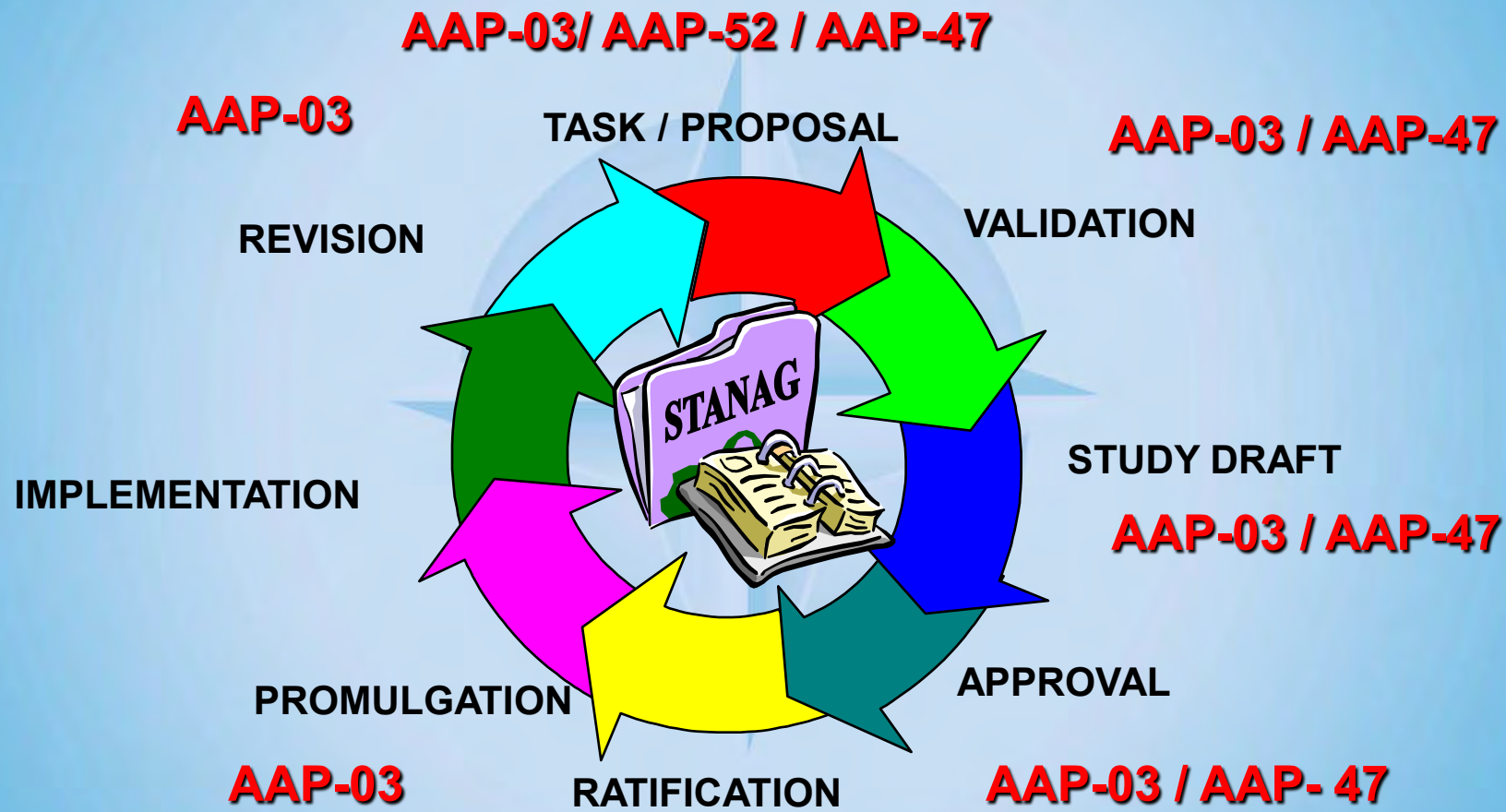
9 member countries not
represented in the NATO
EOD WG



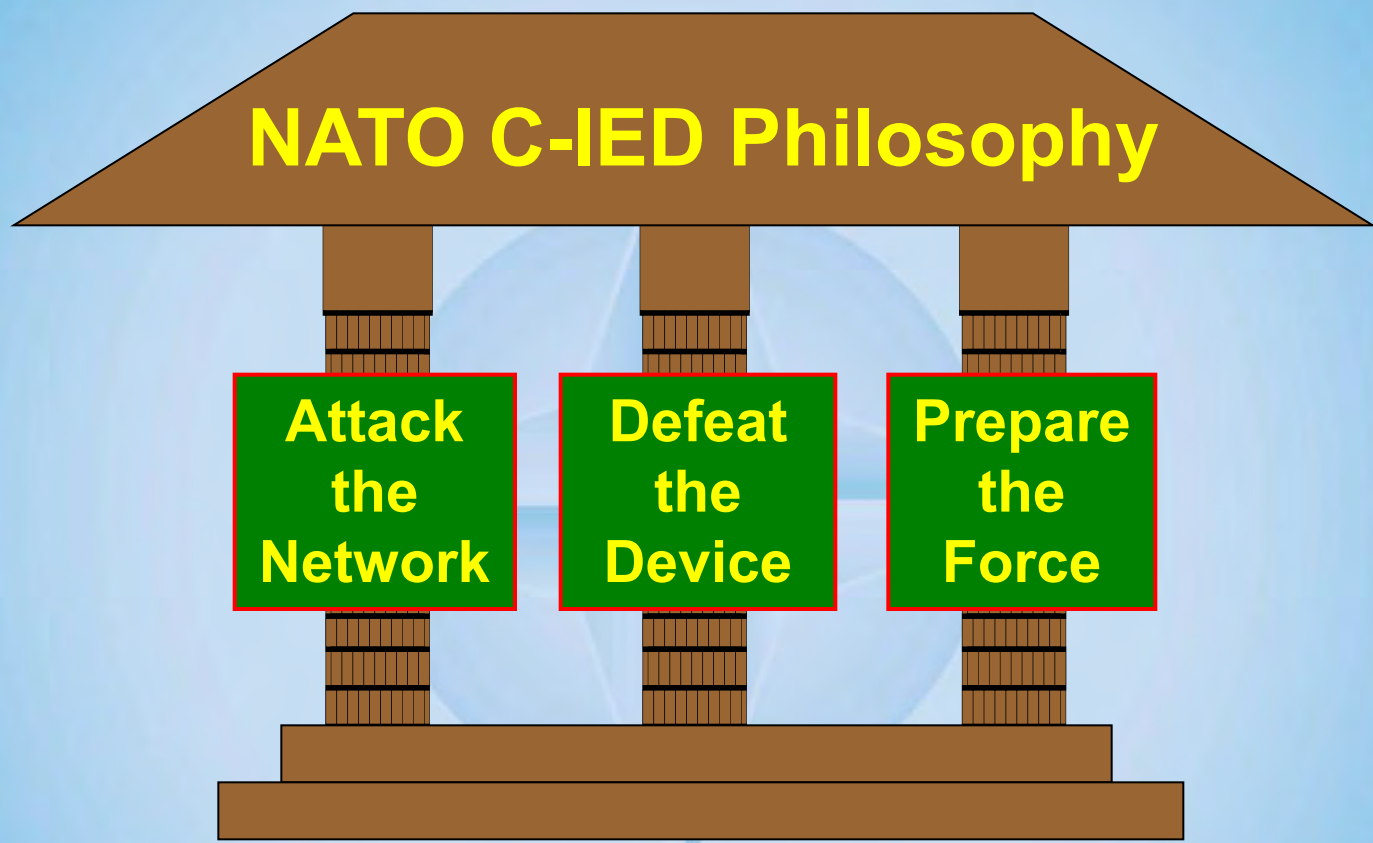
Belgium, Bulgaria, Canada, Denmark, Estonia,
France, Germany, Greece, Italy, Netherlands,
Norway, Portugal, Slovakia, Spain, Poland
Romania, United Kingdom, United States, Turkey

Albania, Croatia
Czech Republic, Hungary, Iceland,
Czech Latvia, Lithuania, Luxembourg,
Slovenia

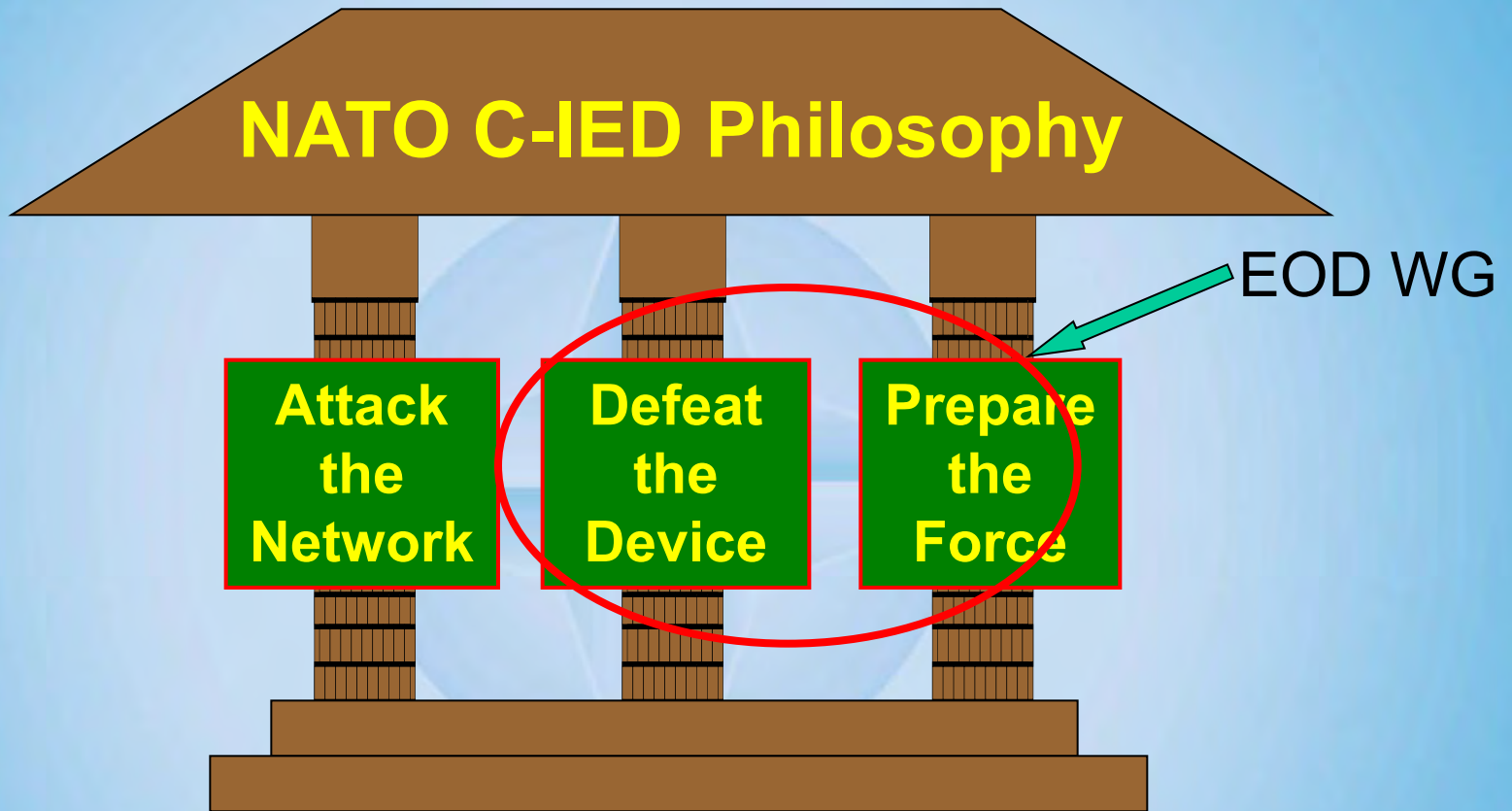
STANAG/AP Development



NATO C-IED Philosophy



NATO C-IED Philosophy



EOD WG Priorities

- Explosive Ordnance Disposal Technical Information Centre - EODTIC
 - Digitisation
 - Transformation
 - Extended Membership



STANAG 2293 Military Search

- STANAG 2293 Military Search Techniques and Procedures – ATP-73 Vol 2
- Completed draft process agreed to move to ratification draft 1 at the NATO EOD WG 12 – 16 Apr 2010
- Provides a sound publication for interoperability and capability development for nations looking to grow their own Search capability



Military Search - Objectives

Offensive

- Gain Intelligence
- Deny Resources & Opportunity
- Secure material of possible Evidential Value

Defensive

- Force Protection
- Protection of Pre-planned Events
- Protection of Critical Infrastructure



STUDY 2607 *Electronic Warfare (EW) Support to Explosive Ordnance Disposal (EOD)*

- Urgent requirement to improve Alliance understanding of ECM both FP and EOD on multinational Deployed Operations
- Study Draft V2 agreed at last EOD WG meeting 12 -16 Apr 2010
- Linked to UK development of a NATO EOD ECM Advisors Course



STANAG 2370 Principles of Improvised Device Disposal – AEODP-3

- Ratification Drafts of Vol 1 (EOD Staff Officers Guide) and Vol 2 (EOD Operators Guide) submitted to nations for response by 4 Jun 10
- Following ratification, work will begin on SD Ed 3 of STANAG 2370 to harmonise documents across WGs relating to C-IED activity

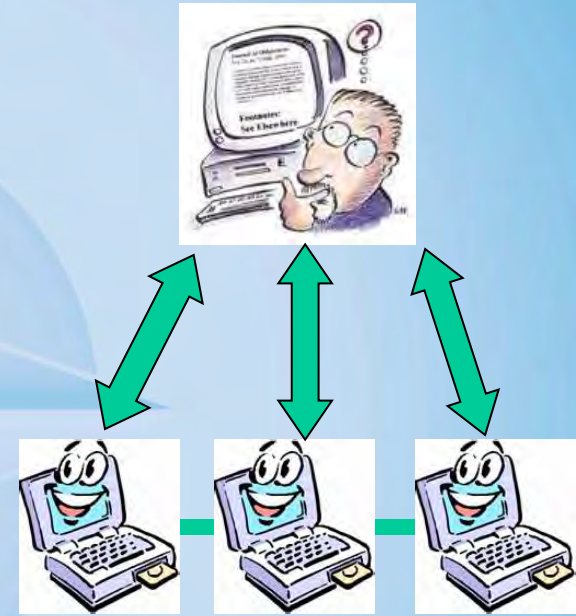


EOD Lessons Learnt Process

- Led by Spain on the TTP Panel
- The EOD LL Team have researched access protocol to NATO LL databases
- Identified some 36 LL's that are EOD relevant
- Address national access issues
- Distribute to National POCs for review
- Group discussion
- Implementation



- Study underway to identify the requirement
- Review the requirement against current systems both NATO and national level
- Identify a way forward measured against existing individual national security constraints



Identification and Disposal of Surface and Air Munitions

- STANAG 2369 - AEODP-6 (B) was promulgated in Dec 09
- Clears the way for the distribution by the US of the NATO EOD Publication Sets (NEPS)



EOD
WORKING GROUP

Summary

- Standardisation & Interoperability are the enablers to NATO's delivery of effect.
- The EOD WG's Relationship & Interaction with the C-IED WG needs to be developed.
- EOD WG priorities are focused on the delivery of theatre effect:
 - Development of joint operations IEDD capability
 - Broadening of EOD EW capability.
 - Search.
 - Effective use of information.



Questions?



Interagency Improvised Explosive Device Defeat

Dr. Edwin A. Bundy
Program Manager
TSWG Improvised Device Defeat Subgroup and
EOD/LIC Program



Combating Terrorism Technical Support Office



EOD/LIC Mission

The Explosive Ordnance Disposal/Low-Intensity Conflict (EOD/LIC) program provides Joint Service EOD technicians and Special Operations Forces (SOF) operators with the advanced technologies and mission-focused solutions required to address current and emerging threats presented by unconventional and asymmetric warfare.





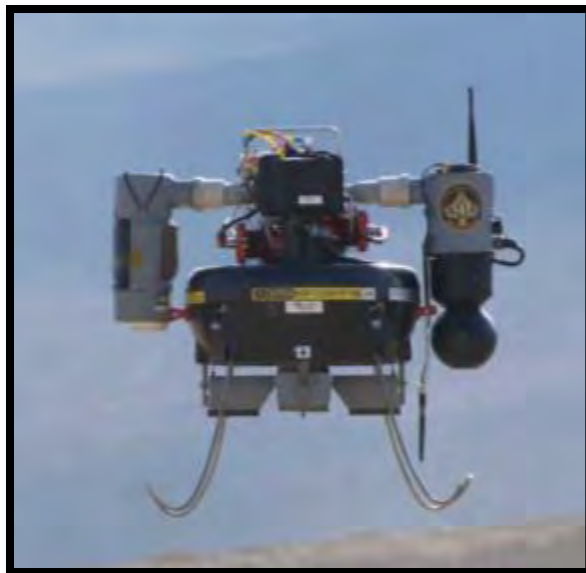
Remote Operations and Advanced Mobility

- Develop capabilities to remotely approach, enter, and conduct reconnaissance operations in hazard areas and danger zones.
- Enhance mobility-related technologies and equipment to facilitate safely approaching, operating in, and withdrawing from hazardous environments.
- Develop systems and technologies to gather and store operational information for transmission to operational personnel and unit commanders.
- Improve technologies for the relocation of unexploded ordnance, hazardous materials, and improvised devices.





Remote Operations and Advanced Mobility





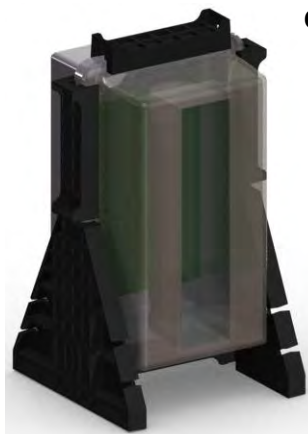
Access and Disablement

- Develop tools to quickly and efficiently breach or gain access to structures, barriers, vehicles, and containers
- Develop chemical, mechanical, electrical, and explosively actuated systems for the neutralization and disruption of unexploded ordnance and improvised devices
- Improve technologies for rendering fuzing and firing systems inoperable

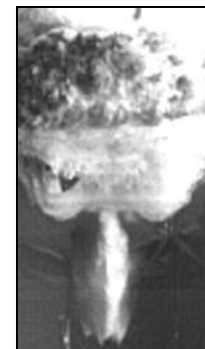
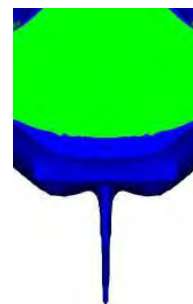




Access and Disablement



Cross-Section, 100 μ s





Detection, Diagnostics, and Analysis

- Develop tools to locate and verify the presence of improvised devices, unexploded ordnance, booby traps, and other threats
- Develop technologies to determine the specific type, condition, and characteristics of unexploded ordnance and improvised device components, and the specific hazards associated with each
- Improve methods to analyze and evaluate improvised device construction





Detection, Diagnostics, and Analysis





Protective Measures and Effects Mitigation

Advance the development of personnel protection systems for operations in enhanced hazard environments. Develop novel and improved solutions to protect personnel and property from blast, fragmentation, and ballistic hazards.





Sustainability and Operations Management

- Develop tools and equipment to enhance situational awareness and operational capability during incident response or direct action operations
- Develop human performance improvement tools that foster the advancement of knowledge related to unexploded ordnance, improvised devices, and hazardous environments
- Develop tools and training for conducting novel and advanced missions related to improvised devices and hazardous environments.





Sustainability and Operations Management





IDD Mission

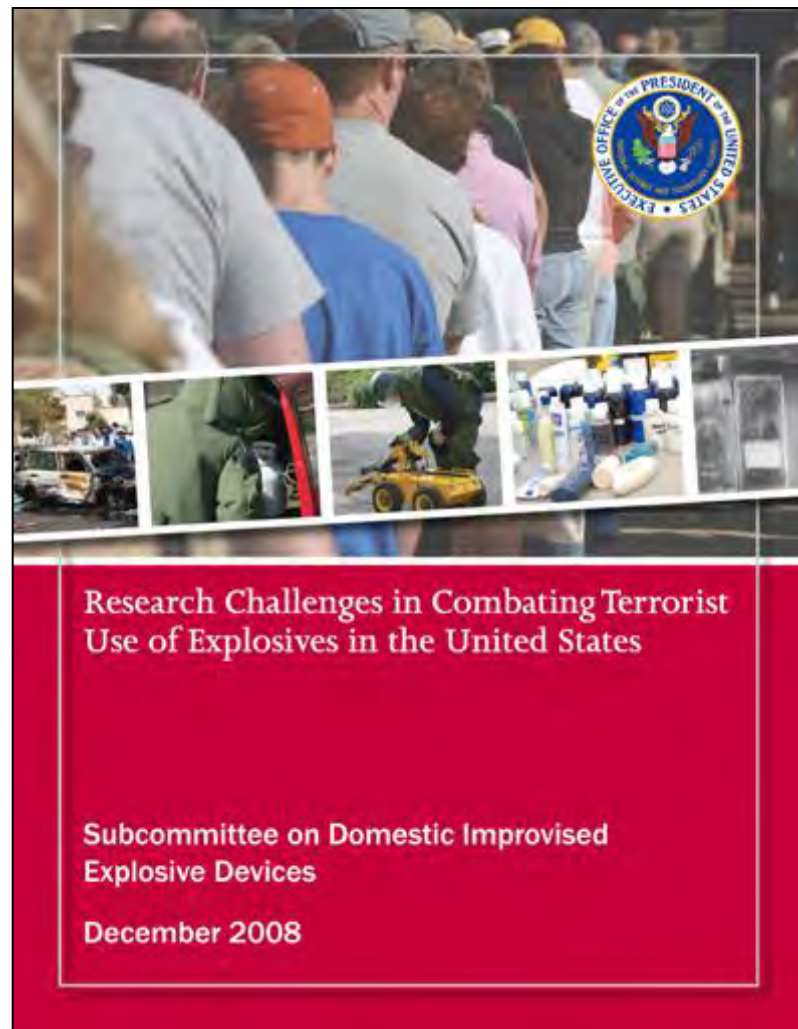
Identify, prioritize, and execute research and development projects that satisfy mission critical needs, fill capability gaps, and address interagency requirements for advanced technologies to safely and effectively defeat improvised terrorist devices. Emphasis is placed on technologies to enhance the training and support of operational personnel in the location, identification, render safe, and disposal of homemade explosives, improvised explosive devices, and other emerging terrorist threats.





Research Challenges

- In December 2008, the D-IED SC published, Research Challenges in Combating Terrorist Use of Explosives in the United States
- The report outlines ten challenge areas where concentrated research can be most beneficial in combating IED use in the homeland





Research Challenges

- C-IED Network Attack and Analysis
- Detection of Homemade Explosives
- Standoff Rapid Detection of Person Borne IEDs
- Vehicle-borne IED Detection
- IED Access and Defeat
- Radio Controlled IED Countermeasures
- IED Assessment and Diagnostics
- Waterborne IED Detect and Defeat Systems
- IED Threat Characterization and Signatures
- IED Warnings





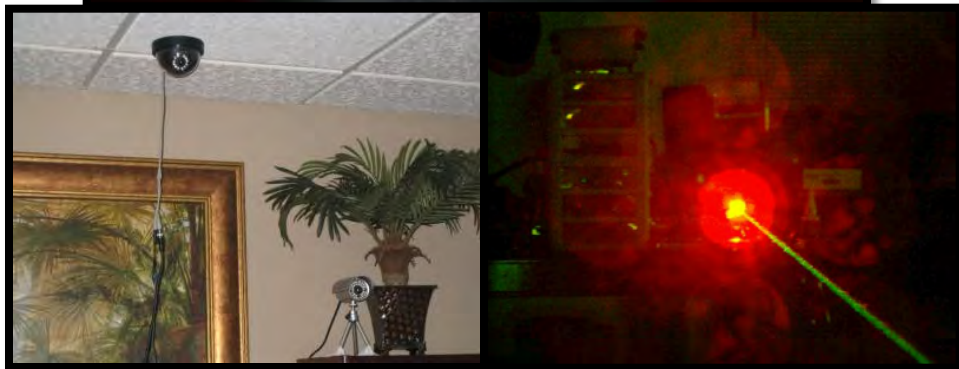
Device Defeat

- Develop advanced technologies to defeat the broad spectrum of improvised terrorist devices to include improvised explosive devices (IEDs), vehicle borne IEDs (VBIEDs), person borne IEDs, and enhanced hazard devices containing chemical, biological, or radiological materials
- Develop innovative, cost-effective disruption and precision render safe solutions that increase standoff distance, reduce collateral damage, and decrease risk to the improvised devices defeat operator
- Improve neutralization techniques for both sensitive and insensitive explosives and enhanced payloads such as flammable liquids and gases.





Device Defeat





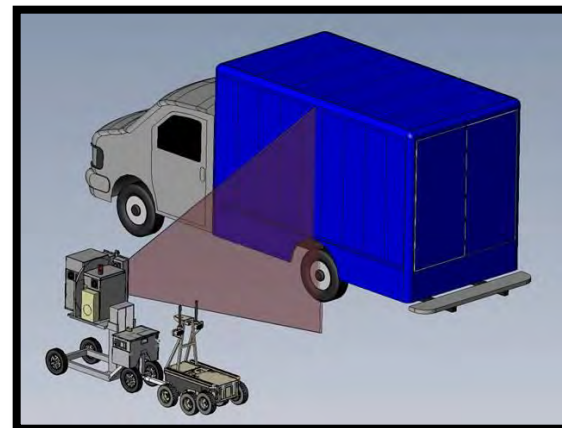
Identification and Diagnostics

- Advance the capability of bomb technicians to interrogate unknown or suspect items and packages
- Develop technologies to locate and identify improvised devices and enhanced fillers, and diagnose key fuzing and firing components
- Develop tools to assist bomb technicians in the identification of U.S. and non-U.S. ordnance and firing systems incorporated into or modified for use in improvised devices





Identification and Diagnostics





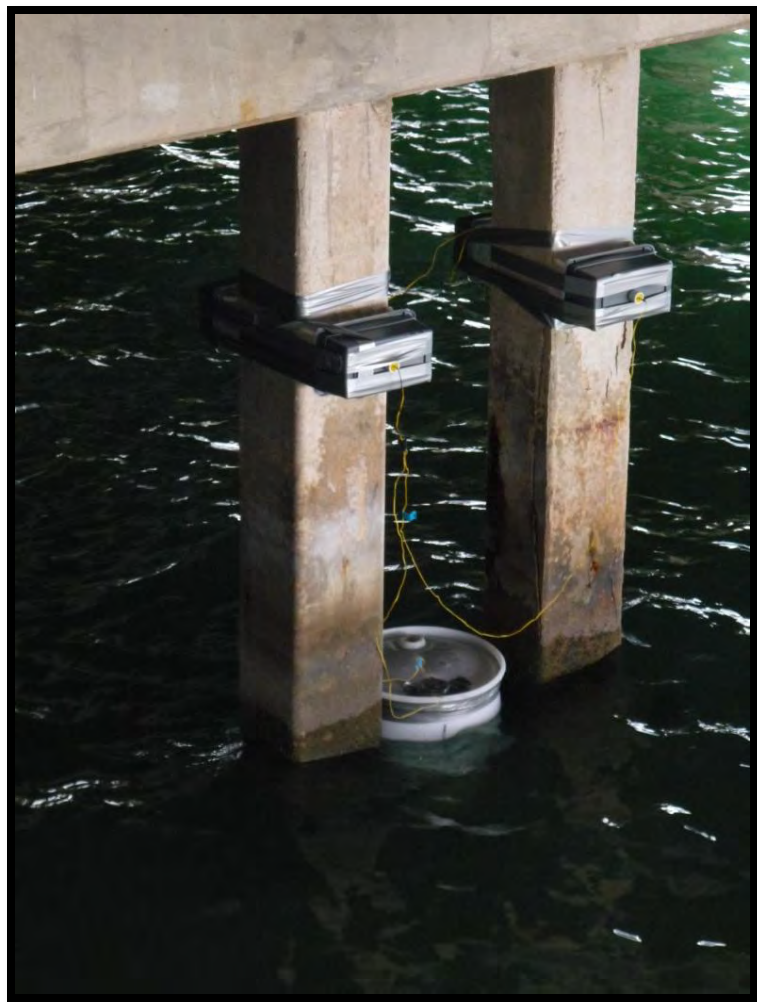
Emerging Threats

- Advance production of effective countermeasures to neutralize or defeat radio-controlled IEDs and provide safe environments for bomb technicians
- Develop, characterize, and test technology solutions to safely and effectively render safe or neutralize devices containing improvised homemade explosives
- Develop, characterize, and test technology solutions to effectively render safe improvised devices using novel fuzing systems that incorporate such items as an electronic sensor, microcontroller, or mechatronic components





Emerging Threats



LAW ENFORCEMENT SENSITIVE

Performance Assessment of Electronic Countermeasures Against Selected Remote Controlled Improvised Explosive Devices

Final Report
September 2005

Prepared for:
Technical Support Working Group

LAW ENFORCEMENT SENSITIVE

LAW ENFORCEMENT SENSITIVE

Compatibility Assessment of Electronic Countermeasures with United States State and Local Law Enforcement Bomb Squad Equipment

Final Report
December 2005

Prepared for:
Technical Support Working Group

LAW ENFORCEMENT SENSITIVE





Remote Procedures

- Develop advanced application systems to remotely access, diagnose, and defeat improvised devices
- Advance development of manufacturer and model-independent products and robotic tools with “plug and play” interface
- Develop open-architecture, navigation, communication, and operator controls for robotic platforms, tools, and sensors.





Remote Procedures





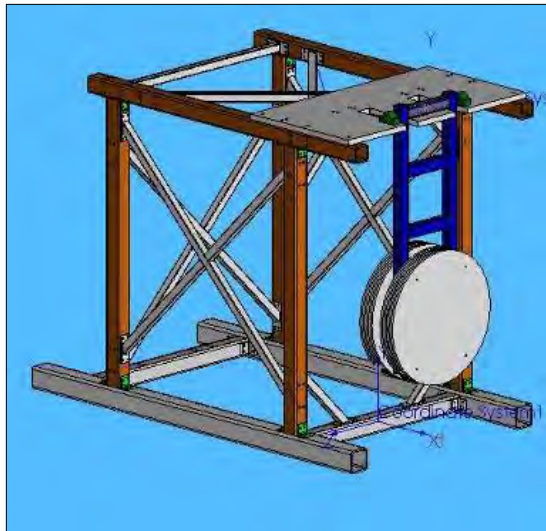
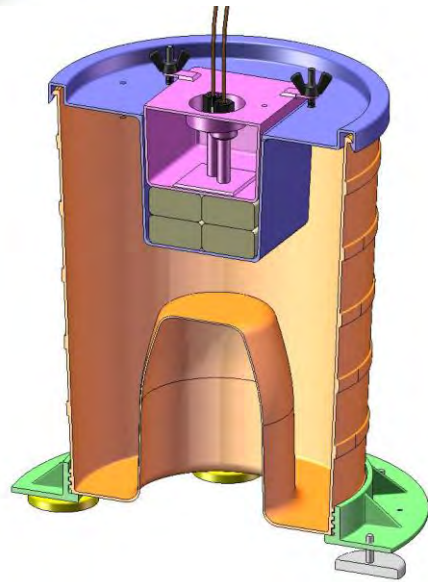
Tool Characterization and Information Resources

- Improve performance evaluation methodologies, test procedures, and tool characterization models for improvised device defeat technologies
- Conduct ongoing evaluation and improvement of tools, methods, and protocols for confirming the accuracy of detection equipment, reliability of diagnostic tools, and completeness of neutralization and safeing techniques
- Advance training concepts and information delivery systems that promote the tactical and operational response readiness required to effectively, safely, and efficiently counter improvised devices and emerging terrorist threats





Tool Characterization and Information Resources





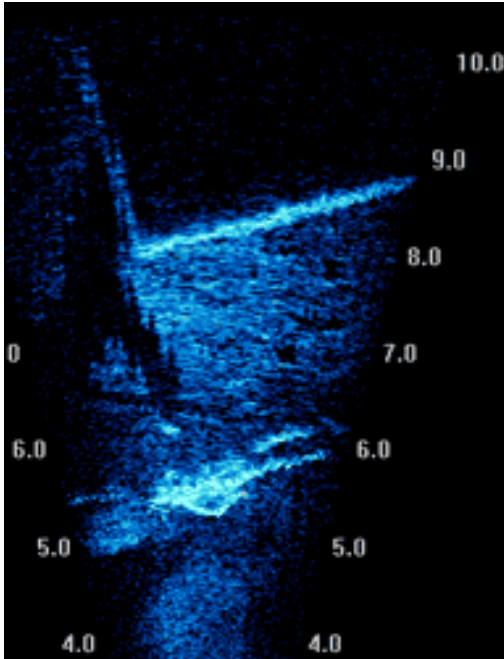
Maritime Security and Water-Borne IEDs

- Develop technologies to protect ships, boats, docking facilities, offshore platforms, shore-side loading facilities, power plants, bridges, and marine cables and pipelines from any form of terrorist attack





Maritime Security and Water-Borne IEDs



DIDSON Sonar



**Modular Unmanned
Surface Craft-Littoral
(MUSCL)**





Summary

- User-focused approach to IED Defeat
- Seeking participation from other government agencies
- Solutions for both military and civilian bomb technicians
- Leveraging interagency and international contributions

Contact information:

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iddsubgroup@tswg.gov

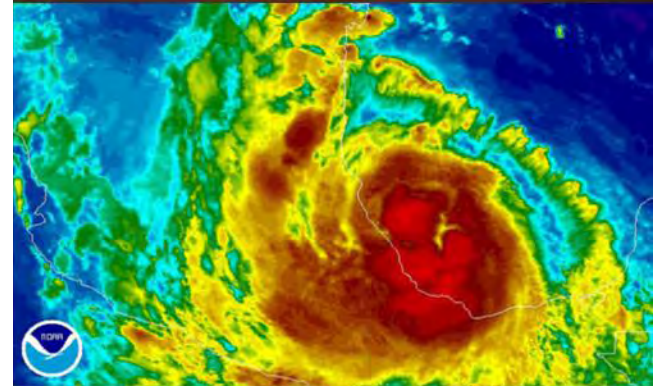


NDIA Conference on Combating
Terrorist Use of Explosives

Science & Technology to Counter Improvised Explosive Devices

April 28, 2010
Ft. Walton Beach, FL

Ruth M. Doherty, Ph.D.
PEO Counter-IED
DHS Science and Technology Directorate



Homeland
Security



Counter-IED Challenge:

Securing Special Events, Transportation Security and Beyond



U.S. Domestic Explosives Threats

- Bomb threats and suspicious packages in the U.S.
 - Over 2,300 since 2004*
 - Almost daily
- Terrorists continue planning explosives attacks in the U.S.



“Use of a conventional explosive continues to be the most probable al-Qa’ida (domestic) attack scenario” said Director of National Intelligence to Congress Intelligence Committee, January 2007

International Domestic Explosives Events

- Bomb threats continue worldwide
 - 82,000 terrorist incidents between 1970 and 2007 *
 - Top three terrorist targets:
 - Private Citizen's property 20%
 - Government 17%
 - Business 16%
 - 51% of time terrorists' tactic was bombing
- Over 600 IED attacks per month worldwide
 - Aug 2008 to Aug 2009 averaged
 - Data excluded Iraq & Afghanistan

* —Global Terrorism Trends”, START presentation at the National Press Club on 14 September 2009.

A Continuing Challenge

—Just as today's threats to our national security and strategic interests are **evolving and interdependent**, so too must our efforts to ensure the security of our homeland reflect these same characteristics. As we develop new capabilities and technologies, our adversaries will seek to evade them, as was shown by the attempted terrorist attack on Flight 253 on December 25, 2009. *We must constantly work to stay ahead of our adversaries.*"

Secretary Janet Napolitano

***Quadrennial Homeland Security Review
February 2010***



**Homeland
Security**

Military and Domestic

- Some transferable technologies
- Different environments, threats, procedures



- Constant threat
- Population restricted in movement
- Access to certain areas limited

Protecting Warfighters in Theater



**Homeland
Security**



- Countermeasures constrained by civil liberties and operations within an open and free society
- Homemade explosives proliferating world wide

Protecting Citizens in a Free and Open
Society

Domestic IED Threat Domains

Person-Borne IED

Suicide bomber or leave behind bomb

Vehicle-Borne IED

Parked vehicle or suicide attack



Rail



Public arena events



Border crossing or vehicle raveling to high-value target



Government Facilities



Buildings, malls and National Monuments



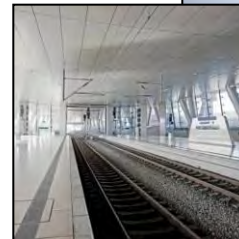
Terminals



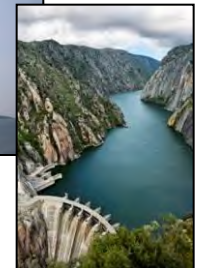
Seaport, ships and ferries



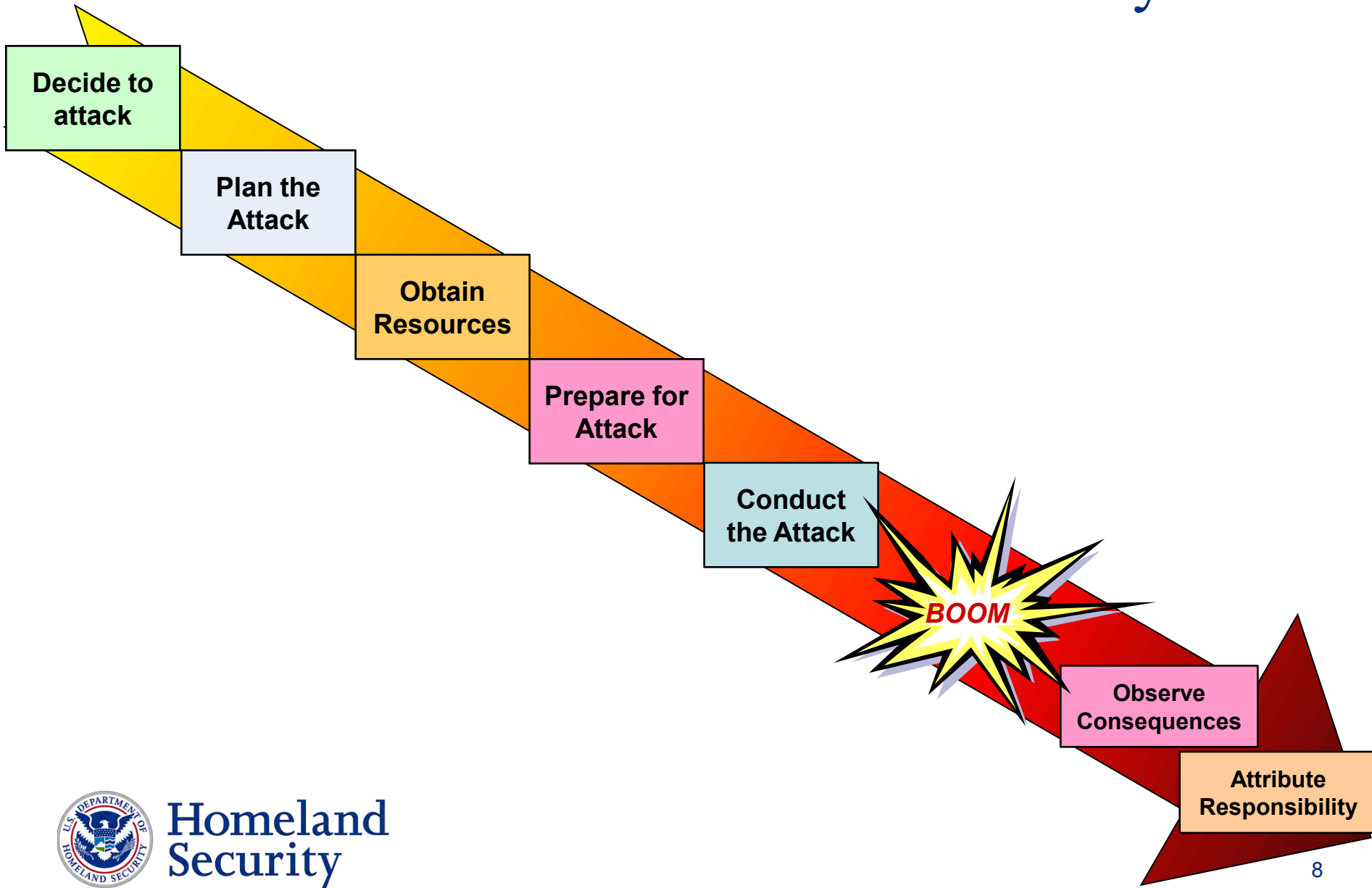
Utilities



Tunnels, bridges and dams



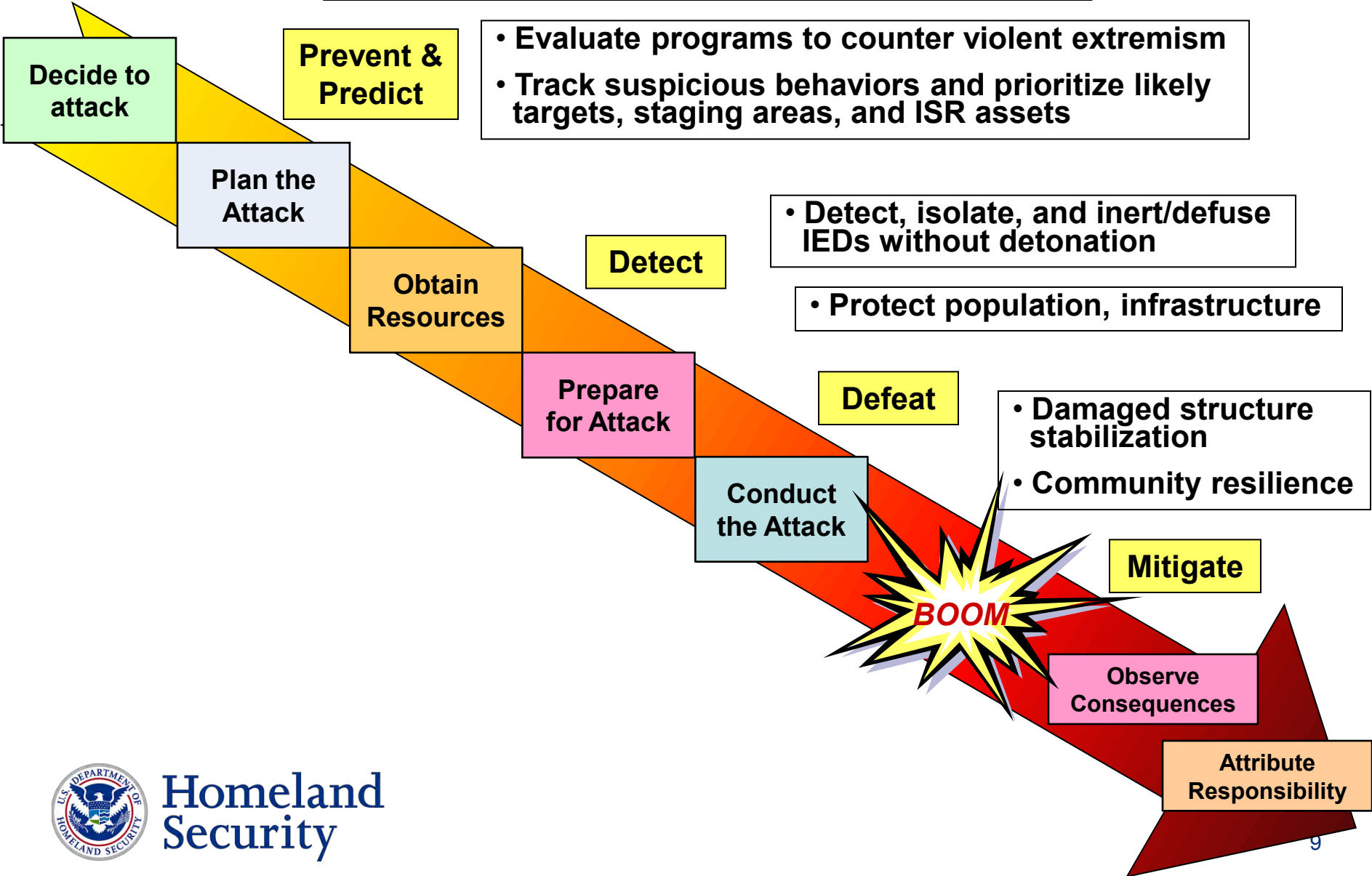
Domestic Terrorist IED Attack Cycle



Homeland Security

DHS C-IED Investment Emphasis

• Identify indicators of radicalization in the U.S.



S&T Countering Domestic Explosive Threats Program



Prevent/Deter

Actionable Indicators & Countermeasures

- Community Characteristics
- Group Characteristics
- Pre-incident Behaviors & Rhetoric
- Integrated Framework
- Countermeasure Evaluation

Predict

Predictive Screening

- Behavior Analysis
- Video Tracking
- Video Identification & Alert

Risk Prediction

- Target Prediction
- Staging Area Prediction

Detect

Person Borne IED Suicide Bomber

Leave-behind

Vehicle Borne IED

Integration & Demonstration

Canine

Defeat

Bomb Access & Diagnostics

- Type of Explosive
- Device Triggers

Render Safe

- Electronic Countermeasures
- Inerting

Robotics

Mitigate

Blast Mitigation

- Blast resistant materials
- Protective countermeasures
- Stabilize damaged structures
- Urban blast effects
- Predictive models

Effective Risk Communications

Cross Cutting:

Standards, Technology Demonstration/ System Integration

Outreach, Integration of Public Perception Data, Community Resilience

Information Sharing: Intelligence Data Sharing (Intel Community); Interagency Technology, Resource & Test sharing (DoJ, DoD, DoE)

Counter-IED Investment Areas

- Social and behavioral science to identify potential IED threats
 - Real-time, automated video-based identification of suspicious behaviors
 - Framework integrating social and behavioral science indicators of radicalization
- Strategies to prevent potential IED attacks before they occur
 - Tested, effective strategies to counter violent extremism in domestic context



**Homeland
Security**

**A portfolio focused on identifying
and preventing potential IED threats**

HFD Research on Violent Extremism

Program Goals: Improved ability to assess and counter potential extremist violence

Needs/Gaps:

- Identify indicators that actors are moving toward extremist violence
- Analyze the impact of countermeasures used to prevent extremist violence and IED attacks



Strategy/Approach:

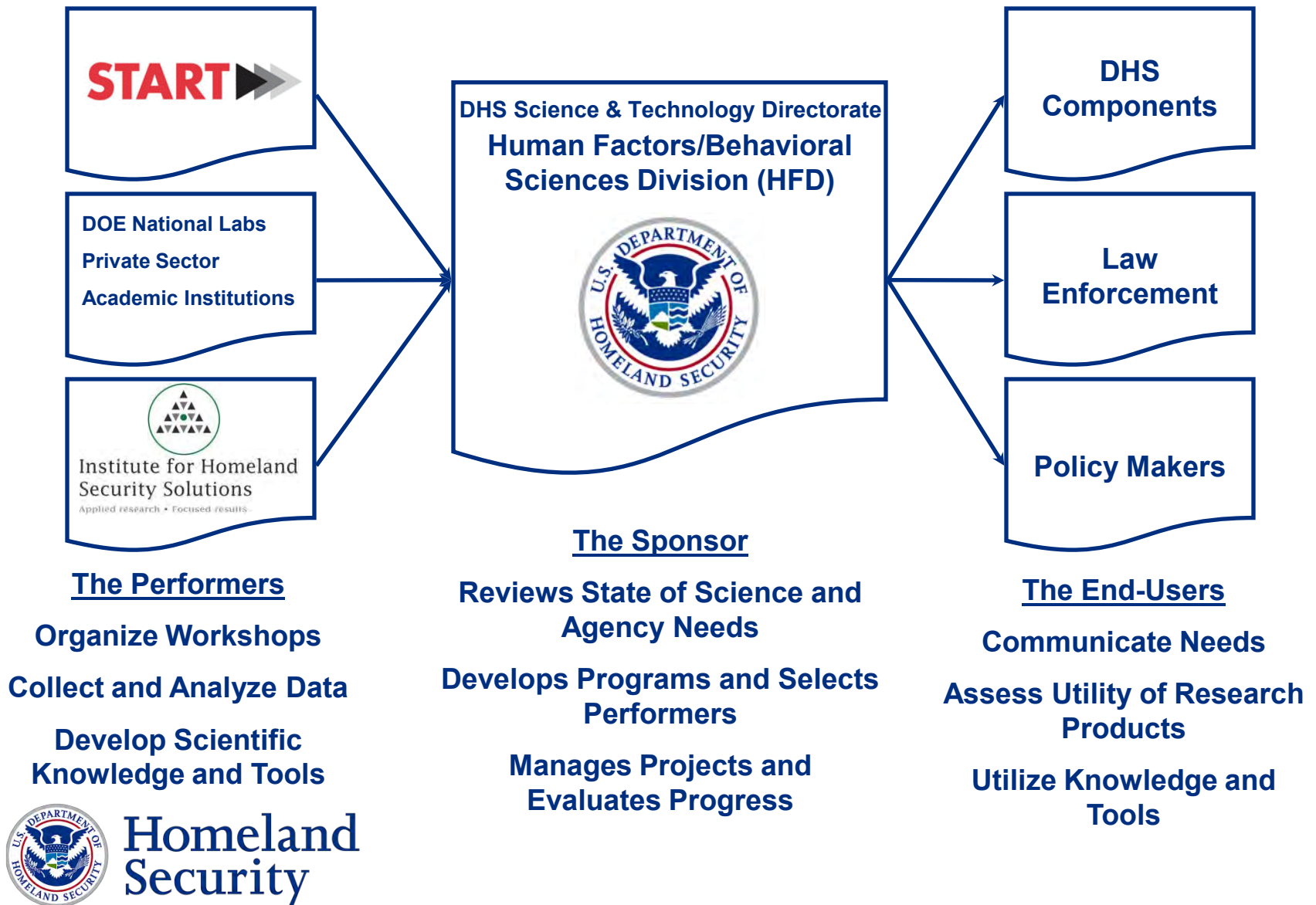
Utilize multiple social and behavioral science methods to extract indicators

Develop and validate an integrated framework

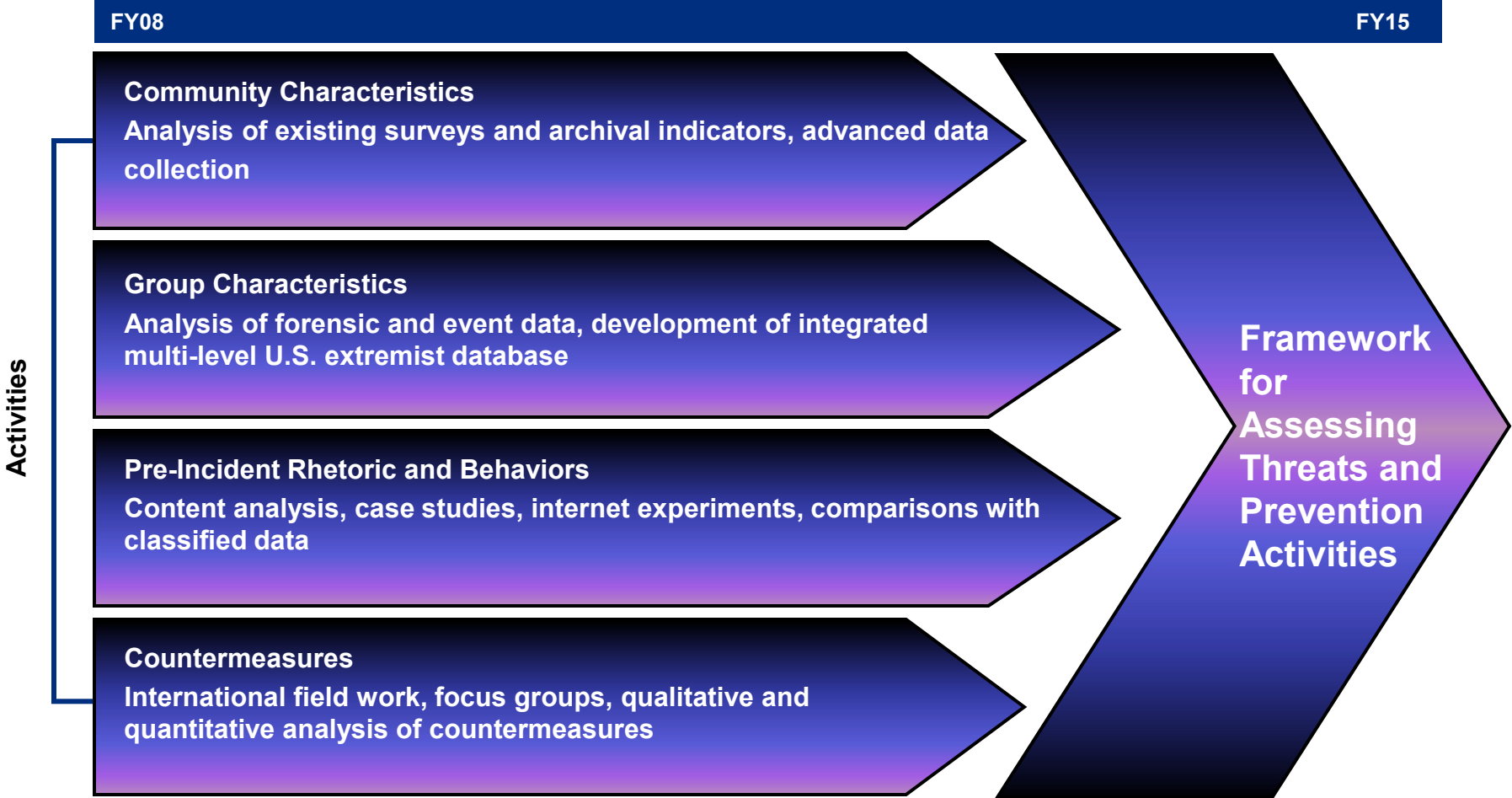
Systematically assess the efficacy of countermeasures using qualitative and quantitative methods



HFD Research on Violent Extremism



HFD Research on Violent Extremism



HFD Research on Violent Extremism

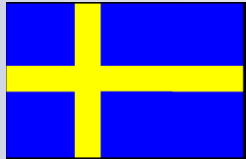
Early Activities

- Delivered reports on
 - Characteristics of IED incidents based on analysis of Global Terrorism Database (GTD)
 - Existing polls of U.S. Muslims (preliminary)
 - Five international —“e-radicalization” programs and the measures used to evaluate their efficacy
- Sponsored interagency workshops on
 - Coding methodologies for case studies
 - Community-level indicators of radicalization
 - The role of the internet in radicalization
 - Survey methodologies for assessing attitudes toward terrorism and counterterrorism initiatives



International Programs' Research on Violent Extremism

Radicalization in Europe and North America: Parallels and Divergence



START ▶▶

Social Determinants of Terrorist Organizations' Resilience in Latin America



The Impact of Israeli Counterterrorism Interventions on Rate and Intensity of Terrorist Activity



Threat Assessment of Terrorist and Extremist Organizations in Indonesia, the Philippines, and Thailand



Homeland Security

Counter-IED Investment Areas

- Improved detection capabilities for known and emerging IED threats
 - Imaging technologies
 - Spectroscopic and trace detection technologies
- Improved probability of detection by screening for IEDs more efficiently while minimizing effect on flow of people and commerce
 - Non-contact interrogation
 - Enhanced algorithms for automation
- Improved first responders' ability to react to and defeat discovered IED threats
 - IED identification and defeat tools
 - Radio frequency jamming equipment



**Homeland
Security**

**Diversified investment portfolio to
maximize potential for success**

C-IED Detect

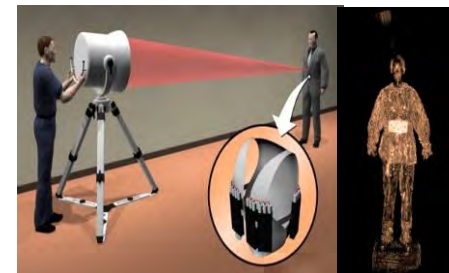
Program Goal: Develop enabling technologies and operational solutions to improve customer IED threat detection capabilities

Customers/Partners:

- USSS, OIP, TSA, FPS, CBP, and USCG
- JIEDDO, USMC, ONR, DTRA, NIST, DNDO, NRL, NSWC-DD, and TSWG

Needs/Gaps:

- Detect explosive devices worn or carried by individuals (person borne threats)
- Detect explosive devices in unattended packages (leave behind threats)
- Detect explosive devices at a checkpoint concealed within stationary or slow moving vehicles (vehicle borne threats)



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C-IED Detect

Strategy/Approach:

- Perform signature characterization studies of realistic explosive threat devices: provides data for detection requirements, test standards and performance benchmarks for detector development
- Develop cueing, tracking and target selection systems: incorporates advanced hardware and software solutions into layered security architectures
- Perform system analysis, engineering and architecture design: provides analysis of alternatives, baseline systems design, and integration of component technologies
- Develop high resolution detection technology: provides advanced imaging and trace detection hardware and software with improved detection performance characteristics to address broadening threat detection requirements
- Perform laboratory and operational test and evaluation of existing and emerging security solutions: baselines existing system performance, measures advanced system capabilities and defines technology shortfalls



C-IED Detect

Accomplishments:

- Demonstrated the use of a broadband, tunable laser system to enhance stand-off threat detection capability
- Established a standoff detection test bed with interagency partners to demonstrate an integrated system approach towards explosives detection
- Initiated programs
 - to detect vehicle borne explosive devices through the use of high energy techniques
 - to detect individuals carrying or wearing explosive devices, based upon acoustic and infrared detection techniques
 - for standoff and non-contact detection of trace amounts of explosives



C-IED Response/Defeat

Program Goals: Initiate, prioritize, and execute research and development projects that meet bomb squad requirements to effectively render explosive devices safe, placing specific emphasis on technologies to access, diagnose, and defeat terrorist improvised explosive devices (IEDs)

Customers/Partners:

- OBP, OIP, FBI, ATF, USSS, USCG, CBP, State/Local Bomb Squads
- JIEDDO, TSWG, NIJ, FBI

Needs/Gaps:

- Analyze vehicles and leave behind packages utilizing Access and Diagnostic tools to determine content
- Defeat the improvised explosive devices (IEDs) containing both sensitive and insensitive explosives and enhanced payloads (includes VBIED, PBIED, WMD devices).
- Increase standoff distances, reduce collateral damage, and enhance the safety of bomb squad technicians.



C-IED Response/Defeat

Strategy/Approach:

- Develop and adapt a suite of interoperable response tools to improve and standardize bomb squad capabilities (e.g. platforms, interfaces, common architecture, standards, ECM, RF-based bomb squad technologies)
- Leverage existing robotics technology to provide advancements in stand-off and remote diagnosis and defeat
- Evolve advancements in robotic arm manipulation, while increasing power supply, decreasing overall weight, extending operational time, and improving navigation, communication, safety and operational control
- Enable detect sensors to integrate with bomb squad robotic platforms
- Conduct Test and Evaluate at the Bomb Squad test Bed (transition via the FBI's Hazardous Device School)



C-IED Response/Defeat

Accomplishments:

- Established an interagency technical requirements working group to gather future Electronic Countermeasures (ECM) technical requirements
- Established the Bomb Squad Test Bed with the Michigan State Police to perform test and evaluation on prototype equipment
- Verified the following technology at the Michigan test bed:
 - Single-Sided Imaging System to image suspect VBIEDs
 - Pneumatic Water Canon to render a suspect VBIED safe
- Drafted and delivered the Bomb Squad Strategic Plan, as well a explosive tool test data, to state and local bomb squads

Future Direction:

- Develop future Render Safe Tools through derivation and validation of vehicle bomb characteristics
- Continue to advance the capabilities of the current fleet of robots (e.g. employ surgical precision tools)
- Develop an intuitive diagnostics capability that can be quickly deployed when vehicle bombs are suspected
- Develop DHS-centric performance requirements for the next generation ECM systems
- Improve the Test and Evaluation and Transition processes by leveraging the Bomb Squad Test Bed and the FBI Hazardous Devices School



Counter-IED Investment Areas

- Enhanced blast resistance
 - Advanced blast-resistant materials
 - Models for assessing damage from blast
- Mitigation of effects
 - Rapidly deployable means to stabilize damaged structures
- Community resilience
 - Communication of clear, understandable, credible warnings in the event of an IED threat
 - Recovery in the aftermath of an attack

Preventive measures to reduce effects of an event, help for recovery afterwards



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Advanced Materials Research

- Conduct basic research and testing of materials such as ultra-high performance concretes, ceramics, foams, layered composites, woven and nano-enabled materials
- Report on the current state of the art for use of advanced materials to counter IED effects
- Research UHPC/RPC to advance
 - Ultra high strength
 - Ductility, flexibility
 - Toughness, Impact resistance
 - Durability
 - Impermeability
 - Freeze/thaw, corrosion resistance
 - Abrasion resistance

Ductal® Components



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Novel materials may have more desirable environmental, durability, weight, aging, and cost properties.

Stabilization of Buildings

- **Criteria** for interpretation and dissemination of data, triage, and decision-making methods

(Near-Collapse Buildings Workshop, TEEEX April 28-29th, 2010)

- ***First Responders Search and Rescue Issues***

(Monitoring and Sensing Workshop, Oxford, MS April 6-7th, 2010)

- Identify sensor technology to allow effective monitoring
- Identify user-friendly technology that will not hinder the mission of first responders
- Facility reconciliation of field data with analytical models



Bridge Vulnerability

PROJECT DESCRIPTION

- Study the vulnerability of steel plates, girders, and cables to terrorist threats, particularly explosives, and updating computational models based on the results.
- Specimens to evaluate vintage bridges will be taken from
 - Golden Gate Bridge (CA)
 - Crowne Point Bridge (NY) and
 - Williamsburg Bridge (NYC)as they are being refurbished or demolished in order to evaluate IED effects on vintage bridges.



Impact

- Provides vulnerability information for bridge components subjected to aging, wear, and weathering
- Data can be used to validate and improve numerical models that predict failure for bridges subjected to explosives
- Understanding failure mechanisms for bridge components enables more effective design of protective countermeasures



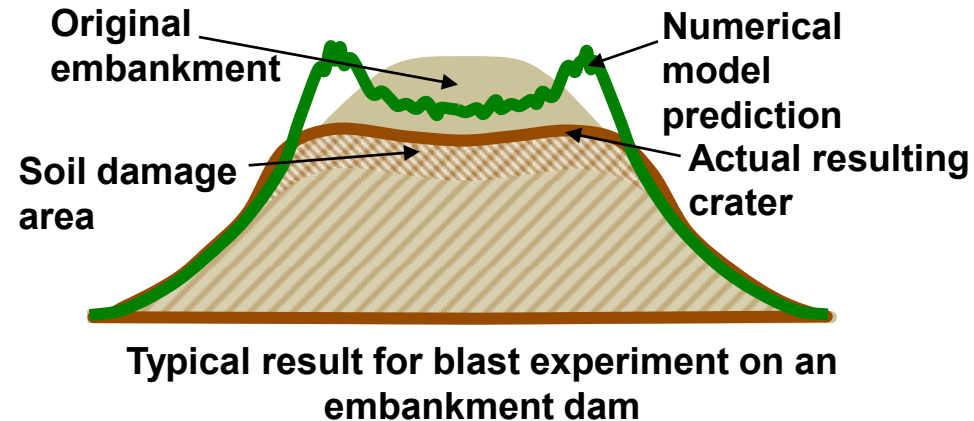
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Capitalizing on existing assets provides data on effects of real-world aging on material properties

Improved Numerical Modeling of Soils

The Problem

- Existing numerical & constitutive models for blast effects in soils do not match the test results
- Current estimates are
 - based limited data sets
 - have insufficient information about soil damage
 - unable to evaluate the integrity and condition of remaining material



Our Approach

- Conduct physical tests and numerical simulations to determine the shortfalls of current models and how they can be improved
- Improve on current physics based, 1st principle approaches to modeling soils subjected to blast and seismic loads

Impact

- Accurate models will reduce the need to conduct extensive and expensive physical tests to address new threat scenarios.



Community Perceptions of Technology Panels

- A formal process
 - to understand and incorporate community perceptions of critical technologies within the US.
 - to maintain the balance between security and personal privacy/civil rights and liberties
- Provides DHS agencies and Program Managers with insight prior to development and deployment of technology.
 - potential reactions
 - issues
 - obstacles to a technology
- Engages the public, making them active stakeholders in the research and development of critical technologies.



Community Perspectives into Technology Development: Challenges and Issues

- Civil Rights, Civil Liberties
- Privacy, Intrusiveness and Invasiveness
- Privacy of information
- Convenience and Comfort
- Perception of Threat
- Location
- Cost
- Complexity, usability
- Safety
- Tradeoff value



Incorporating Community Perspectives into Technology Development

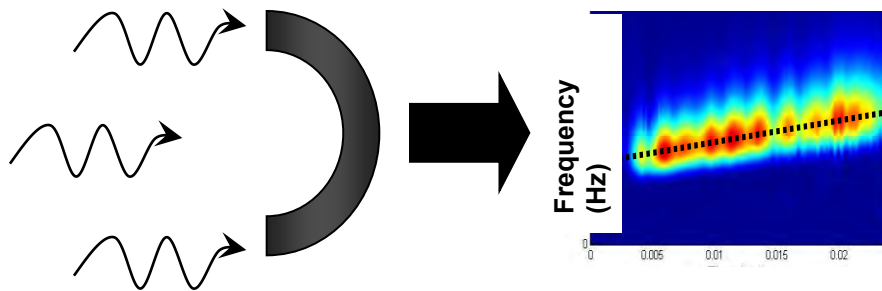


• CPT Panels 2008

- Microwave Vehicle Stopping
- Raman Spectroscopy- IED Standoff Explosive Detection
- Mobile Biometrics
- Nonlinear Acoustic IED Standoff Threat Detection

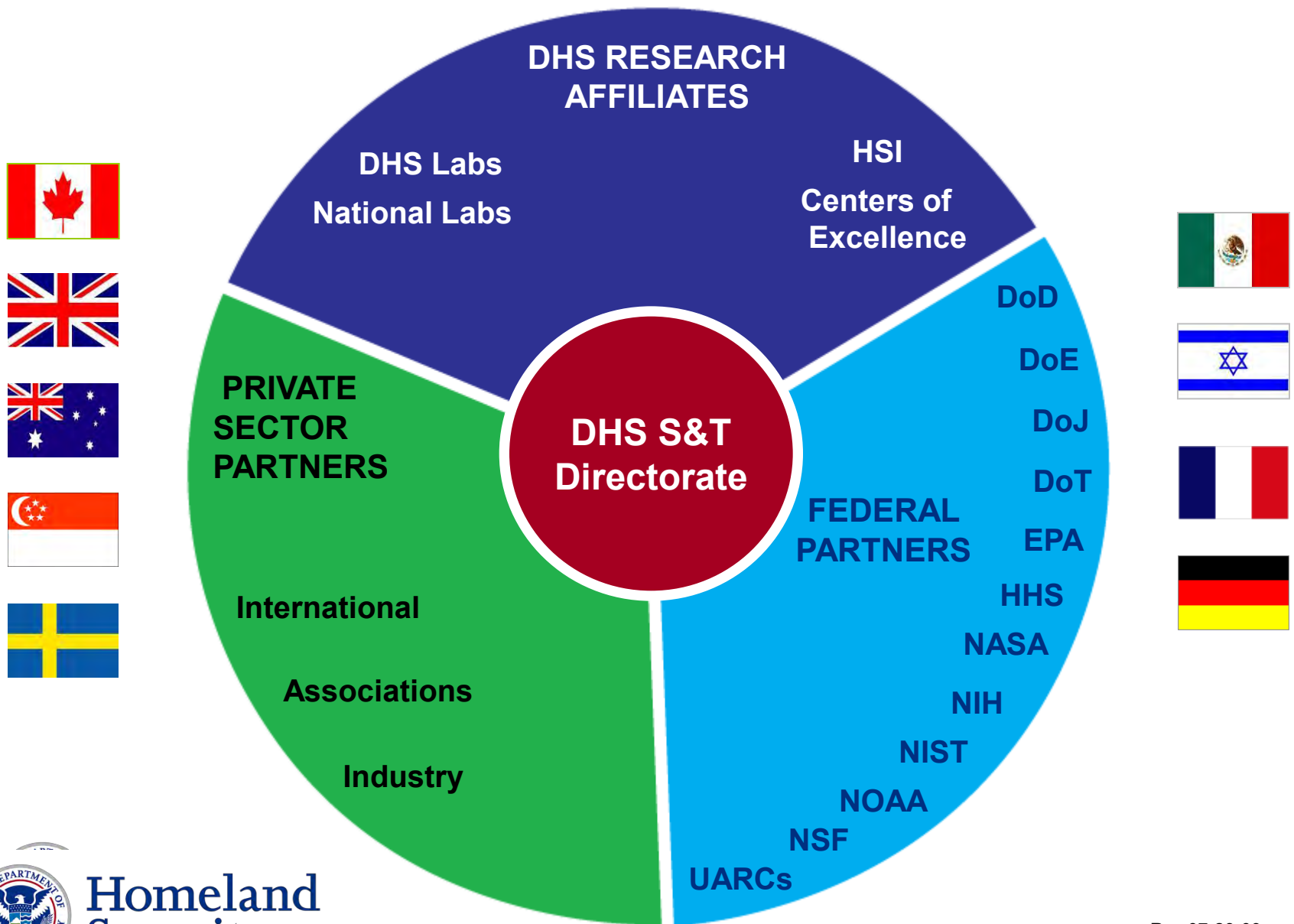
• CPT Panels 2009

- Northern Border Technology - RFID Registration and Low Resolution Imaging (Joint panel with Canada)
- Standoff Threat Detection- Imaging Systems



**Homeland
Security**

Homeland Security S&T Enterprise



Homeland Security

Summary

- The domestic threat is real; preparation is vital
- To protect our people in a free and open society, we must get ahead of the terrorists
 - Counter violent extremism/radicalization
 - Prepare people and infrastructure
- Cooperation makes us stronger
 - Domestic
 - International



Contact Information

- PEO, C-IED: SandT.cied@dhs.gov
- Broad Agency Announcements Solicitation Topics
 - Long Range BAA – addresses needs of 6 S&T divisions
 - **For more about BAAs, visit www.FedBizOpps.gov and <https://baa.st.dhs.gov>**
- NSTC Domestic IED Subcommittee report, *Research Challenges in Combating Terrorist Use of Explosives in the United States:*

<http://www.whitehouse.gov/sites/default/files/microsites/ostp/nstc-domestic-ied-2008.pdf>



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Homeland Security

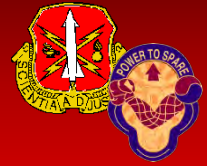


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What is “terrorism”?

- Title 18 USC Section 2331, (5)
 - (5) the term —domestic terrorism” means activities that—
 - (A) involve acts dangerous to human life that are a violation of the criminal laws of the United States or of any State;
 - (B) appear to be intended—
 - (i) to **intimidate or coerce a civilian population**;
 - (ii) to **influence the policy of a government** by intimidation or coercion; or
 - (iii) to **affect the conduct of a government** by **mass destruction**, assassination, or kidnapping; and
 - (C) occur primarily within the territorial jurisdiction of the United States.





EXPLOSIVE ORDNANCE DISPOSAL DIRECTORATE BRIEF



SGM Frey



EOD DIRECTORATE MISSION



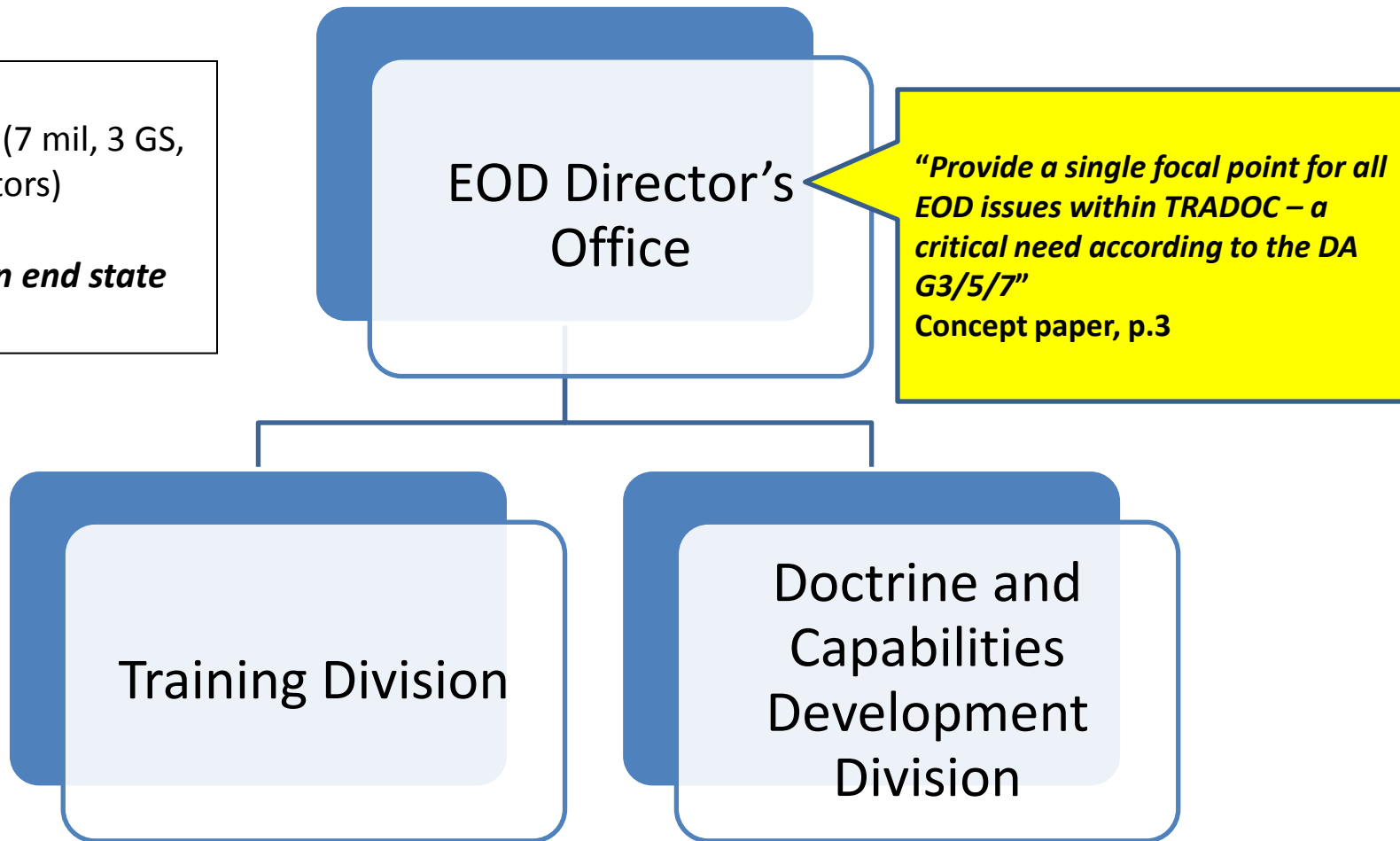
- Develop, integrate, and synchronize Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, & Facilities (DOTMLPF-RIO) requirements for Explosive Ordnance Disposal (EOD) throughout TRADOC and coordinate Joint, Interagency, Intergovernment, and Multinational (JIIM) EOD requirements in coordination with SCOE and DA G3/5/7.



EOD DIRECTORATE MISSION



28 Required
20 Available (7 mil, 3 GS,
10 Contractors)
*Concept plan end state
is 28 Auth*

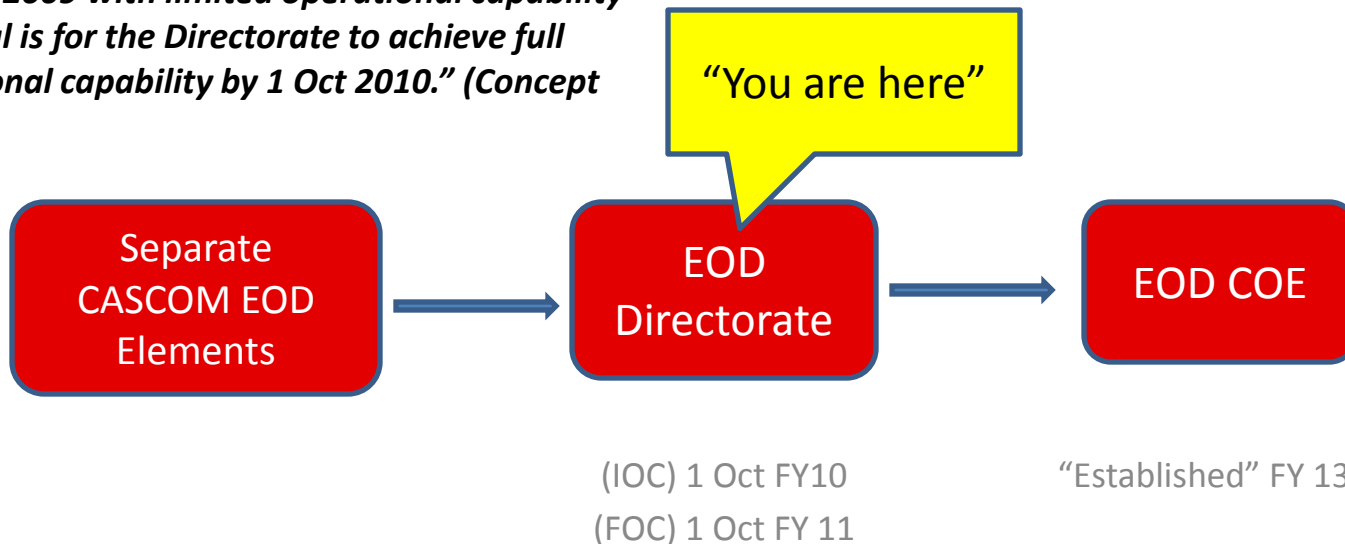




EOD DIRECTORATE MISSION



“The EOD Directorate will be stood up on 1 October 2009 with limited operational capability .The goal is for the Directorate to achieve full operational capability by 1 Oct 2010.” (Concept paper)



- Bldg 10200 occupied by Mar 2010
- Concept paper at CASCOM TRADOC (informal adjudication of G-8, ARCIC comments)



EOD DIRECTORATE DOTMLPF REVIEW



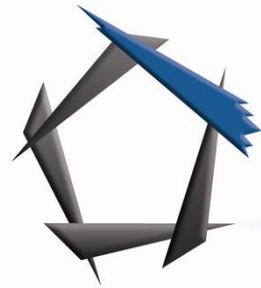
	CURRENT	FUTURE
DOCTRINE	<ul style="list-style-type: none"> • FMI 4-30.50 (Army EOD Ops) • FM 4-30.51 / MCRP 3-17.2A (UXO Procedures) • FM 4-30.16 (MTTP for EOD in Joint OE) 	<ul style="list-style-type: none"> • FMI 4-30.50 rewrite and conversion to ATTP 4-32 • Merger of Army and Marine Corps only manual in MTTP • Rewrite of MTTP for update of Joint TTPs • Participate in FM 4-3 (Ordnance Ops) pub • ATTP 5-0.1 (EOD Appendix)
CONCEPTS	<ul style="list-style-type: none"> • Core participation in Site Exploitation (SE), Weapons Technical Intelligence (WTI) and Weapons Intelligence Team (WIT) development projects 	<ul style="list-style-type: none"> • 2010 Army Operating Concept • 2010 Army Functional Concept for Sustain • 2010 Army Functional Concept for Protect
ORGANIZATION	<ul style="list-style-type: none"> • Transformation of Legacy EOD structure to Modular (FDU 05-02) • Begin BRAC restationing to projection platforms 	<ul style="list-style-type: none"> • Complete Modular transformation (through FY 15) • Complete BRAC restationing
TRAINING	<ul style="list-style-type: none"> • 89E Course • 89D ALC, SLC • Advanced IED Defeat (AIED-D) • Gator Transformation (JATAC) • Tactical Post Blast Course • EOCA • DL Modules 	<ul style="list-style-type: none"> • 89E Course • 89D ALC, SLC • Advanced IED Defeat (AIED-D) • Gator Transformation (JATAC) • Tactical Post Blast Course • EOCA • DL Modules



EOD DIRECTORATE DOTMLPF REVIEW



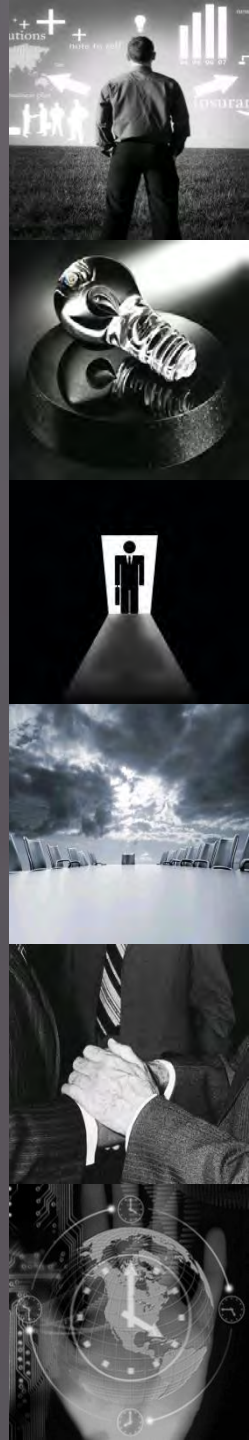
	CURRENT	FUTURE
MATERIAL	<ul style="list-style-type: none"> • Future Radiographic System (FRS) • Decision Support System (DSS) • Advanced EOD Robotic System (AEODRS) • MMPV-Panther • AN/PDX-2 Radiac Sets • MK 1 MOD 0 and MK 2 MOD 0 (CIP) • AN/PLT-4 CREW • AN/PLT-5 Man Portable CREW 	<ul style="list-style-type: none"> • Blast Overpressure Tool (Maxi Candle) • High Fidelity WMD Identification • Electronic Safe and Armed (ESAF) • Next Generation Advanced Bomb Suit • Light Weight Multifunctional Disrupter
LDR DEVELOPMENT	<ul style="list-style-type: none"> • 89E Course • 89D ALC, SLC • Advanced IED Defeat (AIED-D) • Gator Transformation (JATAC) • Tactical Post Blast Course • EOCA • DL Modules 	<ul style="list-style-type: none"> • 89E Course • 89D ALC, SLC • Advanced IED Defeat (AIED-D) • Gator Transformation (JATAC) • Tactical Post Blast Course • EOCA • DL Modules
PERSONNEL	<ul style="list-style-type: none"> • AIP • CSRB, SRB • Career Pay • Attrition at School House • Enduring Recruiting Program • EOD Plans/Positions with BCT/DIV/CORP • Prerequisites • OD Website EOD inject 	<ul style="list-style-type: none"> • Maintain Throughput at school house • Maintain Plans positions within DIV and CORPs staffs • Maintains plans and ops liaison personnel within BCT
FACILITIES	<ul style="list-style-type: none"> • Restationing Packet for EOD Directorate • Student Load exceeding capacity of NAVSCHOLED 	<ul style="list-style-type: none"> • Continuously monitor restationing Package • MILCON projects to increase Lodging and classroom facilities



**CENTER FOR ADVANCED
DEFENSE STUDIES**

A Bad Suit- The Strategic Challenge of Irregular Warfare

Innovation for Peace



Outline

- Introduction
- What is Irregular Warfare?
- How do we address Irregular Warfare?
- What are the implications for the Future?
- Conclusion

War is a chameleon

What is Irregular Warfare

?

Definitions

- References: JOC 2007; JOE 2008; CCJO 2009
- IW= Population Focus v. CW =Military Focus
- COIN, UW, CT, FID, SSTR
- Supporting Activities: IO, Psyops, Strategic Communication, CMO, Law Enforcement Against Transnational Crime....
- Simultaneous with Conventional Warfare or independent

- Definitely not Irregular and often not War
--Cigarette Smuggling in Mali?

What is Irregular Warfare

?

Cause

- Total War Paradigm- Mechanism is....
- Strategic Problem is a balance of Capacity, Demand and Time to achieve a solution
- Faction without Capacity changes time and Demand parameters

***Mines are the poor man's
tank***

What is Irregular Warfare ?

A Conflict Sine Wave

- **Spectrum of Conflict** (High, Medium, and Low Intensity= Amplitude)
- **Phases of Conflict** (Strategic Engagement, Initial Entry, Build up, Decisive Combat Operations, Stability and Reconstruction, Transition= Frequency)
- **Conflict is Persistent and Dynamic— Mao's Protracted Warfare**
 - - Resource Competition; Trans-National Crime; Population Migration; Clashes of Perception

**Policy is War by another Means-
A corollary**

How do we address Irregular Warfare?

A Human Problem

- Information Age Warfare- Alberts et al.
- OODA Loop- Col. John Boyd, USAF
- Emotional Decision Making
- Understanding Intent and Perception/ Apperception—Somalia Story

- Red Teaming (UFMCS)
- Dynamic Social Network Analysis (CADS/ MIT Program)

How do we address Irregular

Warfare?

The Counter-Threat Cycle

- Deter
 - Detect
 - Prevent
 - Protect
 - Remediate
 - Recover
-
- Requires a System of Systems approach, dynamic and persistent.

**What are the implications for the
Future?**

Strategic Evolution

- Combined Arms
- Joint
- International
- Inter-Agency
- Comprehensive



Making the Suit Fit the Fight

— ~~W~~ do not draw our boundaries where you draw yours”- USC Representative 1993, Near Baidoa, Somalia

Conclusion

- —“Regular Warfare” has always existed and always will
- Managing perception (ours and theirs) is the critical element
- Capacity- Demand- Time Analysis= Get a better fitting suit or change the requirement to wear one



Questions

- So Why Should I Care?



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Multi-National Corps Iraq



***TF TROY Counter IED Update
NDIA Global EOD Conference
COL Patrick Kelly***

Points of Emphasis

- ***Criticality of forensics process, specifically biometric match attribution; transfer of capability to ISF while also affecting a paradigm shift in Iraqi Rule of Law***
- ***Balancing shift in focus towards ISF Partnership and Transition while maintaining CF support as critical enabler***
- ***Ensuring access to significant IED and cache events to maximize awareness of emerging threats and enable ISF to conduct C-IED and Technical Intelligence operations***
- ***Mentoring key leaders to develop a cross-ministerial strategy (MOD / MOI / MOJ) to realize a proactive, left of boom C-IED process within the Gov't of Iraq***

CJTF Troy Mission Statement

CJTF Troy exercises command and control of specialized Joint Counter-IED and CBRNE forces to **neutralize the CBRNE/IED threat**; conducts **weapons technical intelligence** collection and exploitation to defeat IED networks;

assists ISF in building sustainable security capabilities.



Assigned Specialized C-IED forces include:

Explosive Ordnance Disposal (EOD)

ISF Partnering & Transition LOO cut across all LOOs as Coalition Forces continue the drawdown

Technical Escort (CBRN/CRT)

Targeteers (CITP)

CJTF Troy - Core Capabilities



EOD/IED Defeat



Chemical/Biological



Weapons Technical Intelligence



Transfer of C-IED Capability



IED Tech Intel / Forensics



C-IED Equipment



Training



IED Intelligence Products

Counter IED Process

1 - Exploit the Scene



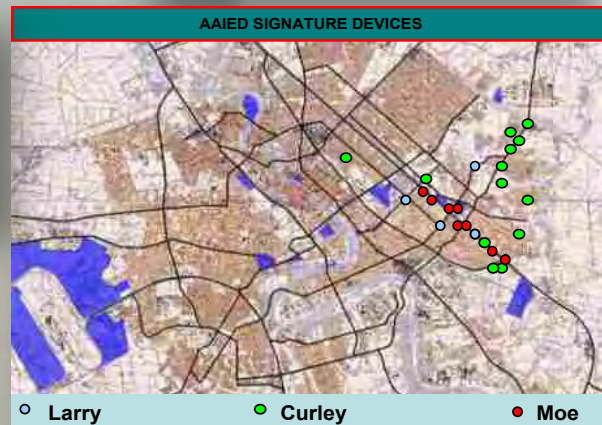
2 - Exploit the Device



3 - Identify the Bomb-maker



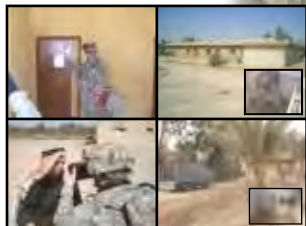
4 - Identify Cells



5 - Identify The Network



6 - Disseminate Actionable Intelligence



7 - Support to Judicial Process

8- Disseminate new TTPs

Transitioning the C-IED Process

IED INCIDENT



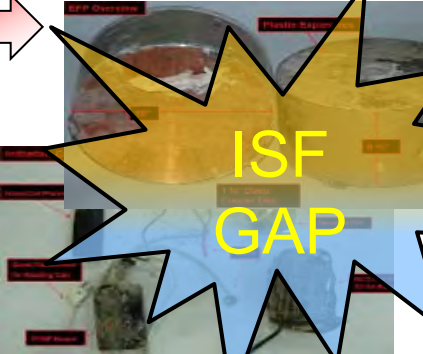
DEFEAT DEVICE

Exploit the Scene



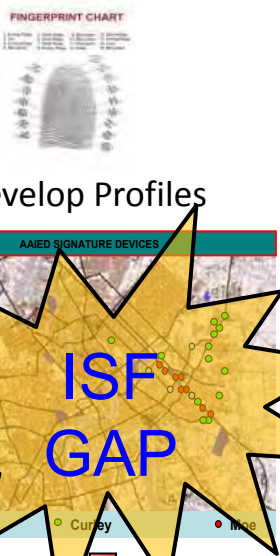
Sector Sixtch

Exploit the Device



ISF GAP

Develop Profiles



ISF GAP

Larry

Curley

Moore

Capture or Kill



Bomb makers, Financers, Suppliers

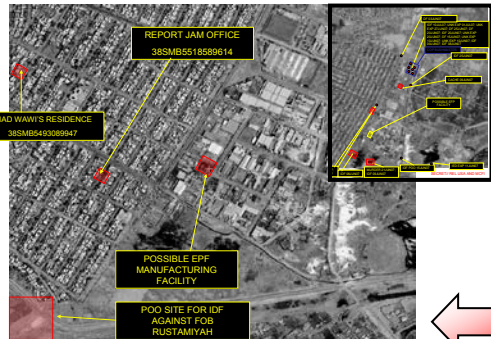
Attack the Network

CIED Training/TTPs/S&T



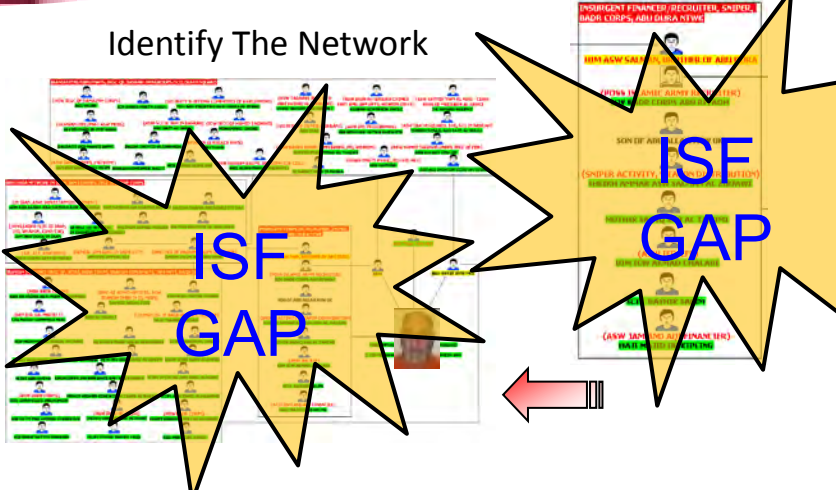
PROTECT FORCE

Disseminate Actionable Intelligence




Support Judicial Process

Identify The Network



ISF GAP

Identify Cells

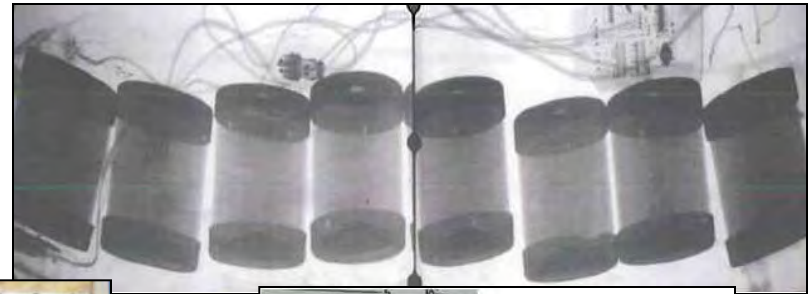


ISF GAP

Iraqi Explosives Exploitation Initiatives



- **Combined Joint Explosives Triage (CJET)**
- **Explosives eXploitation Iraq Transition (EXIT)**



Explosives Exploitation Partnership

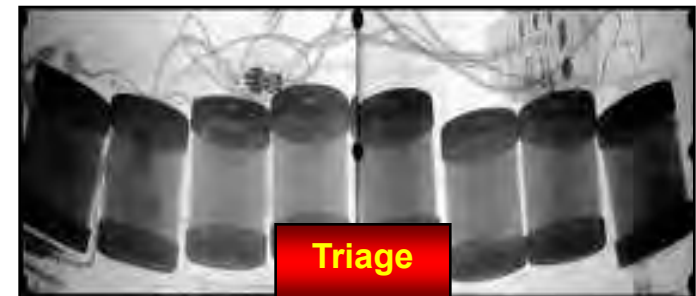


Goal: Create an Iraq-led, combined, organic, sustainable, explosives exploitation capability, partnering and sharing information with CF, to defeat a common enemy

- **Initial stage: Combined Joint Explosives Triage (CJET) – late 2009**
 - 3 Iraqi Police, 3 Iraqi Army EOD Techs in a 45- day Triage apprenticeship program
- **Follow-on stage: Explosives eXploitation Iraq Transition (EXIT) – early 2010**
 - Follow-on training in post-blast , biometrics and chemical exploitation; UK FCO lead
- **Desire End State: 2-3 Iraqi explosives exploitation labs established and sustained by new cadre of Iraqi explosives exploitation specialists**



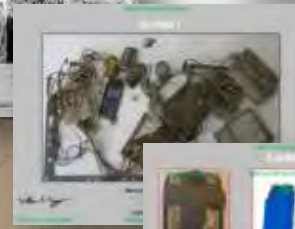
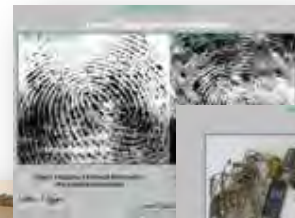
Site Exploitation



Triage

Warrant Packages / Testimonial Support

- Sovereign country with end of UN Security Council Resolution and elections
- Changes in unilateral operations; Adherence to US / GOI Security Agreements





Partnership and Transition





TF Troy Partnering at all Levels



TACTICAL FOCUS



OPERATIONAL FOCUS



STRATEGIC FOCUS

Tactical Level Engagement



***17th IA Division Engineer Regiment
Combined Disposal Operation
Iraqi planned and led
15 July 2009***

***WIT 2 instructing Mosul IP CET forensics
and SSE 11 Jul 2009***

***WIT 11 teaching Kirkuk IP CET computer
based reporting training***



Operational Level Engagement

JTF-Troy MND-B Baghdad ISF EOD Commander's Conference

Al Faw Palace – Summer 2009



Strategic Level Engagements



Ministry of Justice Strategic Engagement

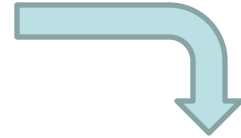


Information Sharing Cycle with ISF

Evidence redistributed to ISF to complete cycle



Evidence is provided by MOI, MOD EOD forces



Incident storyboard created by CF EOD

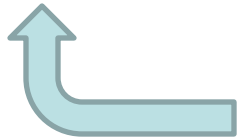


Insurgents prosecuted in Iraqi Courts under Rule of Law

Evidence is processed and exploited by TROY CEXC



All products/processes translated into Arabic



Key Points

- **Iraqi C-IED capability is critical to the security of Iraq**
GOI support is critical, for the good of Iraq
 - *Coalition can help fill gaps, as Iraq develops, executes strategy*
 - *Sharing & cooperation between CF and ISF is essential as CF departs Iraq*
- **Must have coordinated strategic end state (C-IED, forensics, labs)**
Cooperation between MOI & MOD entities is crucial to effective C-IED strategy
 - *Pool resources, plan together, work together, protect Iraq together*
- **Unity of effort, open lines of communication very important**
Must build effective command and control for EOD, investigations, and exploitation
- **Iraq must develop effective C-IED capabilities**
Defeat the network before the explosions occur
 - *Site exploitation, reporting, fusion, analysis = defeat the enemy network*

Coalition support to Iraqi-led operations saves Iraqi & Coalition lives – teamwork & cooperation defeats common enemy

ISF & Coalition Cooperation

- Coalition will respect Iraqi sovereignty & Security Agreement
- Coalition encourages the IGFC to:
 - Promote scene access and evidence sharing with CF EOD
 - Continue to grant access to key IED evidence:
 - Post Blast scenes; IED and IED-related material
 - Weapons Cache sites with explosives
 - Strikes against coalition
- Every IED event is a crime scene – evidence vital to defeating network
 - Partner with Coalition to prosecute common enemy
 - Ensure Iraqi Army preserves evidence
- Coalition will share information derived from the turn of evidence by the Iraqi Security Forces
 - Tech reports, Intel reports, Safety Notices, Warrant Packages
 - Reports are available in Arabic through Coalition partners

Coalition support to Iraqi-led operations saves Iraqi and Coalition lives – teamwork defeats common enemy

United Kingdom / Australia End of Mission



Questions / Comments



LTG Hertling Red Team

6-9 Apr 10, Eglin AFB



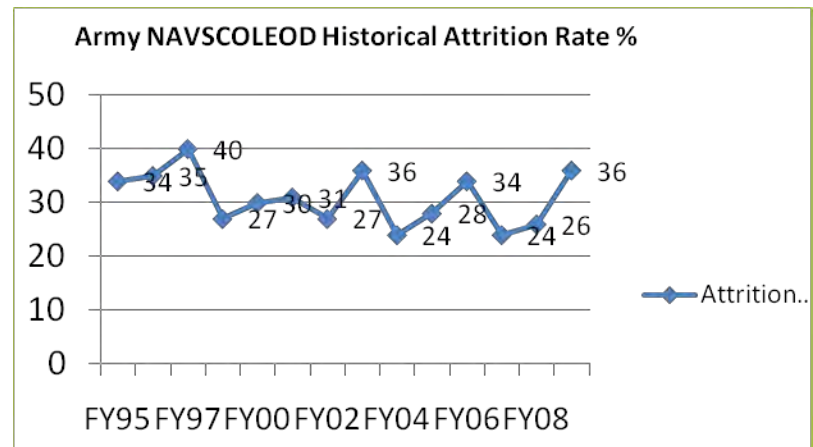
LTC Jeff LaCaze
EOD Directorate
Ordnance Center and School

Agenda

- BLUF
- LTG Hertling guidance
- Findings / Targets of Opportunity /Recommendations

“The challenge”

- *Requirements have nearly tripled from 1204 authorizations to 3416.*
- *School throughput is 5x what it was in 2003 (from 210 to 1075).*
- *Attrition rate has once again doubled to 40%.*



BLUF

- *We think we can do better...There are ways to maximize graduation #s and reduce attrition.*
- *We see an opportunity to reduce Army Attrition rates up to 10% by mid CY 11.*
- *Target attrition rate 30%.*

LTG Hertling Guidance

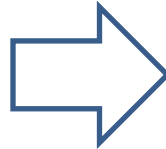
“Holistic”
solutions

No
recommendation
off the board!

- **LTG Hertling VTC comments:**
 - **1. Look at what we are not doing to prepare soldiers for entering EOD school**
 - **2. Create a feeling that they are a “select group”**
 - **3. Prepare them mentally, physically, and technically to successfully complete the course. Tell them what is expected**
 - **4. What personnel policies are in place setting soldiers up for failure**
 - **5. Look at discipline attrition at Eglin, Why?**
 - **6. Look at differences in attrition in phase I and phase II per service**
 - **7. “Gaming” applications need to be made available.**
 - **8. Inform the Navy CAPT that the Army is taking this seriously.**

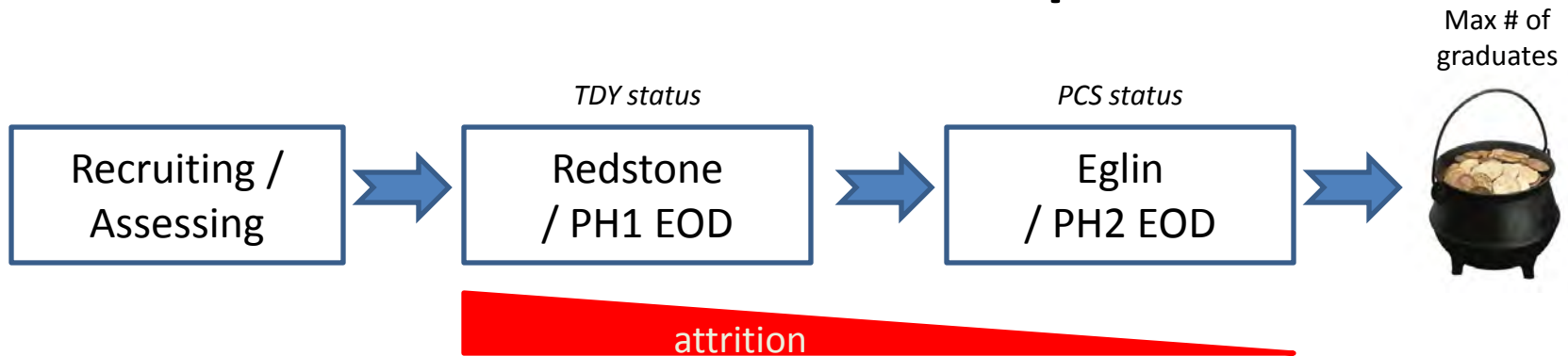
Change the nature of EOD phase 1

Currently primarily
academics
“train the test”



PT heavy
Motivational
Team-building
How vs What to think

EOD Personnel Pipeline



Current Targets of Opportunity / Recommendations

Recruiting / Assessing

1. Change General Maintenance (GM) 105 to Skilled Technical (ST) 110
2. Other eligibility criteria changes
 - a) Eliminate Time-in-grade (TIG) waivers for SGTs
 - b) Remove 2 year active duty requirement
3. In Service Recruiting (ISR)
Organization becomes an enduring capability
4. Bombs suit test standardization
5. Block Recruiting Operations Center (ROC) waivers
6. Basic Training at same location
7. Alter Prior Service eligibility
8. Continue to "OverTRAP"
9. Officer Accessions changes
10. New Recruiting Video

Redstone / PH1 EOD

1. Incorporating performance psychology
2. PRT program re-vamp
3. Change in APFT standard?
4. Insert team building exercises
5. Exchange Test Administrator Guides
6. Realignment of EOD training assets
7. Reinstate filters
8. Seats VS Attrition guidance
9. "Gaming" Enablers

Data feedback loop



Eglin/ PH2 EOD

1. Address inactive population
2. Medical standards adjudication (PB Board 30 Apr)
3. CSL BN CMD team
4. Success tied to privileges
5. Retrain Recycles

Continued involvement with Dr Schneider may yield long term dividends



Global Explosive Ordnance Disposal

Road to War Lessons Learned

Colonel Tom Langowski

52d EOD Group

April 30, 2010



Counter-IED Fight



Means → Ways → Ends

Company

Battalion

Group

- EOD Teams/RCP
- CEXC/JEFF/DTK
- COIC-A
- CITP
- LEP
- JET
- EWO
- CREW
- ORSA

Defeat the Device

Attack IED Networks

Train CF and Host Nation Security Forces (ops, planning, assessment)

Reduction in effective IED attacks

Defeat effective IED Cells

Reduction in IED activity

Reduction in Casualties

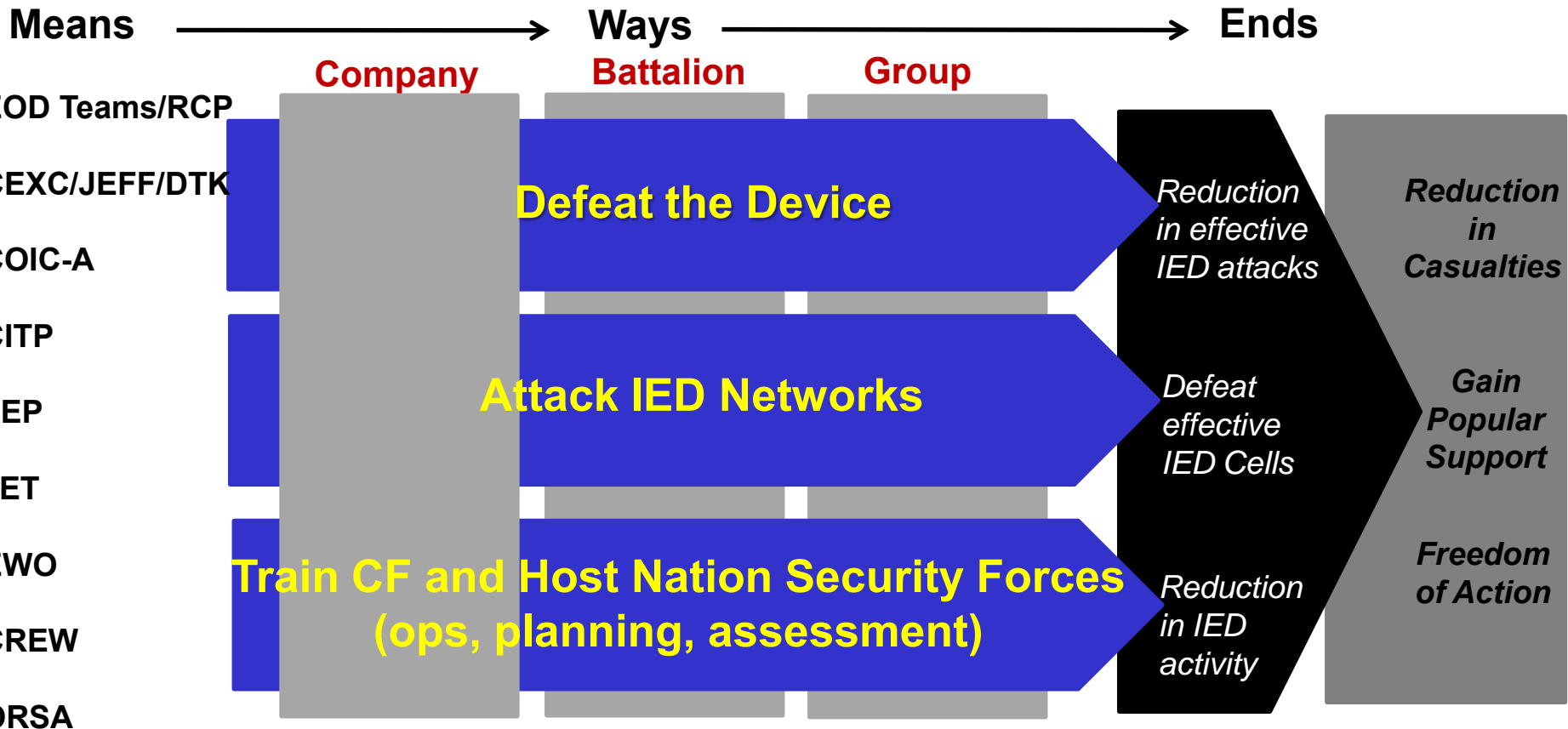
Gain Popular Support

Freedom of Action

Develop the premier combined, joint, and interagency capability to counter the influence of improvised explosive devices and networks. Enable the migration of Counter-IED capabilities and capacity to all coalition forces and host nation security forces in order to protect the people from insurgent attacks and free them from future threats posed by violent extremist networks.



BCT/EOD Company Fight



- All exploitation and intelligence collected on an IED event begins with defeating the device; EOD core competencies need to maintain that capability
- To effectively begin attacking the network requires the integration of all the MEANS available; the EOD Company leadership is often times that SME at the BCT
- Training the force requires a thorough working knowledge of red and blue TTPs



Division/EOD Battalion Fight

Means

Ways

Ends

Company

Battalion

Group

Defeat the Device

Attack IED Networks

**Train CF and Host Nation Security Forces
(ops, planning, assessment)**

*Reduction
in effective
IED attacks*

*Defeat
effective
IED Cells*

*Reduction
in IED
activity*

*Reduction
in
Casualties*

*Gain
Popular
Support*

*Freedom
of Action*

- EOD Teams/RCP
- CEXC/JEFF/DTK
- COIC-A
- CITP
- LEP
- JET
- EWO
- CREW
- ORSA

- Plan and employ the intelligence cycle to defeat the IED system
- Fuse exploitation products with other intelligence sources
- Analyze adversary IED Tactics, Techniques, and Procedures (TTPs)
- Analyze and recommend Electronic Warfare operations against the IED system
- Conduct mission planning in an IED environment



Corps/EOD Group Fight

Means

Ways

Ends

Company

Battalion

Group

- EOD Teams/RCP
- CEXC/JEFF/DTK
- COIC-A
- CITP
- LEP
- JET
- EWO
- CREW
- ORSA

Defeat the Device

Attack IED Networks

**Train CF and Host Nation Security Forces
(ops, planning, assessment)**



Reduction in effective IED attacks

Defeat effective IED Cells

Reduction in IED activity

Reduction in Casualties

Gain Popular Support

Freedom of Action

- Integrate C-IED enablers and capabilities in the Afghanistan Theater
- Plan and employ the intelligence cycle to defeat the IED system
- Fuse exploitation products with other intelligence sources
- Identify and analyze enemy and friendly IED TTP patterns and protect the force
- Conduct analytical exploitation of IED events and provide timely feedback



The EOD Memorial
FOUNDATION



The Mission

- **with admiration**, recognize, support, and appropriately honor members of the EOD family that have been killed while performing their assigned duties.
- **with compassion**, recognize, honor, and support the family members of our fallen EOD Warriors.
- **with enthusiasm and pride**, strive to increase the awareness, appreciation, and professionalism of the EOD vocation.

Moving Forward

- **with enthusiasm and pride**, strive to increase the awareness, appreciation, and professionalism of the EOD vocation.
- Shift to a more proactive and “outreach” oriented mindset
- Continue to recruit high level Board of Directors, Advisors, Committee leadership/members, and volunteer support
- Incorporate an efficient communication process to the EOD, DoD, Non-DoD, and lay communities

Moving Forward

Awareness:

- Aggressive promotion of the profession
- National level outreach and availability to media and other PR resources
- Brand development
- Involve affinity associations for public presentations and fund raisers



Moving Forward

Appreciation:

- Recruit and develop a Legacy Committee
- Incorporate support ideas and programs based upon Legacy input
- Develop as a resource for EOD commands and families
- Identify synergy partners



Moving Forward

Professionalism:

- Conferences and Workshops
- Influence Committee



- Advisory Committee for the Foundation
- Professional Association Involvement

Moving Forward

Help Wanted:

➤ Involvement:

- Committee participation/leadership
- Board of Director Interest
- Communication of ideas
- Identify awareness opportunities

➤ Funding Support (Non-Gov)

- Direct donations & sponsorships
- CFC awareness
- Fund-raisers
- Endowment support

We appreciate your support and service

But the bravest are surely those who have the clearest vision of what is before them, glory and danger alike, and yet notwithstanding, go out to meet it. --Thucydides



The EOD Memorial
FOUNDATION





CTTSO

Combating Terrorism Technical Support Office

Interagency Combating Terrorism Technology Support



Gabe Ramos, Deputy Director, Technology Division

28 April 2010



Combating Terrorism Technical Support Office

Vision:

Identify requirements to combat terrorism and provide solutions to warfighters, first responders, and other front-line users as rapidly as possible.

Mission:

Identify and prioritize the needs of the interagency community charged with combating terrorism. Deliver capabilities to those on the front lines through rapid research, development, test, evaluation, and operational support. Incorporate available expertise and experience from government, commercial, private, and academic sources throughout the United States and the world.

Objectives:

- Provide interagency forum to coordinate R&D requirements for combating terrorism
- Sponsor interagency advanced technology development
- Promulgate technology & information transfer
- Influence policy development
- Guide basic and applied research



CTTSO Organization



Special Operations/Low-Intensity
Conflict & Interdependent
Capabilities



Combating Terrorism
Technical
Support Office



Department
of State



Technical Support
Working Group



Explosive Ordnance
Disposal/Low-Intensity Conflict



Irregular Warfare
Support



Human, Social, Cultural,
& Behavior Modeling



TSWG Organization





**INTERNATIONAL
PROGRAMS**



TSWG Mission

- **Mission:** Conduct the U.S. national interagency research and development program for Combating Terrorism through rapid research, development, and prototyping.
- **Objectives:**
 - Provide interagency forum to coordinate R&D requirements for combating terrorism
 - Sponsor R&D not addressed by individual agencies
 - Promote information transfer



Interagency Partnership



Department of Defense

OASD(SO/LIC)
OATSD(NCB)CP/CBD
OUSD(A&T) DDR&E and S&TS/LW
Armed Forces Institute of Pathology
Defense Advanced Research Projects Agency
Defense Computer Forensics Laboratory
Defense Intelligence Agency
Defense Threat Reduction Agency
Joint IED Defeat Task Force
National Security Agency
Pentagon Force Protection Agency
Polygraph Institute
The Joint Staff
Unified Commands
US Special Operations Command
US Air Force
 Air Combat Command
 Air Force Research Lab
 Electronic Systems Center
 AFOSI
US Army
 52nd ORD
 SBCCOM / ECBC
 Corps of Engineers / ERDC / PMDC
 Criminal Investigations Command
 Natick RDE Center
 20th Support Command (CBRNE)
 Training and Doctrine Command
 National Guard Bureau
US Navy
 Naval Criminal Investigative Service
 Naval Facilities Engineering Service Center
 Naval Special Warfare
 NEODTD / DTRG

US Marine Corps

Chemical Biological Incident Response Force
Network Operations & Security Command

Department of State

Bureau of Diplomatic Security
Office of the Coordinator for Counterterrorism
Overseas Building Operations

Department of Agriculture

Agricultural Research Service
Animal and Plant Health Inspection Service
Food Safety and Inspection Service
Office of the Inspector General

Department of Energy

National Nuclear Security Administration
Office of Energy Assurance
Office of Security

Department of Health and Human Services/USPHS

Centers for Disease Control & Prevention
Food & Drug Administration
National Institute for Occupational Safety and
Health

Department of Homeland Security

Border and Transportation Security
Immigration and Customs Enforcement
Office for Domestic Preparedness
Emergency Preparedness &
Response
Transportation Security Agency
Science and Technology
US Coast Guard
US Secret Service

Department of Commerce

National Institute of Standards and Technology
Office of Law Enforcement Standards

Department of Justice

Bureau of Alcohol, Tobacco, Firearms and
Explosives
Drug Enforcement Administration
Federal Bureau of Investigation
Federal Bureau of Prisons
National Institute of Justice
Office of Justice Programs
US Marshals Service

Department of Transportation

Federal Aviation Administration
Federal Railroad Administration
Federal Transit Administration
National Highway Traffic Safety Administration
Volpe National Transportation Systems Center

Department of the Treasury

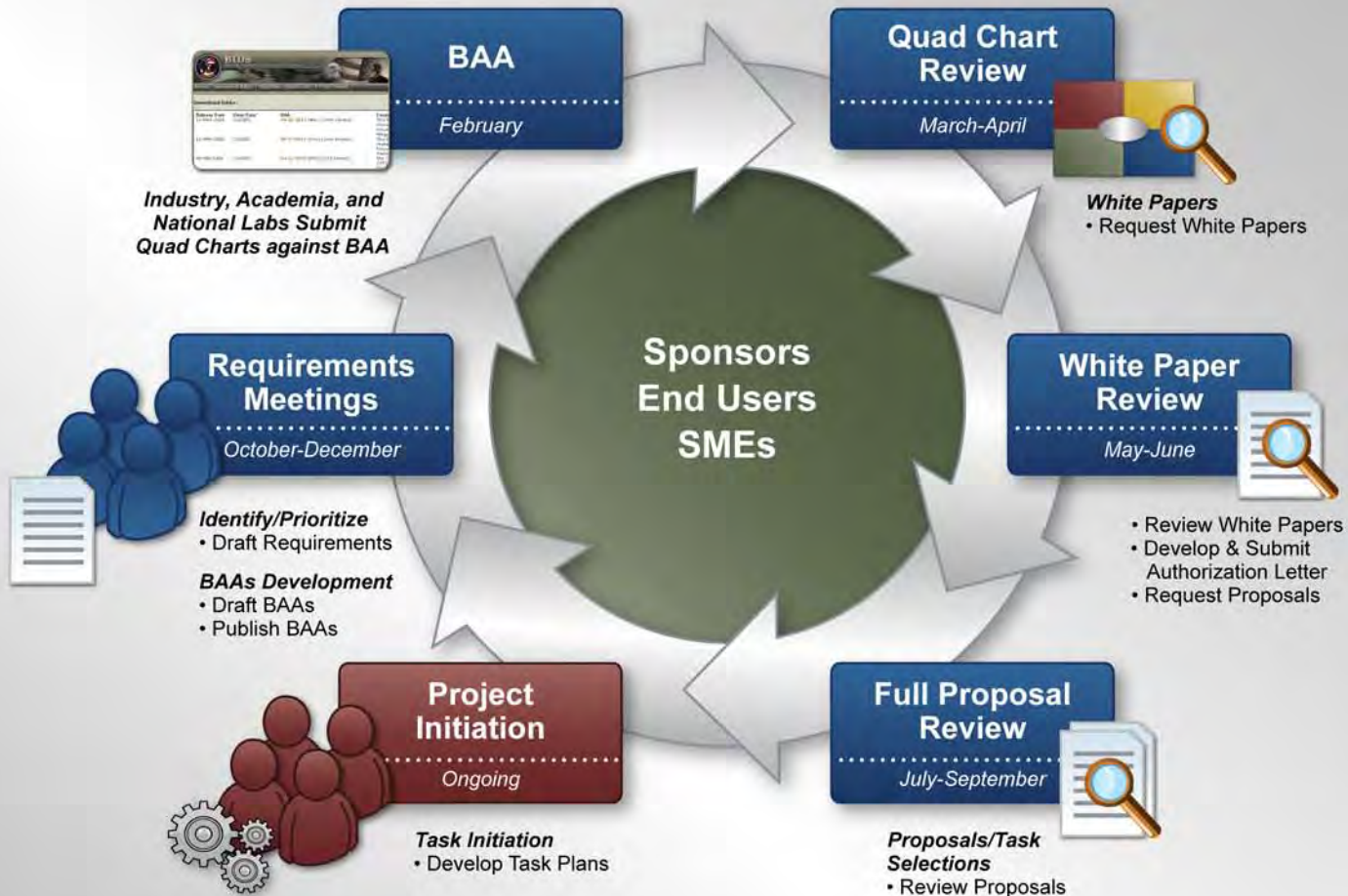
Federal Reserve Board

Independent Agencies

Environmental Protection Agency
General Services Administration
Intelligence Community
Interagency Board
National Virtual Translation Center
Nuclear Regulatory Commission
State and Local Agencies
Supreme Court of the United States
US Capital Police
US Postal Inspection Service
US Senate Sergeant at Arms
US Supreme Court Police



Business Cycle





B.I.D.S. – www.bids.tswg.gov



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[Reference Materials](#)

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[Online Help](#)

BIDS Advisory and Announcements

NEWS

27-JAN-2010 2010 APBI Program Book and Presentation Slides

The program book and presentation slides from the 2010 Advanced Planning Briefing for Industry (APBI) are now available in the [Reference Materials](#) page under the APBI section.

NEWS

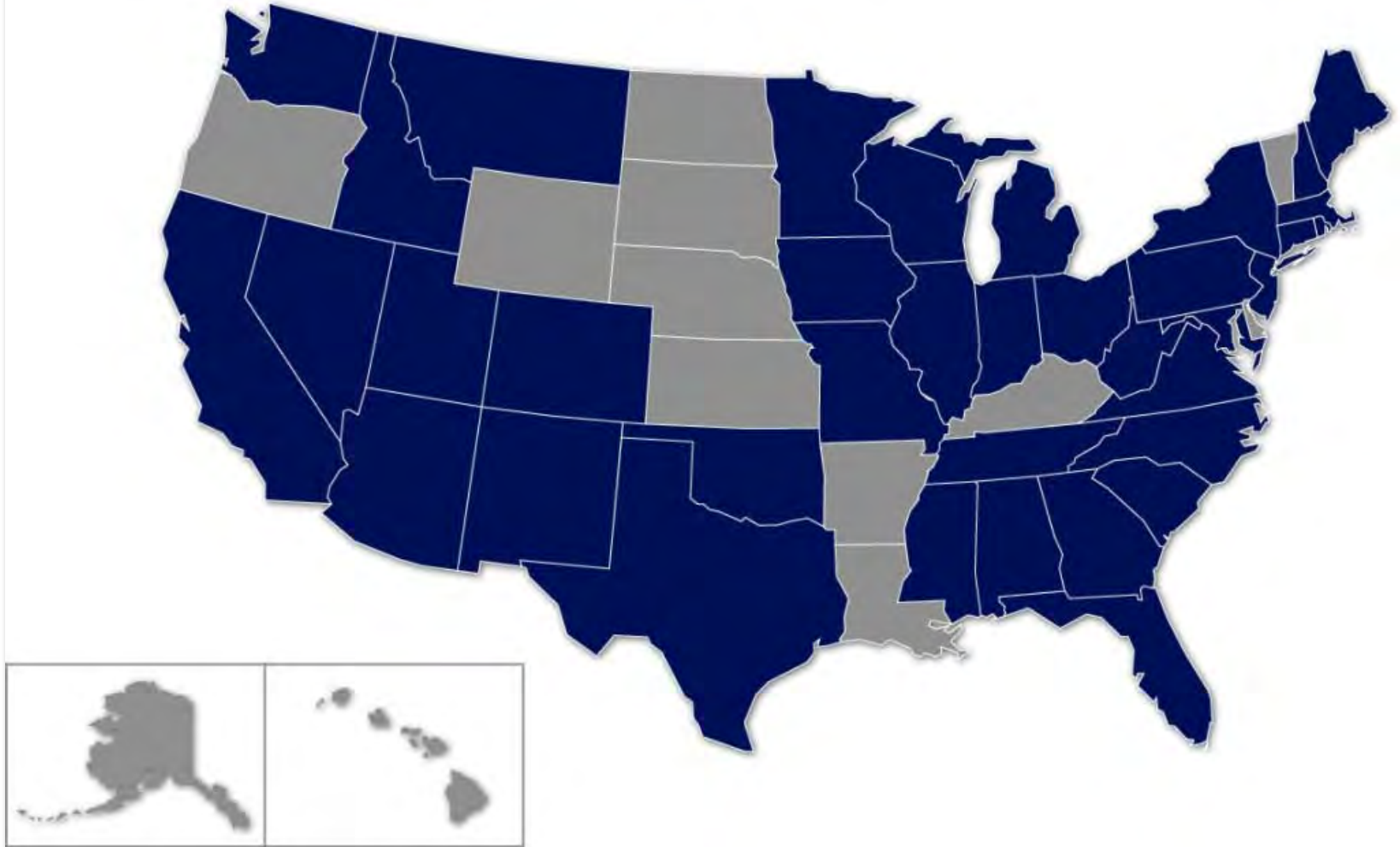
25-JAN-2010 Personnel Protection BAA Instruction Package

This is the Combating Terrorism Technology Support Office / Technical Support Working Group (TSWG) Broad Agency Announcement (BAA), 10-Q-3338, for the Personnel Protection Subgroup issued under the provisions of paragraph 6.102(d)(2)(i) of the Federal Acquisition Regulation (FAR), to provide for the competitive selection of research white papers followed by proposals. Contracts based on responses to this BAA are considered to be the result of full and open competition and in full compliance with the provisions of Public Law (PL) 98-369, "The Competition in Contracting Act of 1984."

The TSWG Personnel Protection (PP) Subgroup is interested in two (2) advanced technology development efforts. The first effort involves cellular communications and frequency emitters and the second involves small unmanned aerial vehicles and communications technology. Specific details on required performance characteristics and potential mission application for each effort is classified and will be provided at a classified Bidder's Conference hosted by the TSWG on February 26, 2010. See section 3.1. "Bidders Conference" of the [BAA Instruction Package](#) for details.



CTTSO Performers



TSWG Projects



Australia



Canada



France



Germany



Israel



New Zealand



Singapore



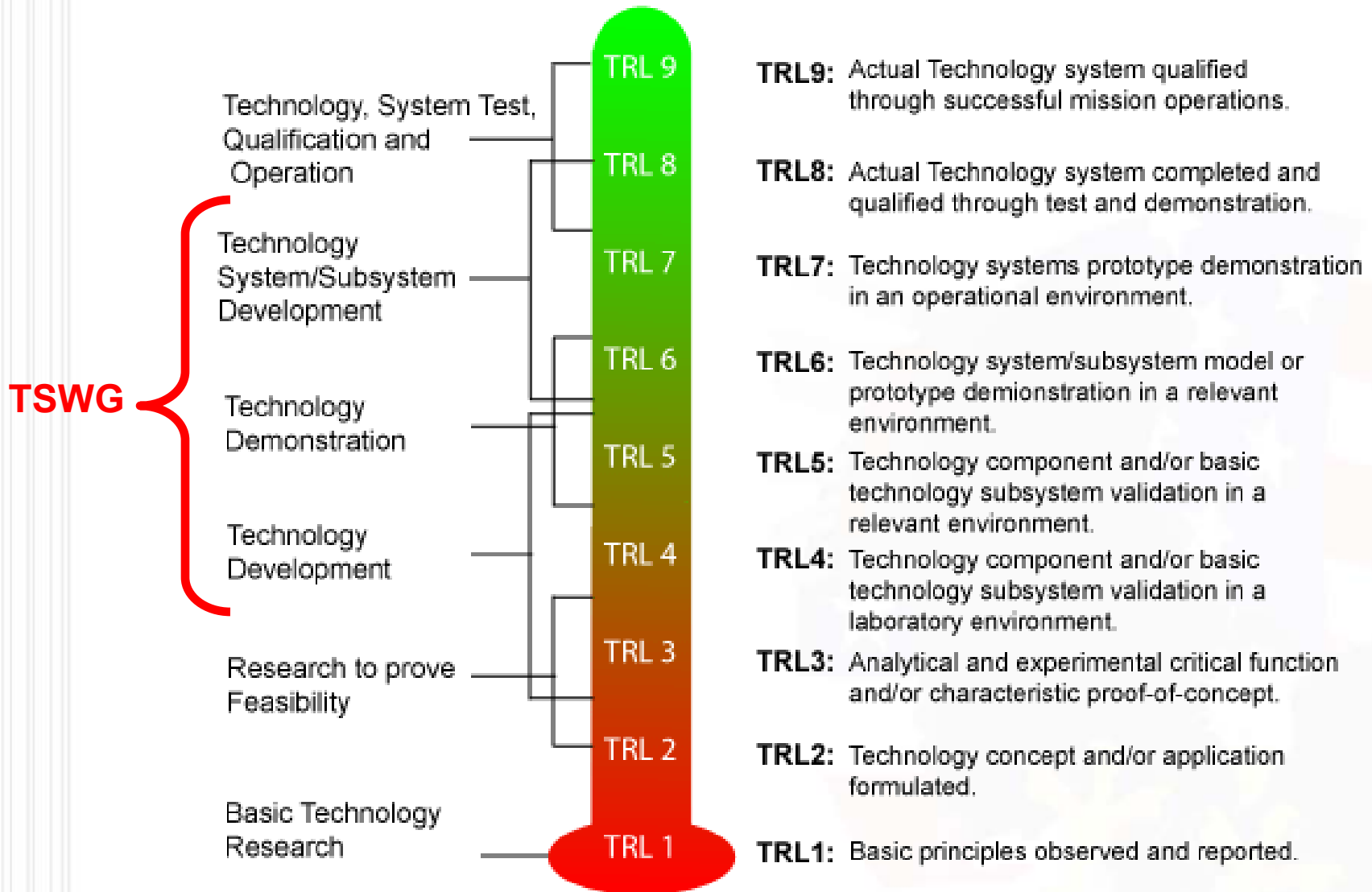
Switzerland



United Kingdom



Technology Readiness Levels



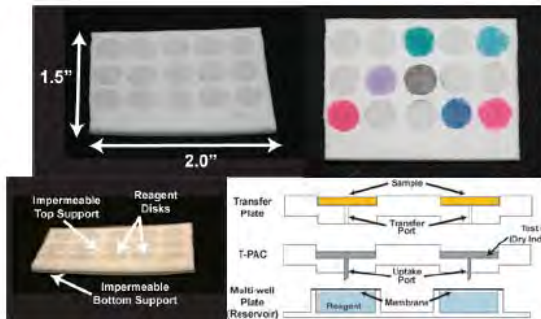


Technology Transition

- Objective: Affordable, operationally suitable technology in the hands of our users
- An integral part of TSWG process
 - Begins with the proposal
 - Continues throughout development
 - Requires periodic deliverables
- Prepares for the unexpected
- Planning assistance provided by TSWG/CTTSO
- Accelerates prototype to product cycle



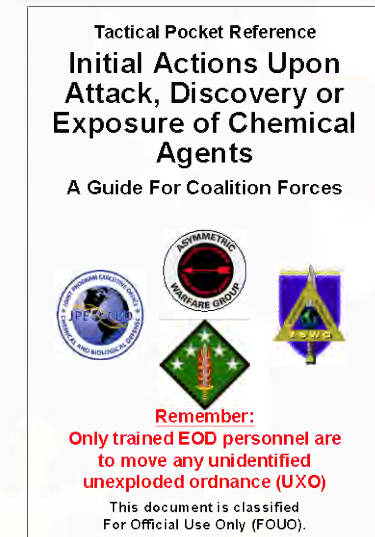
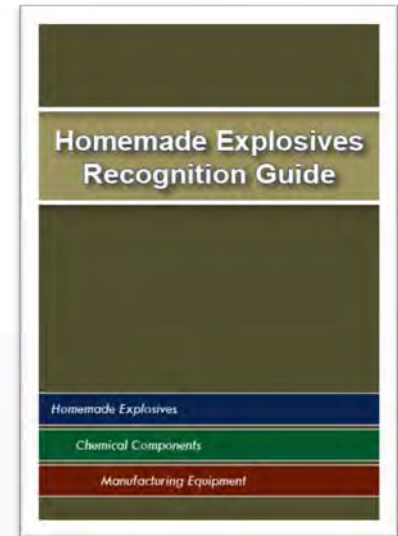
TSWG Project Highlights



HME Precursor Detection Kit



Hardened Trace Explosives Detector



Graphical Training Aids



**Car Scan –
Dual Energy Low Dose X-Ray**



Single-Sided X-Ray



TSWG Project Highlights



Forward Fighting Positions



Digital Observation Guard



Urban Canyon



Personal Hydration System Water Filter



Tactical Glove



FIVAK



TSWG Project Highlights



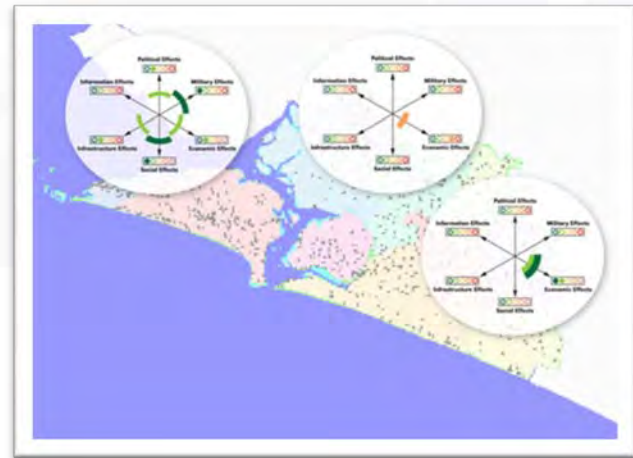
X800/X400 Through-Wall Imaging



Improved Laser/Light Aiming Device



Vapor Wake Canines



HSCB – S-CAT Decision aid



CTTSO Conferences/Workshops

Explosives Detection 2009 Symposium and Workshop

October 20-23 | San Diego, CA



Personal Protective Equipment Conference

New Technologies - Standards - Training for Emergency Response | Fort Lauderdale, FL | November 16 - 20 **2009**





Homeland Security Presidential Directive -19 (HSPD-19)

HSPD-19 establishes a national policy and calls for the development of a strategy to prevent, detect, and respond to terrorist's use of explosives in the United States. The HSPD-19 Implementation Plan mandates the creation of an interagency working group for counter-IED technologies in the science and technology field.

CTTSO co-chairs the Domestic Counter-Improvised Explosives Devices (IED) Working Group under the White House National Science and Technology Council Committee on Homeland and National Security.

The working group is conducting a government-wide inventory of R&D efforts to identify responder requirements from CONUS based counter-IED agencies.

The working group will then analyze needs against capabilities and produce a gap analysis for interagency coordination of research, development, test and evaluation to address the technology gaps.



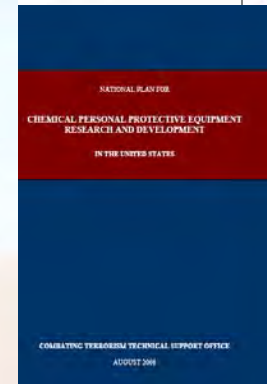


Homeland Security Presidential Directive -22 (HSPD-22)

The HSPD-22 establishes a national policy to strengthen the United States' ability to prevent, respond to, and recover from toxic chemical terrorist attacks and chemical incidents. CTTSO/TSWG coordinated with agency heads to deliver a National Research and Development Plan for Personal Protective Equipment (PPE).

HSPD-22 launches a strategy for focused R&D in chemical PPE to address the utility and availability of PPE for chemical incident response.

The plan recommends objectives to establish a coordinated partnership with standards-setting organizations, industry representatives, and professional organizations that improves the level of **protection, utility, and availability** of high quality chemical PPE.



The White House approved the plan in January 2009. The implementation plan is under development with the White House Homeland Security Council and has the potential to garner additional focused research and funding in the chemical PPE arena.



Summary

- Forum to Identify, Prioritize, Resolve, and Fund Operational Needs/Requirements
- Driven by Interagency User Elements
- Acquisition / Dual Use / Commercialization
- Fast Track and Flexible Program Forum



Contact Information

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Deputy Director Technical Programs
Combating Terrorism Technical Support Office
ramosg@tswg.gov



Explosive Ordnance Disposal (EOD) Force Update



29 APRIL 2010

**CDR Gene Rathgeber
Chief Staff Officer EOD GROUP ONE**

UNCLASSIFIED



Overview

- *Core Mission Areas*
- *Who We Are*
- *Operational Force Lay Down*
- *Units of Action*
- *Enlisted Accession / Retention*
- *Key EOD Force Initiatives*
- *Statistics and Highlights*
- *Where Industry can Help*
- *Questions*



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Core Mission Areas



• Explosive Ordnance Disposal

- Conventional, Chem, Bio, Nuke, U/W, IED, WMD
- Remove hazards / Enable Access on land and from sea

• Naval Expeditionary Combat Ops

- WMD, IED, UXO, Mines
- NECC / NAVEXPEDRIVFOR
- Marine Mammal Systems / Unmanned Systems
- U.S. Secret Service and DOS VIP protection

• Underwater Mine Countermeasures

- Organic, Dedicated UMCM
- Naval Special Clearance Team
- Marine Mammal Systems/Unmanned Systems

• Expeditionary Diving / Salvage

- MDSU ONE/TWO.....rapid deployment

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Who We Work With



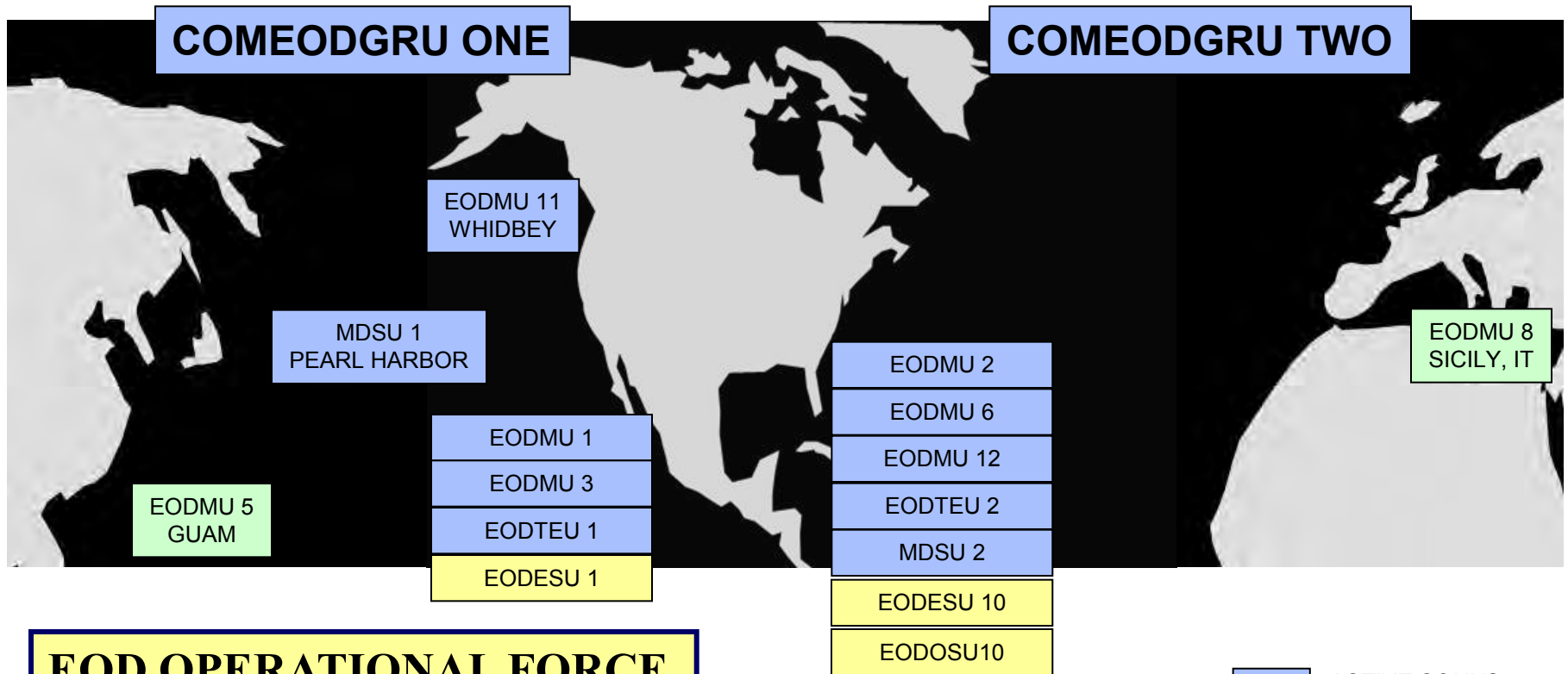
- Conventional Forces
 - Blue: CSG, ESG, MCMRONs, USCG
 - Green: USMC
- SOF
 - Army Special Forces
 - Navy Seals
- Other
 - DTRA
 - USSS
 - Inter-Agency (HMA, JTF-FA)
- Theater Engagement
 - Significant multi-national engagement

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Operational Forces

Low Supply / High Demand



EOD OPERATIONAL FORCE
471 Officers / 1031 Enlisted

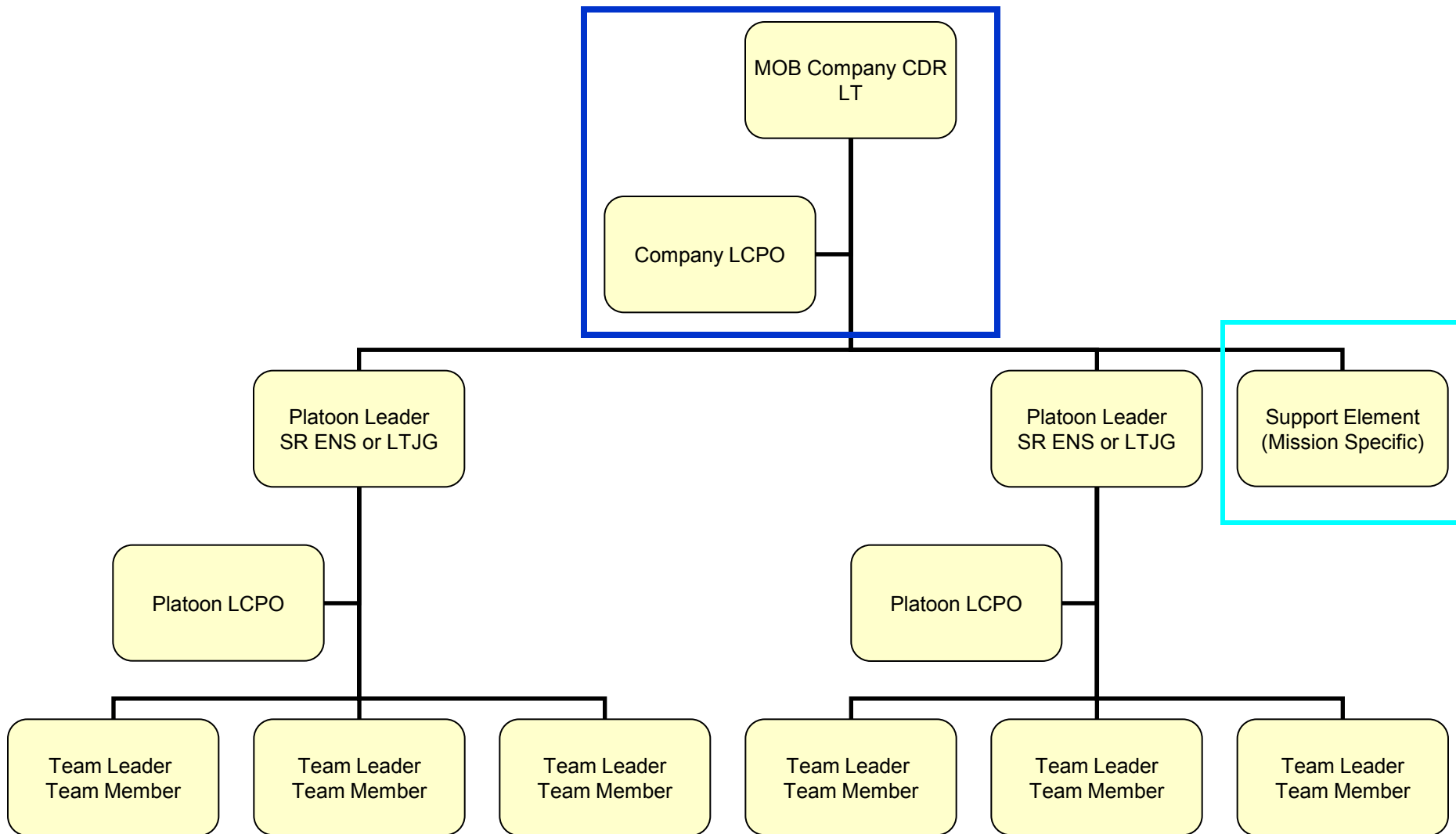
- ACTIVE CONUS
- ACTIVE O-CONUS
- NRF EOD (CONUS)

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Tactical Unit Of Action

MOBILE Company/Platoon Structure

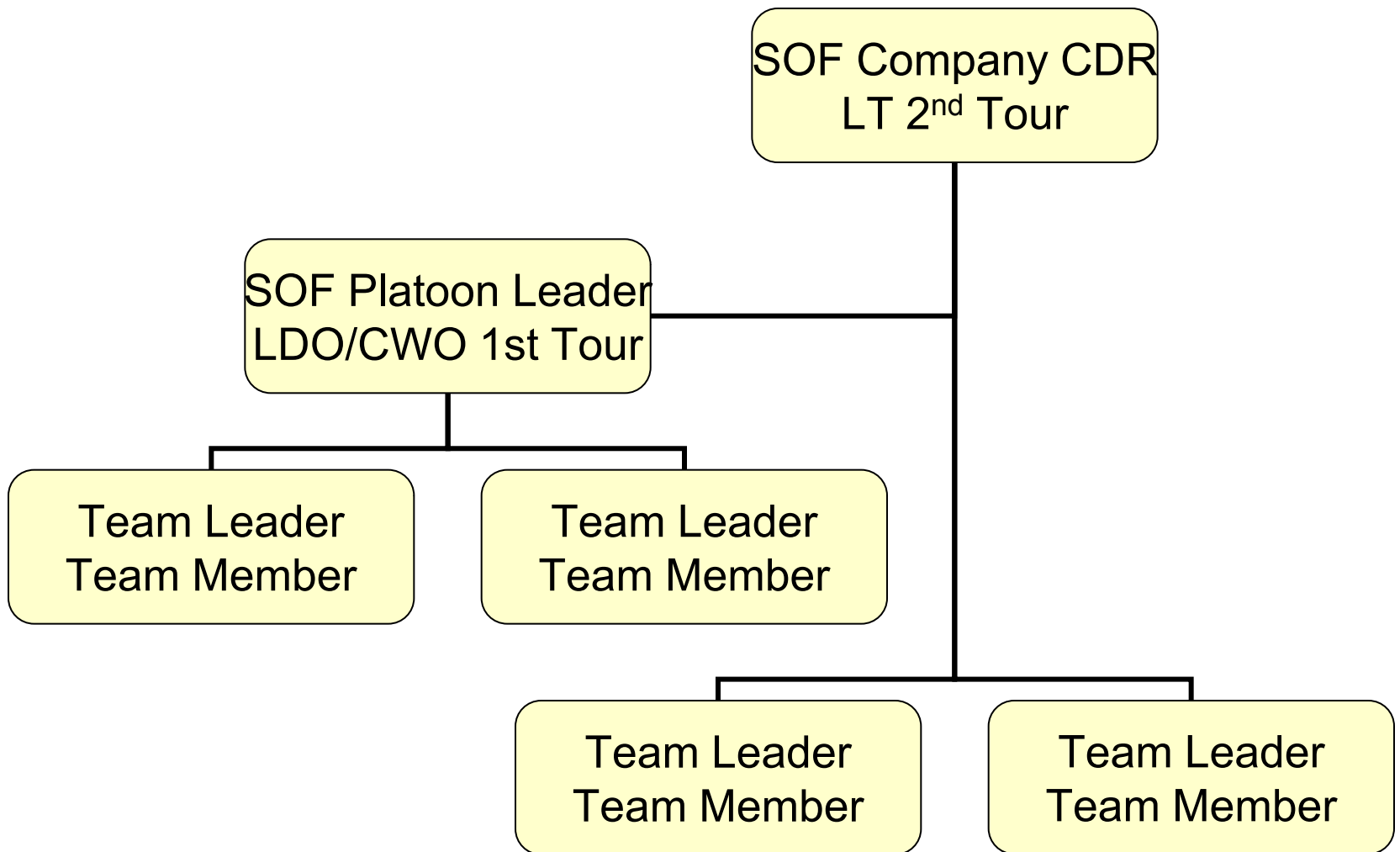


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Tactical Unit Of Action

SOF Company Structure

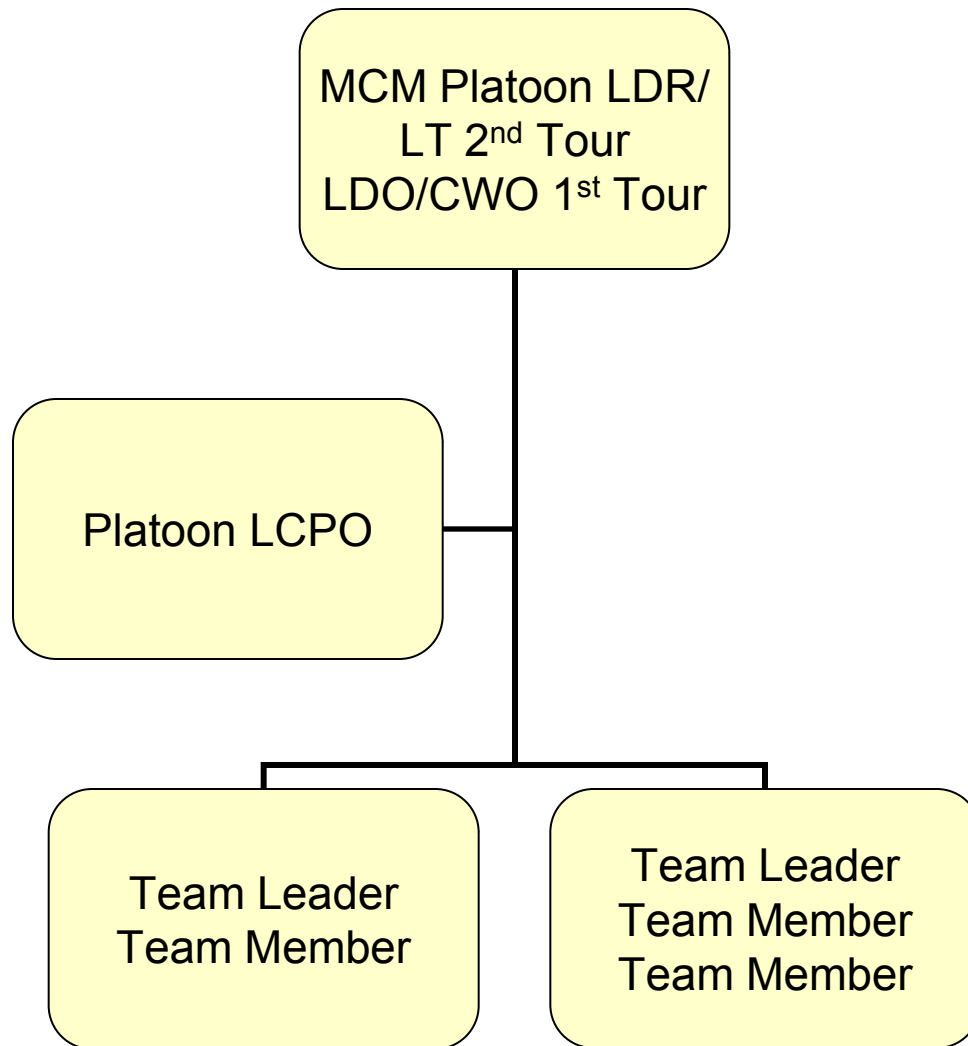


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Tactical Unit Of Action

Mine Counter Measures Platoon



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Enlisted Accessions and Retention

- ***Accessions Requirement***
 - ***FY10 Total Accession goal is 383 to meet 135 graduates***
 - ***From Accession to Fleet is a Minimum of 85 weeks***
 - ***Projected manning in FY 12 85% of requirement***
- ***Retention***
 - ***Force Shaping tools***
 - ***Selective Re-enlistment Bonus (SRB)***
 - ***Critical Skills Retention Bonus (CSRB)***
 - ***Special Duty Assignment Pay (SDAP)***

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Key EOD Force Initiatives

- **Improving Health of the Force**
 - Implement (4:1 FRTP)
 - At best, current FRTP is 3:1 with mitigations in place
 - Potentially growing 8 additional EOD Platoons
 - *Will increase 5337 qualification rate*
- **Implemented 12 week Training for PLTS**
 - Advanced focused training increases readiness

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Statistics and Highlights

- **Over 3500 Combat Missions in 2009**
 - Over 400 Combat Awards
 - 2 Silver Stars
 - 42 Purple Hearts
- **Navy EOD supporting the Surge in OEF**
 - EOD GROUP (Task Force Troy)
 - Platoons
 - Battalion
- **High Demand Low Density Asset**
 - One of the highest OPTEMPO's in U.S. Navy

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Where We Need Your Help?

Unmanned Systems

- *UUV/UAV/Ground Robotics communications enhancement*
- *Underwater vehicle sensor and neutralization technology*
- *Energy Efficiency*
- *Ground Robotics advancements*
 - *Reduce time-on-target*
 - *Light weight systems for agile, dismounted ops without capability loss*
 - *Enhance manipulation capability*
 - *Extend operation life with advancements in power generation/supply*



Personnel Protection

- *Ultra light and agile body armor*
- *Next generation bomb suit technology*



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Where We Need Your Help? Continued

Standoff Detection and Disruption

- *Determine the threat before going into harms way*
- *Enhance survivability*
- *Defeat the Network**
- *Spectrum of Effects: Non-kinetic, low-order, high-order neutralization*



Forensics

- *Radiographic systems*
- *Post Blast investigation*
- *Wireless transmission/reception**



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**Today's Knights may wear a different suit of armor...but they
have the same Honor, Courage and Commitment**



CDR Gene Rathgeber

(619) 522-7501

eugene.rathgeber@navy.mil

U.S. Navy Explosive Ordnance Disposal

Headquarters U.S. Air Force

Integrity - Service - Excellence

USAF EOD State of the Service Brief

**Year of the Air Force
Family**



**Lt Col Richter
A7CXR**



- **USAF EOD Program**
 - “Who We Are”
 - “Where We Are”
 - “What We’ve Done”
- **Challenges**
- **Successes**
- **Remembering**
- **Questions**





AFPD 32-30 ***EOD Program***

- **Governing policy directive for AF EOD program**
- **Organized as EOD flights under the Civil Engineer Squadron**
 - **Follows the typical AF Wing, Group, Squadron and Flight structure**
- **Nine primary mission areas:**
 - **Aerospace Platform response (combat, cargo, and Space Launch Vehicles)**
 - **Force Protection**
 - **WMD response**
 - **Nuclear**
 - **UXO response**
 - **Range Clearance**
 - **Port Mortuary**
 - **Support to Civil Authorities/VIPPSA**
 - **Training**



Explosive Ordnance Disposal ***Who We Are***

- **One of the most stressed career fields**
- **Maintain ~ 230 specialized equip UTCs**
- **Deployed and sustain ~ 100 theater UTCs**
- **Primary missions**
 - **Support combat aircraft sortie generation, nuclear stockpile, aerial ports and force protection**
- **Secondary missions**
 - **Provide EOD tactical and operational expertise to joint force/SOF and partnering nations**
- **Improvised Explosive Device growth as weapon of choice for insurgents has increased demand for EOD**
- **Irregular Warfare and Counter-Insurgency conflicts have highlighted shortage of CIED enablers**
- **Joint Force Doctrine changing to reflect expanding EOD/CIED requirements**





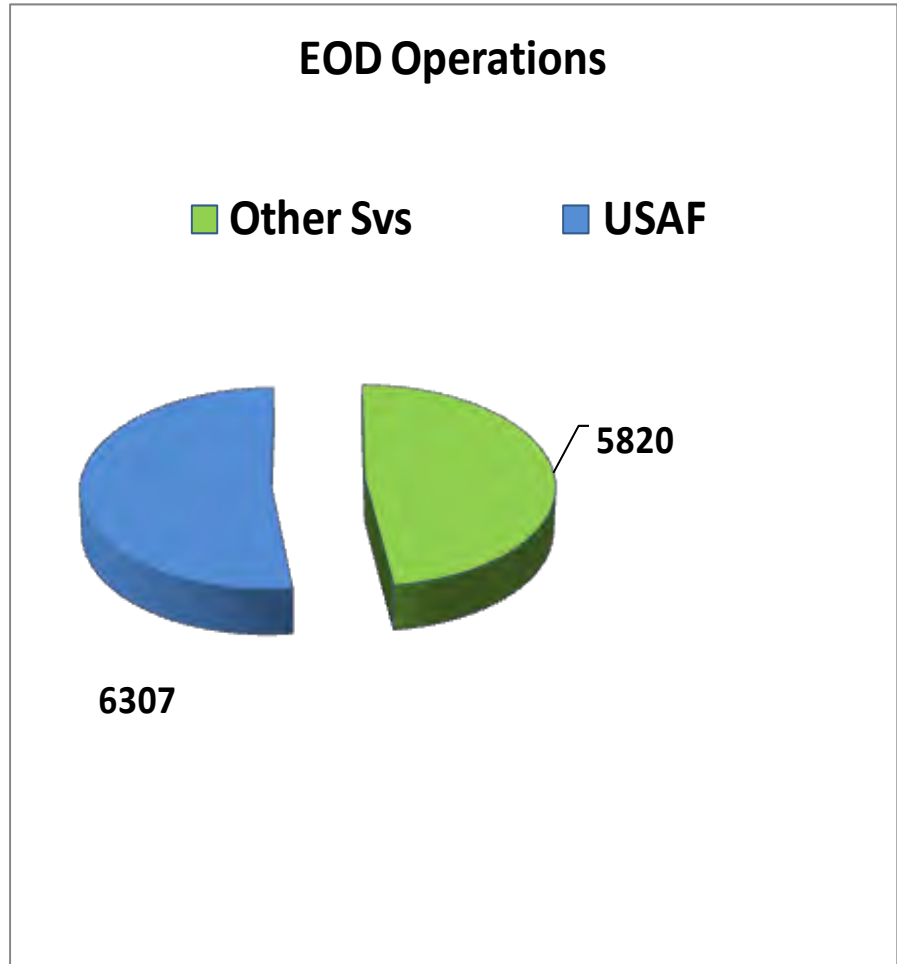
Explosive Ordnance Disposal Where We Are

- 74 CONUS/OCONUS bases (total force)
 - Five flights supporting EUCOM Commander priorities
 - Eight flights supporting PACOM Commander priorities
- CENTCOM: ~ 33 locations in Afghanistan/Iraq, 5 locations outside
 - ~ 130 deployed in Afghanistan
 - Largest presence in RC-S with almost 75% of EOD force
 - Over 50% of EOD force in theater the last two years
 - ~ 110 deployed in Iraq
 - Significant reduction expected by end of year
 - ~ 30 at Air Expeditionary Wings (AEW) and Groups (AEG) outside combat theater



EOD Operations OEF/OIF (1 Jan 09 - Pres) What We've Done

- Missions Consists of:
 - Improvised Explosive Device
 - Route Clearance
 - Cache
 - Post Blast
 - Unexploded Ordnance (UXO)
 - Enemy Attack
 - Explosive Remnants of War



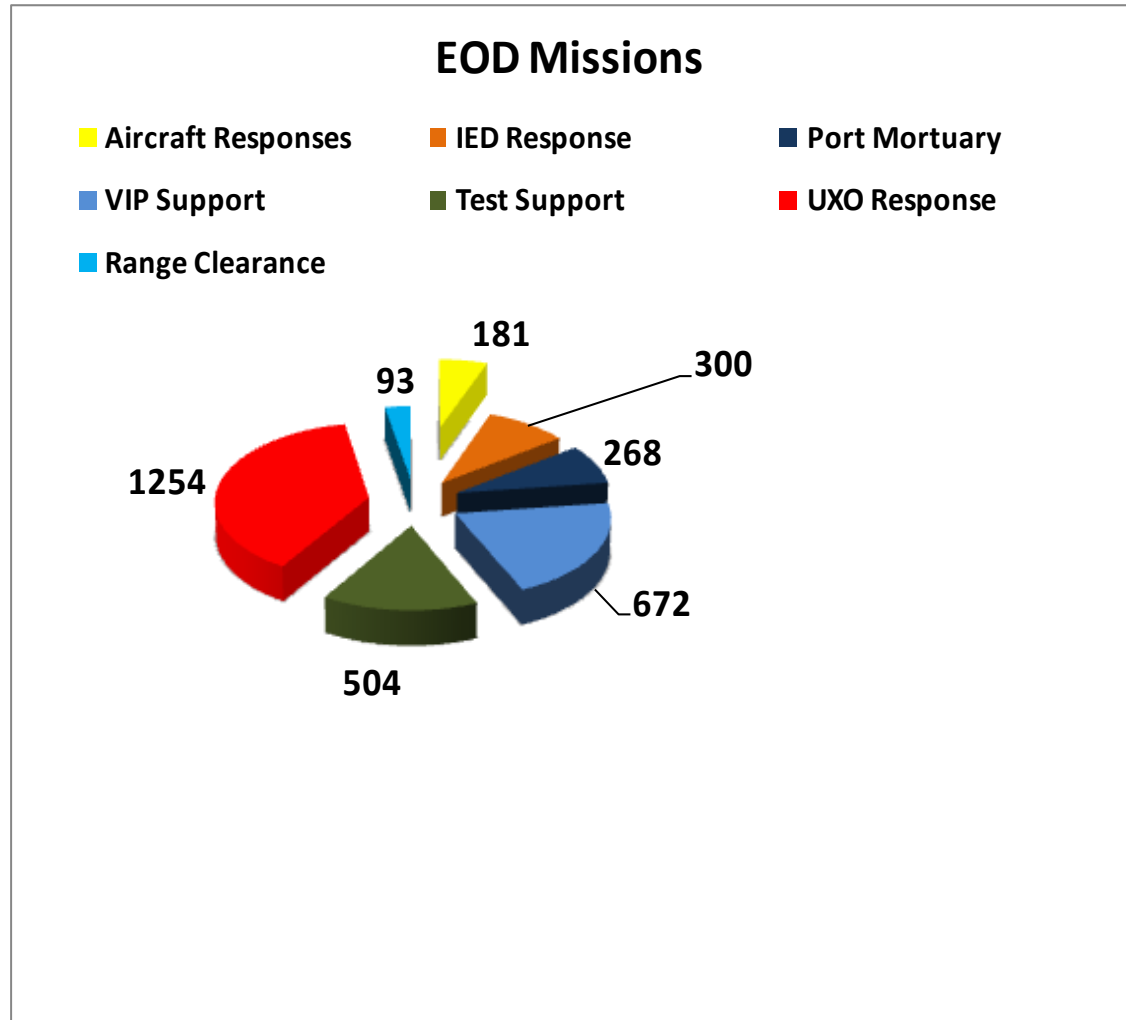
Information derived from various sources



EOD Operations (1 Jan 09 - Pres) What We've Done Outside Theater

■ Nine Mission Areas

- Aircraft response
- Force Protection
- WMD response
- Nuclear
- UXO response
- Range Clearance
- Port Mortuary
- Support to Civil Authorities/VIPPSA
- Training



Information derived from USAF EOD Information Management System



USAF EOD Challenges

- **NAVSCOLEOD Attrition**
 - **Emotion Quotient Inventory (EQ-i)**
 - **Moving Prelim course from Lackland AFB to Sheppard AFB**
 - **Physical Assessment Skills Test**
 - **2AF considering placement of EOD accessions in newly developed Battlefield Airman BMTS**

- **Retention**
 - **Increased Promotions--chronic critical skills plus-ups**
 - **Increased Selective Reenlistment Bonuses (SRB)**
 - **Special Duty Assignment Incentive Pay (SDAP)**
 - **1299 auth - 970 assigned (75%)... {56 women assigned ~4%}**

- **Nuclear Support and Global Strike Command**

- **Balancing Home Station Support with Deployed JFC Support**



USAF EOD Successes

- **Combat Battlefield Ready Airman Course**
- **Contract Technical Support**
- **MRAP and M-ATV Fielding**
 - **105 MRAP CAT I and II fielded since Jan 08 (AF EOD Variant)**
 - **48 M-ATV being fielded with CROWS II**
- **Joint Robotics Repair Facility**
- **Transformation**
 - **Incorporating in CE Doctrine**
 - **EOD Vision 2020**





TSgt Walter M. Moss Jr.
29 March 2006
Baghdad, Iraq



MSgt Brad A. Clemmons
21 August 2006
Taji, Iraq



SrA William N. Newman
7 June 2007
Balad, Iraq



TSgt Anthony L. Capra
9 April 2008
Balad, Iraq



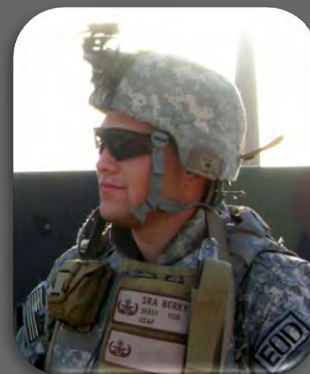
Capt Kermit O. Evans
3 December 2006
Baghdad, Iraq



TSgt Timothy R. Weiner
7 January 2007
Baghdad, Iraq



TSgt Phillip A. Myers
4 April 2009
Bastion, Afghanistan



SSgt Bryan D. Berky
12 September 2009
Farah, Afghanistan



SrA Daniel B. Miller Jr.
7 January 2007
Baghdad, Iraq



SrA Elizabeth A. Loncki
7 January 2007
Baghdad, Iraq



TSgt Anthony C. Campbell
15 December 2009
Helmand, Afghanistan



TSgt Adam K. Ginett
19 January 2010
Kuhak, Afghanistan





Questions



United States Marine Corps Explosive Ordnance Disposal



LtCol Marc Tarter



EOD Mission



To support Marine operating forces, national security strategy, and force protection by locating, accessing, identifying, rendering safe, neutralizing, and disposing of hazards from foreign and domestic, conventional, chemical, biological, radiological, nuclear, and high yield explosives (**CBRNE**), unexploded explosive ordnance (**UXO**), improvised explosive devices (**IEDs**), and weapons of mass destruction (**WMD**) that present a threat to operations, installations, personnel, or materiel. (MCRP 3-17.2C)

Note: USMC EOD units are authorized to conduct field disassembly and inerting operations for the purpose of exploitation and intelligence gathering.



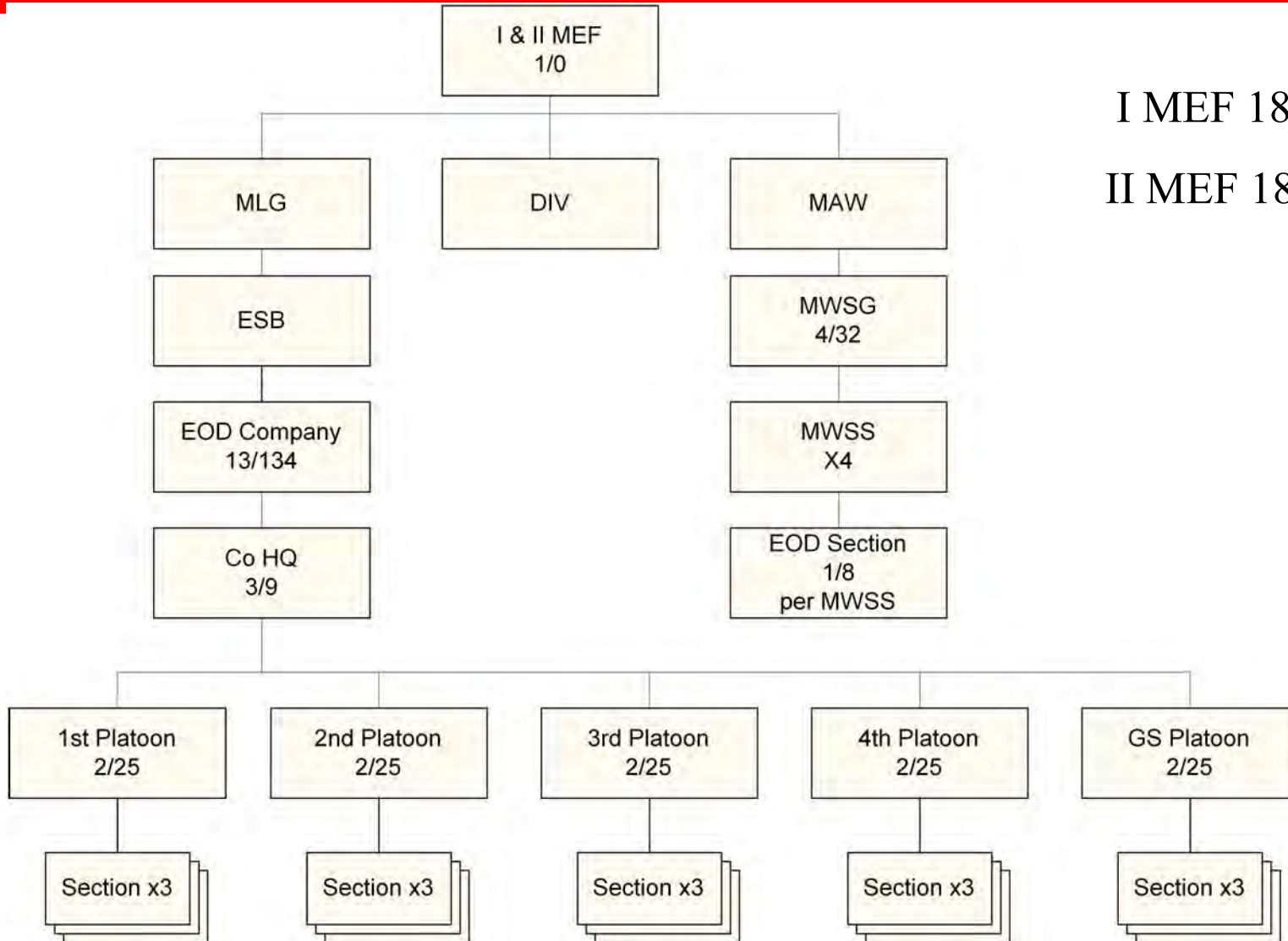
MAGTF 101



- Marine Corps deploys expeditionary forces that fight on a combined arms concept. These forces are called Marine Air Ground Task Forces (MAGTF'S).
- MAGTF Composition
 - Command Element
 - Ground Combat Element
 - Air Combat Element
 - Logistics Combat Element



Current I & II MEF EOD T/O

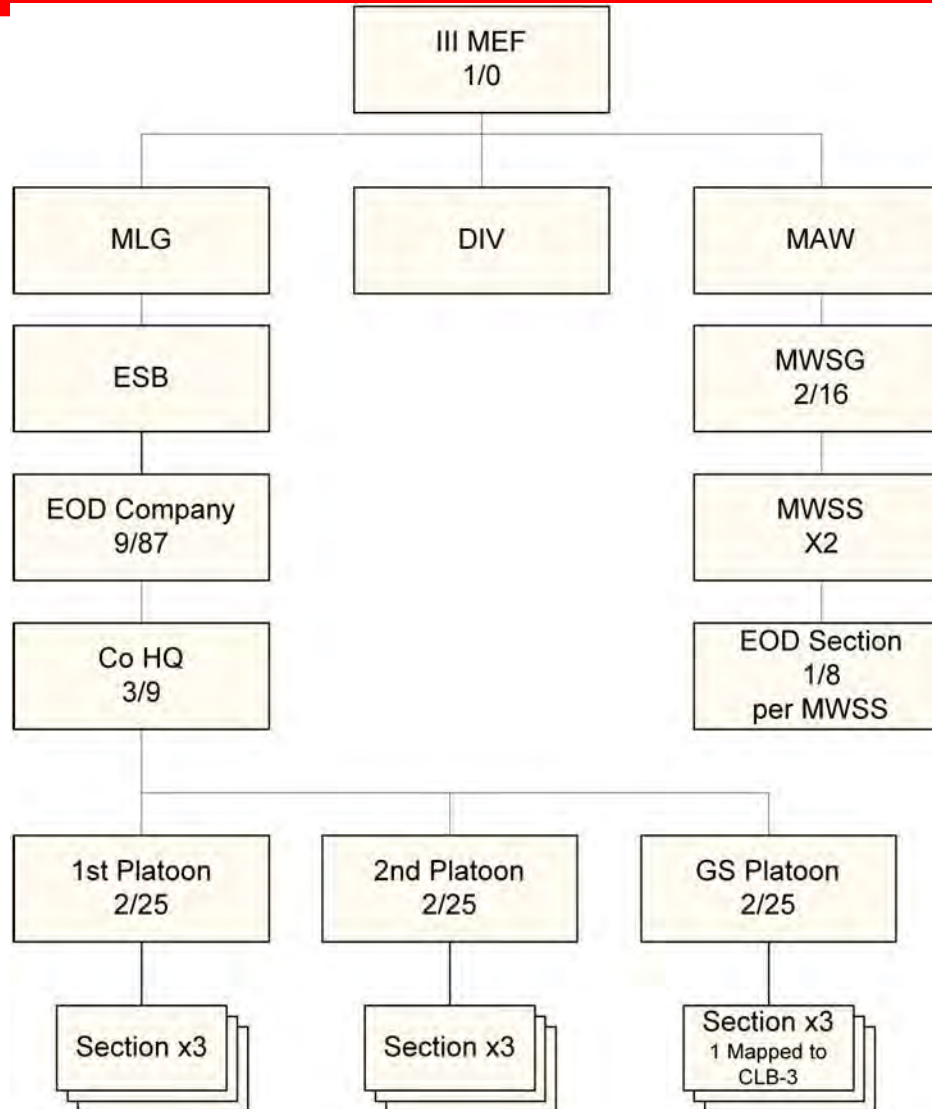


I MEF 18/166

II MEF 18/166



Current III MEF EOD T/O



III MEF 12/103



EOD Company Standup



- EOD Company activated within in each MLG - 1 Oct 2009.

CAMP LEATHERNECK, Afghanistan-
Capt. Timothy M. Callahan, Commanding
Officer of EOD Company unfurls the
company guidon.





Company Concept of Employment



- EOD Company Concept of employment:
 - Organized to provide command and control for EOD operations in support of the MAGTF.
- Structure
 - EOD Company:
 - Each Platoon manned and equipped IOT support a Regiment not conducting Distributed Operations (DO).
 - Two Platoons (or more) are required for a Regiment conducting DO.
 - EOD Platoon:
 - Three sections per Platoon
 - Each section manned and equipped IOT support a Battalion non-DO.
 - Two sections (or more) are required for a Battalion conducting DO.
- Based on mission requirements, EOD section can be reinforced or divided into task-organized response elements



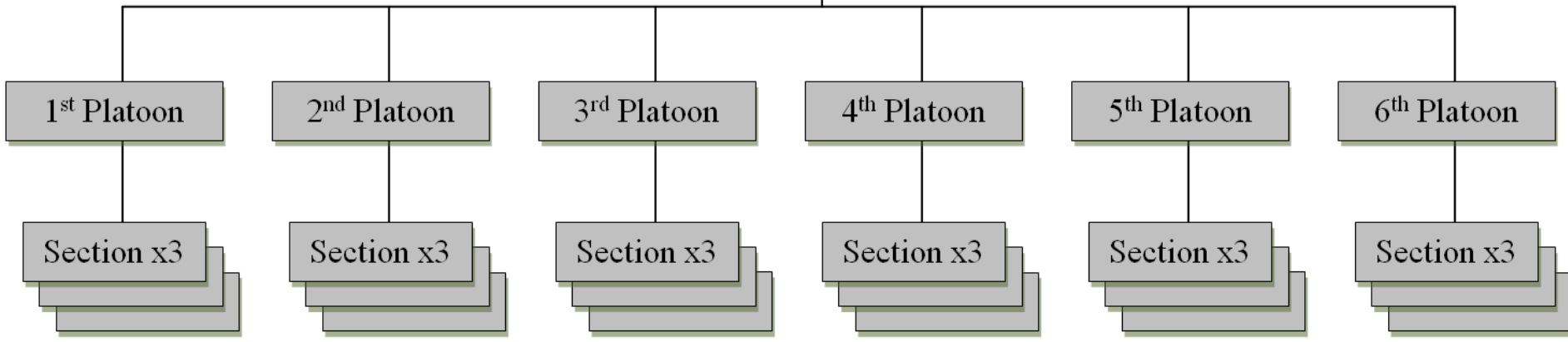
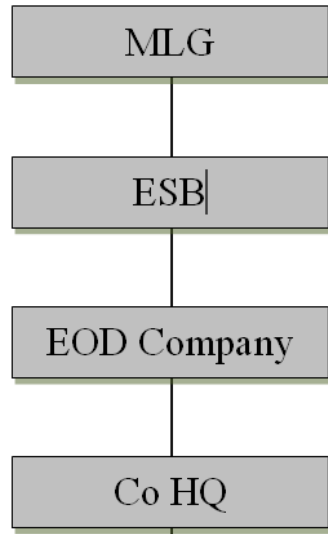
Proposed EOD Company I, II and III MLG with 202K CAR increase



Mirror Image 3 EOD Companies

Company T/O
15 / 160

Designated Direct Support EOD
Platoon per Infantry Regiment





EOD Base / Station Missions



- Base/Station EOD teams are tasked with the full spectrum of Force Protection / Anti-Terrorism / Homeland Defense missions
 - 24 hr Emergency IED/WMD/UXO/Crash response.
 - On & off Base
 - 1st Responder Agreements w/ local municipalities
 - Routine base support





Other EOD Missions



- Department of Homeland Defense
 - FBI
 - ATF
 - TSA
 - USSS
- State and Local agencies
- Technical Support
 - Other Agencies





MARSOC EOD



- EOD is organic to MARSOC
- Supports all missions;
 - Direct Action (DA)
 - Special Reconnaissance (SR)
 - Foreign Internal Defense (FID)
 - Counterterrorism (CT)
 - Unconventional Warfare (UW)
- Two -Four EOD personnel deployed per MSOC, plus CJSOTF requirements





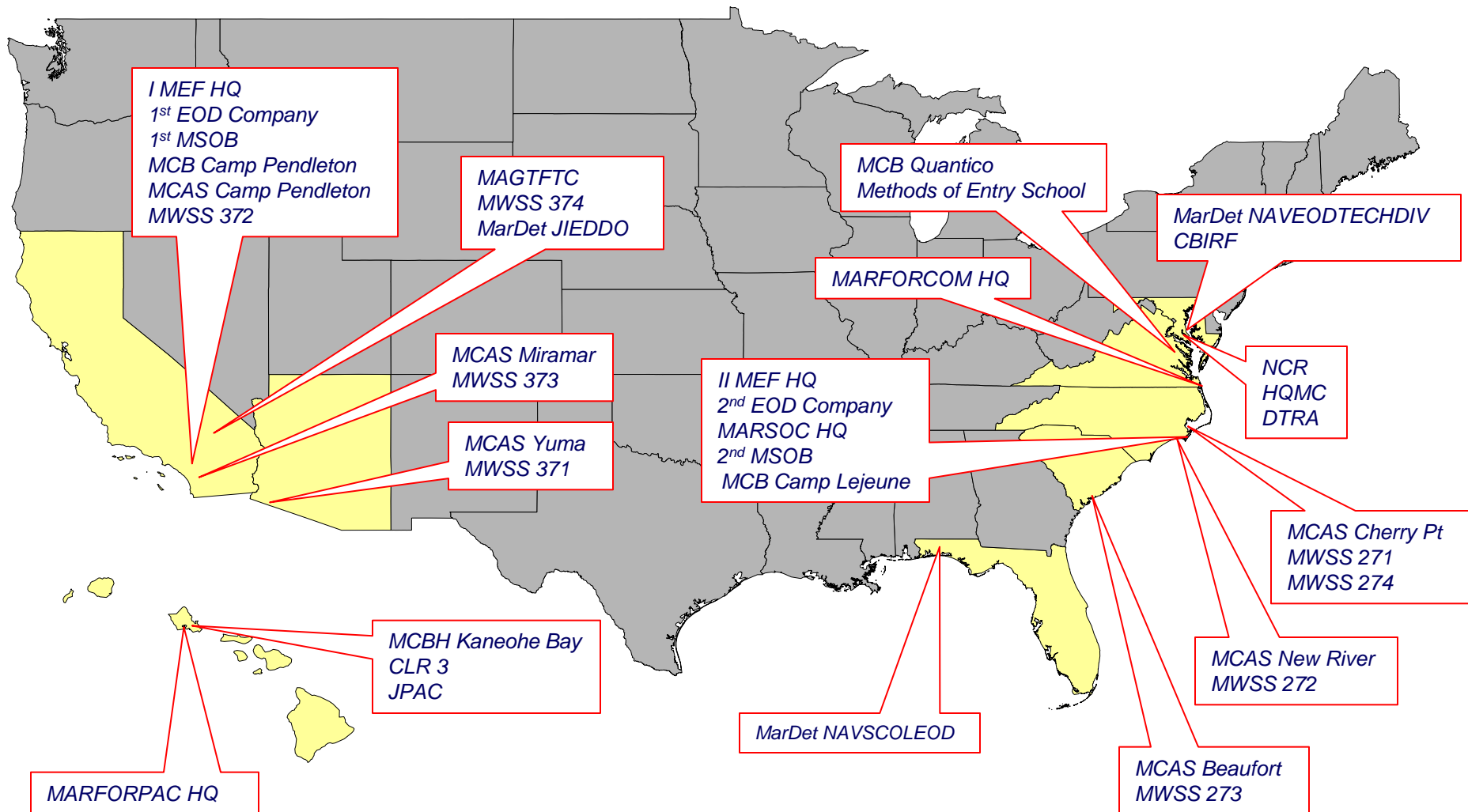
Current EOD Support Operations



- Afghanistan (Over 100 EOD personnel per rotation)
- Iraq (Task Force Troy - CEXC)
- Seven standing MEUs (1/8 EOD personnel per MEU)
- Continuous VIPPSA missions (POTUS, DOS, etc.)
- Joint POW/MIA Accounting Command (JPAC)

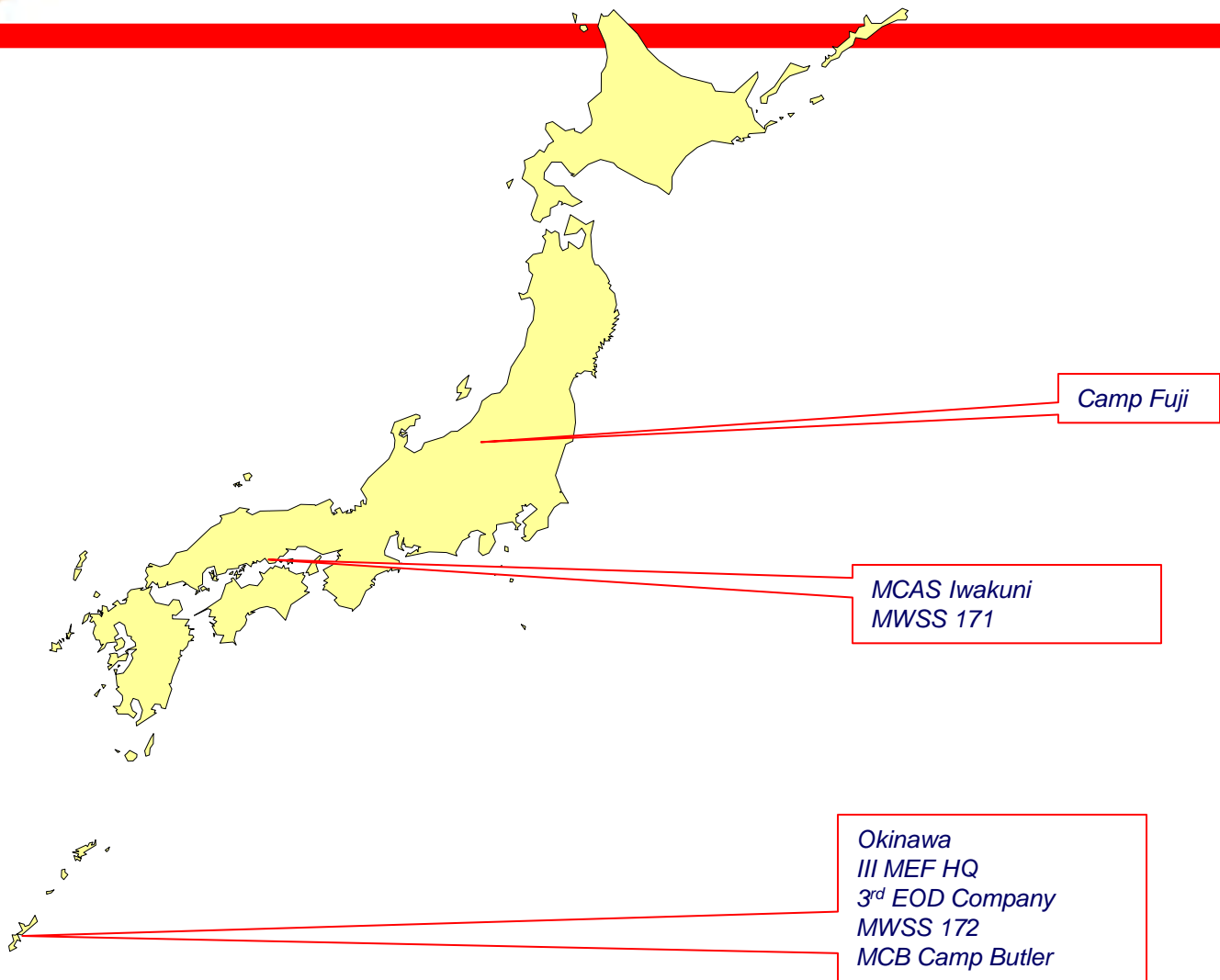


Locations





Locations (Cont)

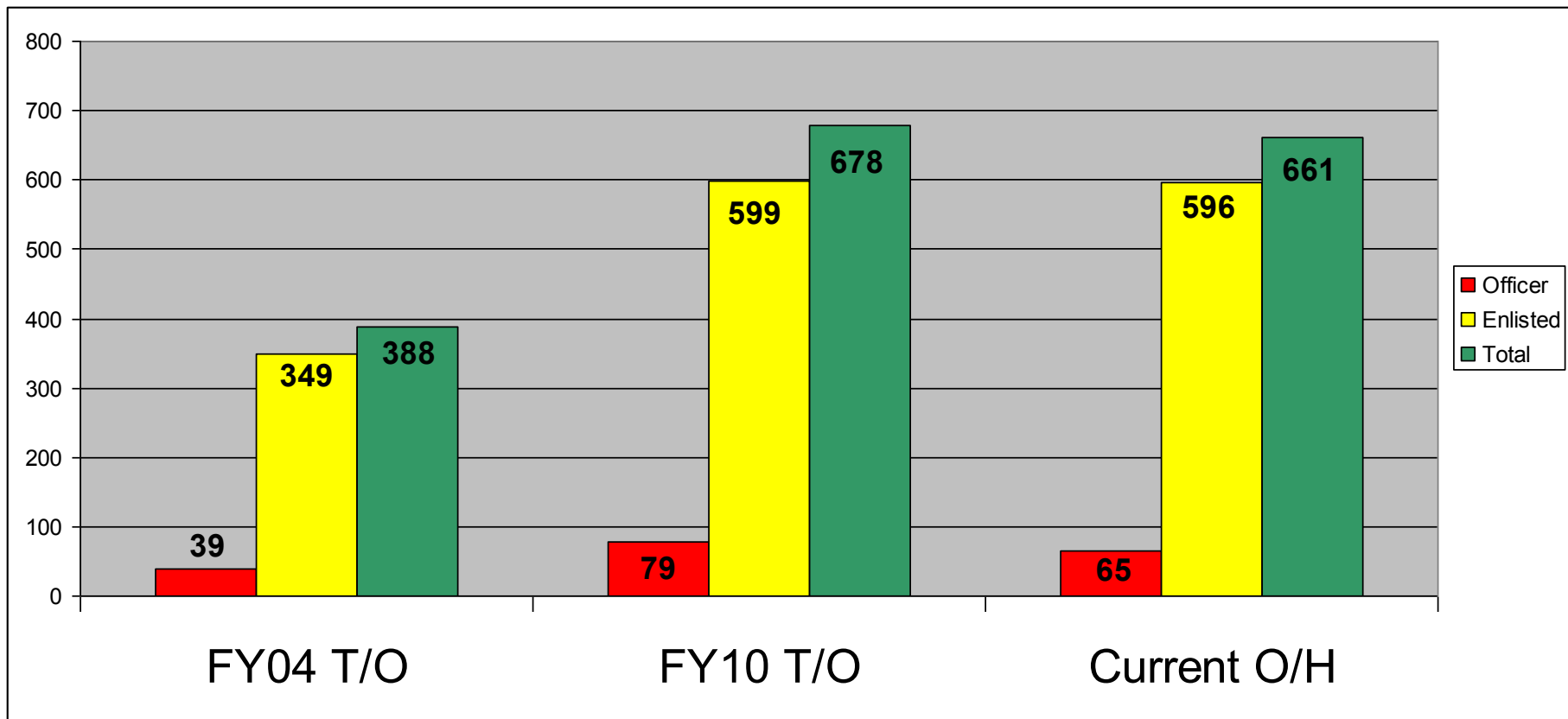




EOD Manpower Increases



- EOD strength increased several times since 2004 (FSRG 2004, MARSOC, and 202K Grow the Force)





Requirements to become an EOD Technician



- Must be a Cpl or Sgt. (Not selected for SSgt)
- 21 Years of age.
- GT score of 110 or above.
- Physically Fit (1st Class PFT / CFT)
- Bomb Suit Agility Test
- Be eligible for a security clearance based on an SSBI.
- Be interviewed, screened and recommended by a Marine Corps EOD SNCO & Officer.
- For complete list of requirements see MCO 3571.2_





Who we have (Enlisted)



- Sgt – MGySgt.
- Cpl's promoted to Sgt w/ minimum TIG (Normally at School)





Who we have (Officer)



- LDO Capt – LtCol
- WO – CWO5
- All officers were enlisted EOD Technicians
- No Unrestricted Officers





Initiatives impacting EOD



- Company growth
- Pacific lay down
 - Guam
 - Okinawa
 - Hawaii
- MARFORSOC (EOD growth)
- Advanced USMC EOD Training Center





Questions

