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## Protecting the Warfighter

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IP / DECON / CP Conference  
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# Outline

- **Threat**

- **US Strategic Planning**

- **Response**



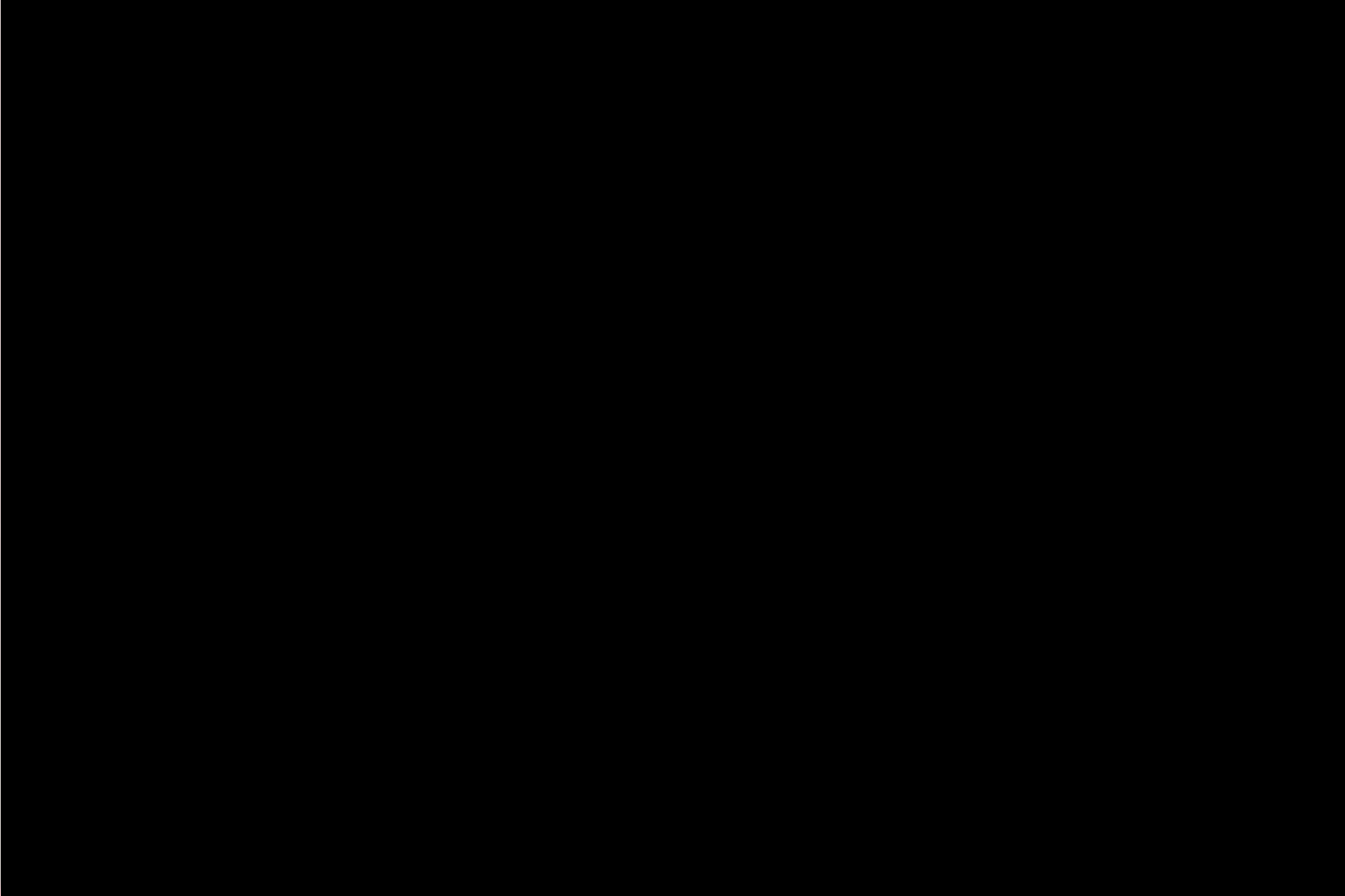


# The Way We Were...





# THE THREAT IS REAL



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# 'Key Judgments' on Terrorist Threat to US

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**“We Assess that Al Qaeda Will Continue to try to Acquire and Employ Chemical, Biological, Radiological, or Nuclear Material in Attacks and Would Not Hesitate to Use Them if it Develops What it Deems is Sufficient Capability.”**

**- *July 2007 National Intelligence Estimate on “The Terrorist Threat to the U.S. Homeland”***

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***“It’s clear the United States and our allies will continue to be threatened by violent extremists, almost always operating in countries with which we are not at war. The ambition of these networks to acquire chemical, biological, and nuclear weapons is real, as is their desire to launch more attacks on our country and on our interests around the world.”***

**Robert M. Gates – July 2007**  
United States Secretary of Defense

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# National Response – Policy and Guidance

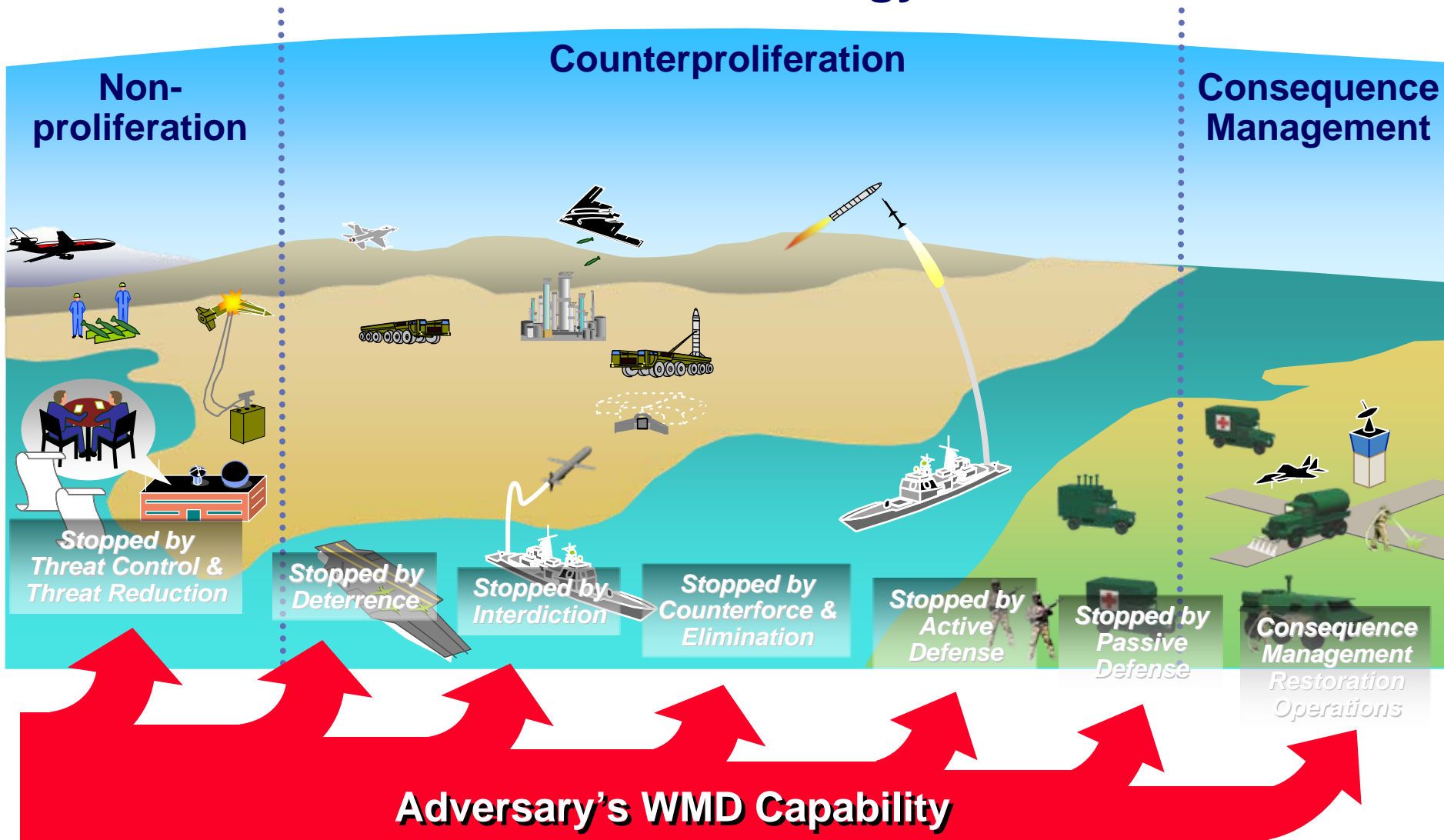


- **National Strategy to Combat Weapons of Mass Destruction Articulates a Strategy Built Upon the Three Pillars of Nonproliferation, Counterproliferation, and Consequence Management**
- **National Security Strategy (NSS) – “Prevent our Enemies From Threatening Us, Our Allies, and Our Friends with Weapons of Mass Destruction**
- **National Military Strategy to Combat WMD (NMS-CWMD) Amplifies the Strategy in the NSS and Provides a Framework for Combating WMD to DoD Components**
- **2006 Quadrennial Defense Review Report Identifies Four Priorities: Defeat Terrorist Networks, Defend the Homeland, Shape Choices of Countries at Strategic Crossroads, and Prevent Acquisition or Use of WMD**



# Layered Defense Approach

## National Strategy







# Military Mission Areas

**Mission: Dissuade, deter, defend against and defeat those who seek to harm the United States, its Allies and partners through WMD use or threat of use, and, if attacked, mitigate the effects and restore deterrence.**

*Enemy capable of WMD use, threat of use or subsequent use*

*Enemy uses WMD*

## Defeat, Deter

- ◆ Offensive Operations
- ◆ WMD Elimination
- ◆ Active Defense
- ◆ Passive Defense
- ◆ WMD Interdiction

## Defend, Respond, Recover

- ◆ Passive Defense
- ◆ Active Defense
- ◆ WMD Consequence Management

**Detection  
Intelligence**

- ◆ Offensive Operations
- ◆ WMD Interdiction
- ◆ Security and Cooperation and Partner Activities

- ◆ Threat Reduction Cooperation

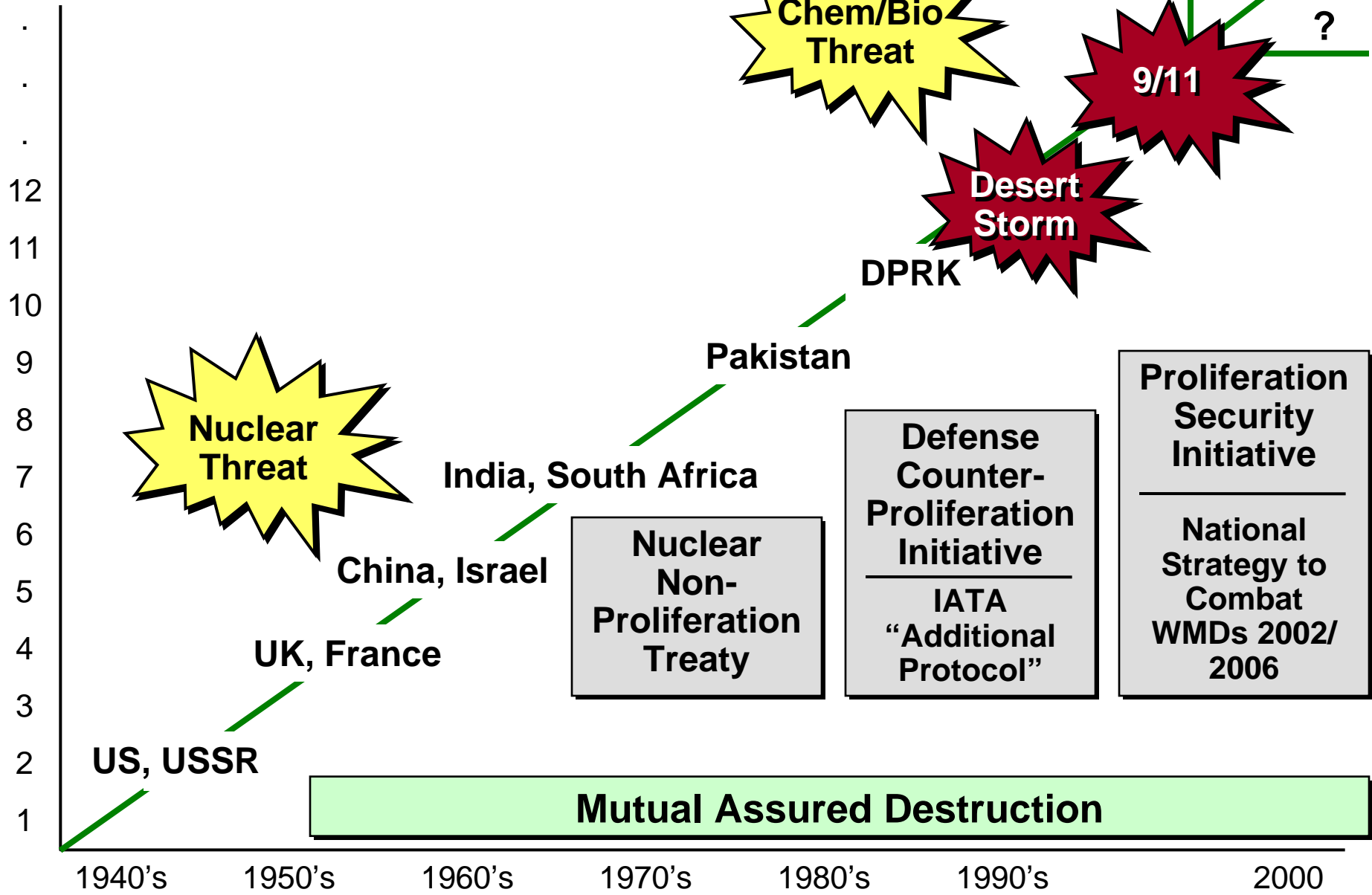
## Prevent, Dissuade, Deny

*Enemy capable of WMD use, threat of use or subsequent use*

## Reduce, Destroy, Reverse

*Others agree to secure or destroy WMD*

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# An Unbounded Problem?

- **No Clear Enemy**
- **No Front Line**
- **No Set Definition of Victory**

**Success is Measured by Things That “Don’t Happen”**





# Where Does the Military Fit?





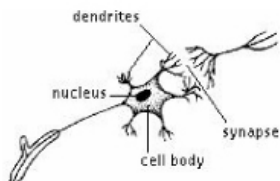
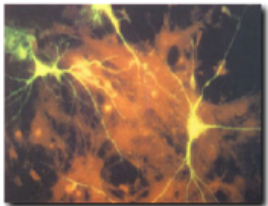
# The Changing Nature of the Threat

## Commercial Chemical Compounds

Phosgene, Chlorine, Chloropicrin

Mustard (H) Agents, Lewisite

## Cholinesterase Inhibitors



Tabun (GA)

G Agents (GB, GD, GF)

V Agents (VX)

Next Generation Agents

"Classical" Biological Agents

Bioregulators

Genetically Modified Agents

Advanced Biological Agents



1910 1920 1930 1940 1950 1960 1970 1980 1990 2000



# Implications of Evolving Threat on Protection and Decontamination

## EVOLVING THREAT

- **Wide Range of Potential Agents**
- **Battlefield, Forward/ Rear Bases, CONUS/ OCONUS Installations all Targets of Asymmetric Attack**
- **Generally Smaller Attacks, Some TIC Releases Potentially Large**

## CAPABILITY IMPACTS

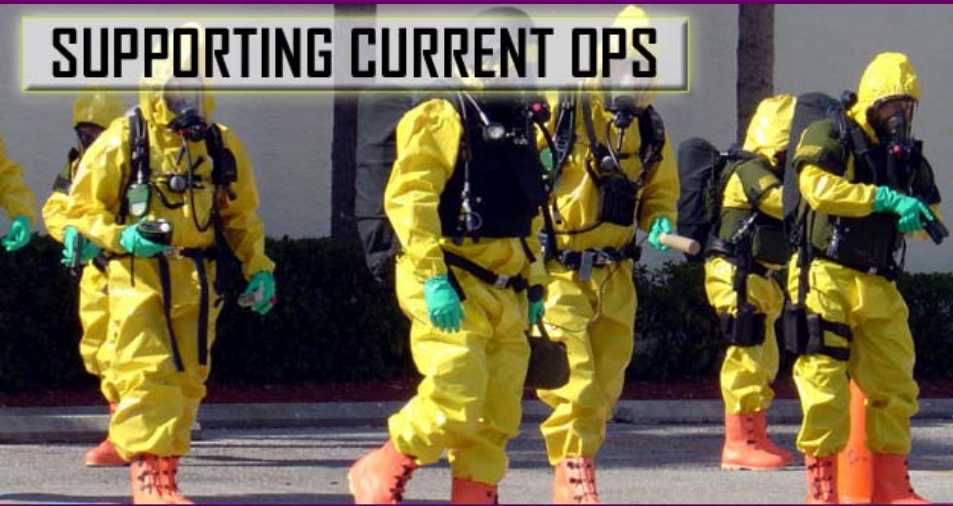
- **Broad Spectrum Protection**
  - **Toxic Industrial Chemical/ Toxic Industrial Material (TIC/ TIM)**
  - **Pre-treatments**
  - **Novel Agents**
- **Integrate Protection Capability Across DoD, Not Just Tip of the Spear**
- **Civil-Military Integration**
- **Shorter Duration Protection**





# Capabilities Protecting the Warfighter

**SUPPORTING CURRENT OPS**



**IMPROVING FIELDIED SYSTEMS**



**DELIVERING WARFIGHTING CAPABILITY**

*(Best Technology - Right Place and Time)*

**BUILDING THE FUTURE**





# Individual Protection Fieldings



**Joint Service Chemical Environment  
Survivability Mask (JSCESM)**



**Joint Service General Purpose  
Mask (JSGPM)**

**Improved Fit, Increased TIC Capability, Reduced Burden**





# Individual Protection



**Joint Service Lightweight Integrated Suit Technology (JSLIST)**

- *Universal Camouflage Pattern*
- *Type II: Most Application*
- *Type VII: Special Ops*



**Joint Service Mask Leakage Tester (JSMLT)**



**JSLIST Block 2 Glove Upgrade (JB2GU)**  
*(24 hours of protection / up to 30 days of wear)*



**Alternative Footwear System (AFS)**

**Integrated Footwear System (IFS)**



- **Increased Durability**
- **Reduced Weight and Improved Fit**
- **Enhanced Suit Closures and Higher Confidence**
- **Reduced Heat Stress by 15%**





# Decontamination Fieldings



**Lightweight Multipurpose  
Decontamination System  
(LMDS)**

**Replaces  
M17**

**Army ONS – Modified COTS Interim Capability Prior to  
Joint Service Transportable Decontamination –  
Small Scale**



# Joint Service Transportable Decontamination System – Small Scale (JSTDS-SS)

## Transportable Decontaminates:

- Tactical Vehicles
- Crew-served Weapons
- Small Aircraft
- Shipboard Surfaces
- Limited Facilities and Terrains



**Joint Service Transportable  
Decontamination System – Small  
Scale (JSTDS-SS)**



# Joint Service Personnel Decontamination System (JSPDS)



**Reactive Skin Decontamination Solution (RSDL)**

**Improved Performance - Increased Capability for Current and Emerging Threats**





# Collective Protection Fieldings (Ongoing and Upgrades)



**Collectively Protected Expeditionary Medical Support System (CP EMEDS)**



**Collectively Protected Deployable Medical System (CP DEPMEDS)**



**Collectively Protected Small Shelter System (CP-SSS)**



**Chemical Biological Protective Shelter (CBPS)**



**Shipboard Collective Protected System (CPS)**





# Challenges



# Challenge: Collective Protection

- **Protect Critical Mission Operations**
- **Technical Challenges**
  - **New Air Purification Technologies that are:**
  - **Modular/ Flexible for Ease Of Platform Integration (e.g., Expeditionary Fighting Vehicle, Future Combat System, Littoral Combat Ship)**
  - **Minimize Footprint Burden to Platforms**
  - **Protect Against Evolving Threat**
  - **Reducing/ Eliminating Consumables**
  - **Ingress/ Egress for Open Hatch Operations**





# Challenge: Mass Casualty Decontamination

How do you go from decontaminating ambulatory, protected Warfighters...



...to hundreds of incapacitated, unprotected civilians?





# Challenge: Building Decontamination

**We need to decontaminate military platforms....**

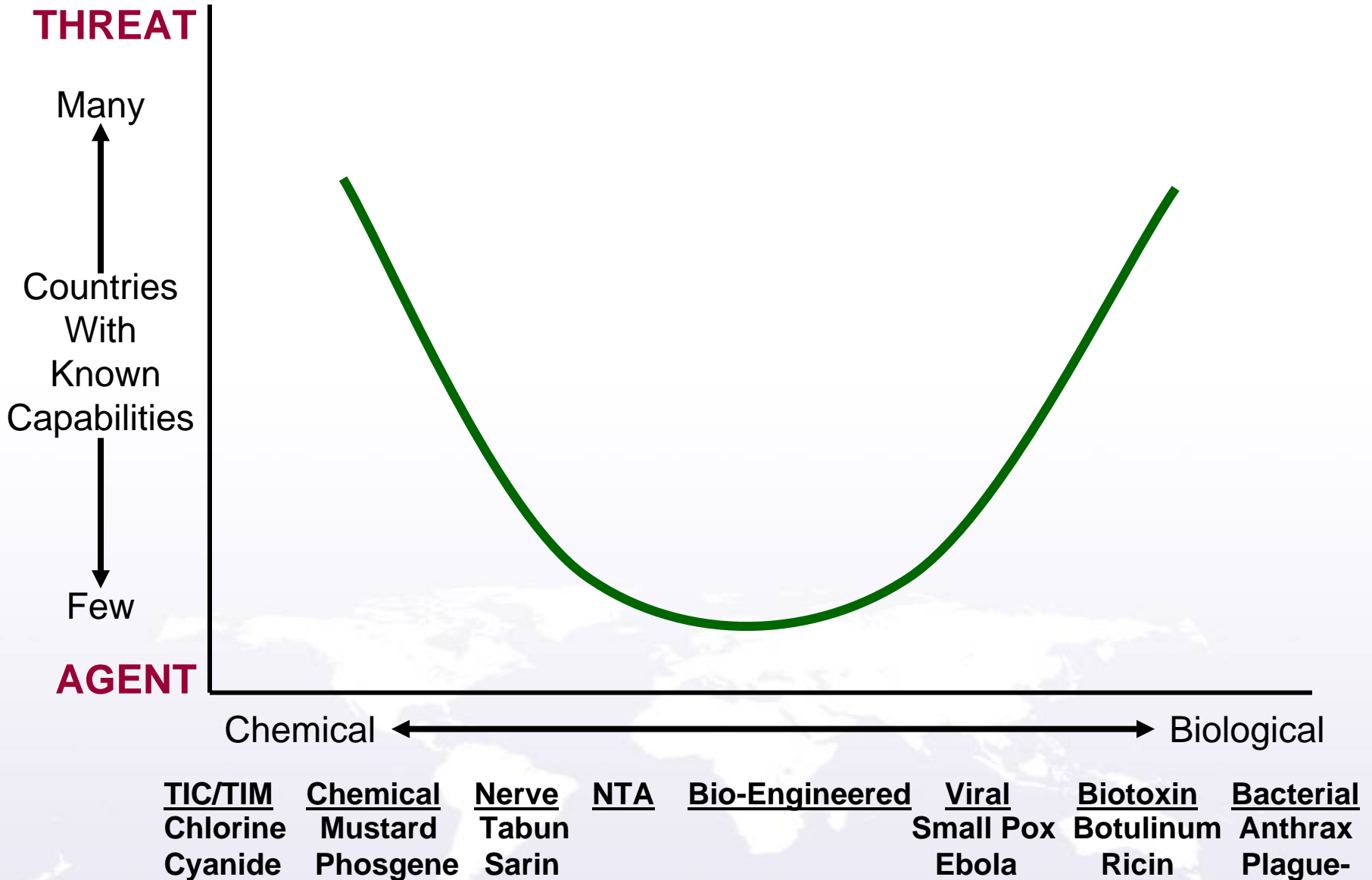


**.... and also civilian buildings**





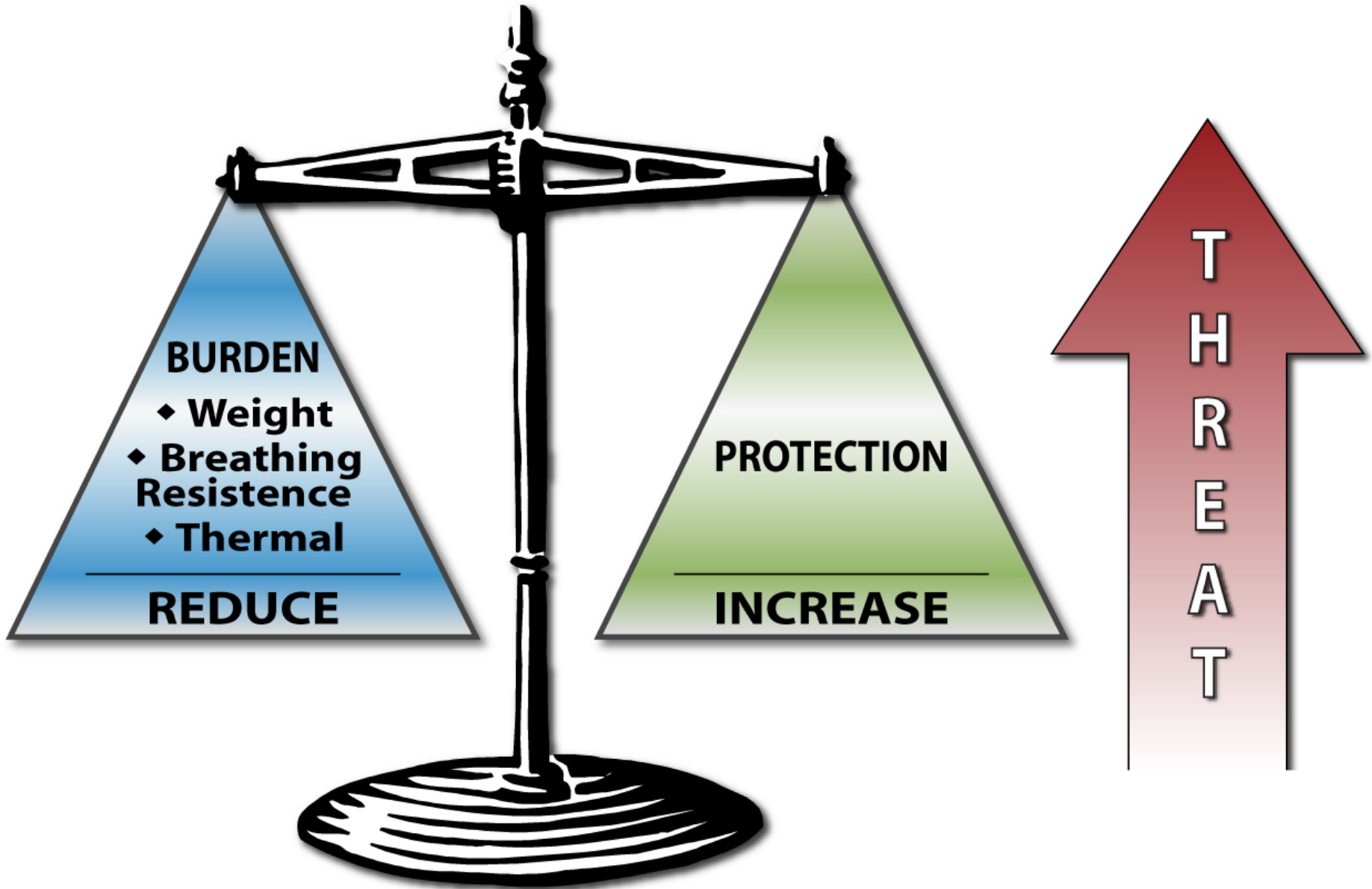
# Challenge: Decontaminants



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# Challenge: Individual Protection



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# Challenge: Individual Protection

FROM THIS...



TO THIS...



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# Building the Future





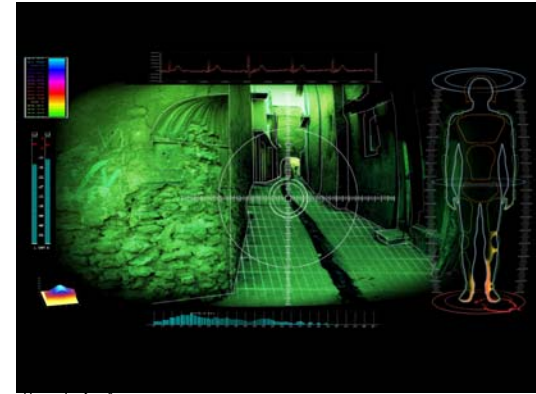


# Integration of Material Research to Achieve Low-Burden Protection

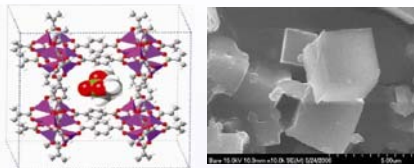
## Individual Protection



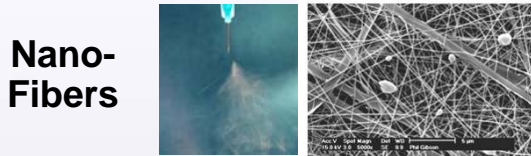
Helmet/  
Respirator  
Integration



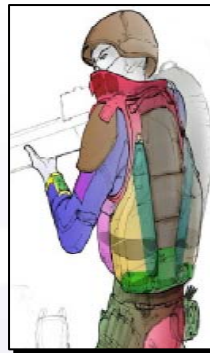
*The Network*



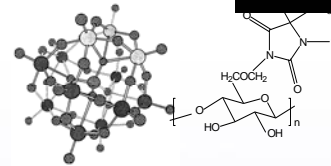
Reticular  
Chemistry



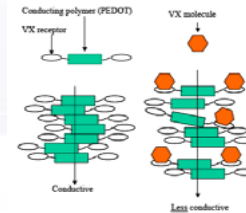
Nano-  
Fibers



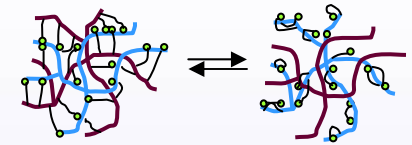
Human  
Performance



Self-Detoxification



Agent Detecting Fibers



Switchable Fabrics

Demonstrate an Integrated Concept in FY2010; Use Thermal Burden as an Independent Variable



# Decontamination Vision

**Reduce Logistics Burden  
Eliminate Hazardous Material (ClO<sub>2</sub>, H<sub>2</sub>O<sub>2</sub>)**

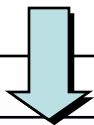
**Today**



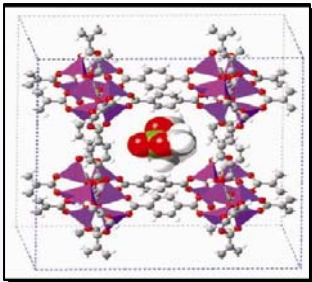
**DF200**



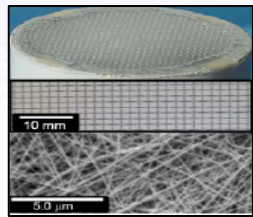
**mVHP, Sensitive Equipment Decon**



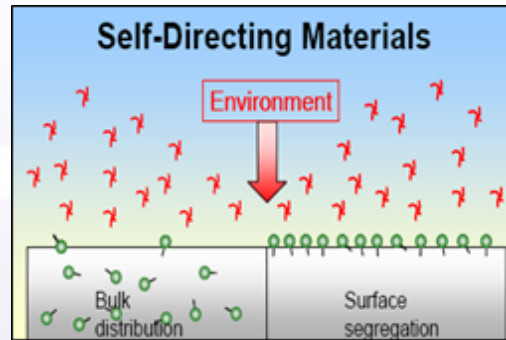
**Tomorrow**



**Advanced Chemistries**



**Nano-Fibers**



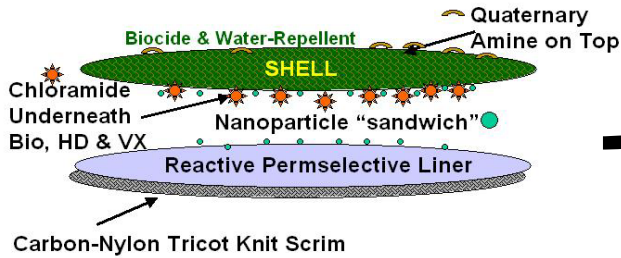
**Strippable Barriers  
Self-Decontaminating Fabrics/Coatings**



**Integrated into Platforms**



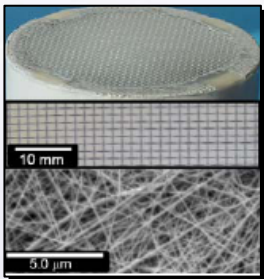
# Individual CBRN Protection Vision



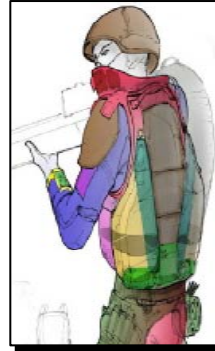
*Integrated Fabrics*



*Human Performance*



*Air Purification*



*Clothing Design*



*Joint Chemical Ensemble*



*Respirator Design  
Modular Concepts*

**Integrated Design**

**Lower Burden**

**Advanced Threat**

**Intelligent Materials**





# ColPro Vision

## PRESENT

**Barrier Material / Liner**



**Carbon Filtration**



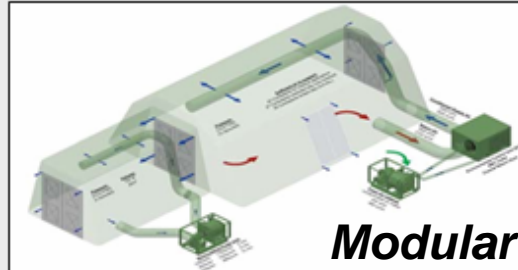
**Transportable**



**“Should we Take ColPro?”**

## FUTURE

**Expeditionary**



**Advanced Filtration**



**Full MDAP Support**



**“Plug it In and Turn it On!”**

## IDEAL

**Always There**



**Seamless**

**“Maintain High OP Tempo!”**





# Summary

- Threat is Real and Expanding
- Our Responses Must be Adaptive and Innovative
  - Modular
  - Integrated Designs
  - Broad-base Protection



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# Joint Program Executive Office



# Chemical and Biological Defense