



The Army's March Toward Operationalizing Sustainability

Humanitarian and Military Better Practices Exchanges
Reducing Environmental Impacts and Improving Outcomes

Washington DC
5-6 November 2013

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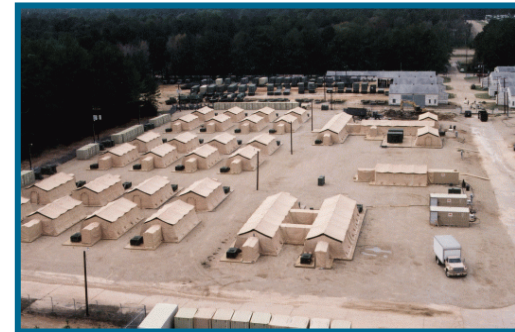
Sustainability and Full Spectrum Ops

goinggreen = armystrong

“Sustainability is a national security imperative in a world of decreasing natural resources and increasing demand. The Army is building green, buying green, and going green in order to ensure that soldiers have the resources they need to accomplish their mission in the United States and globally” (Pete Geren, Former Secretary of the Army)



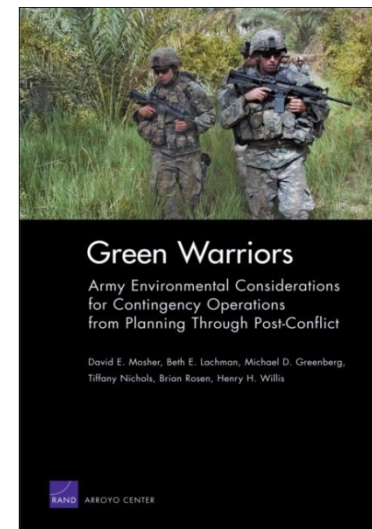
“Triple bottom line” Plus
Mission, Environment, Communities + Economy



Sources: (1) *The Army Strategy for the Environment – Sustain the Mission – Secure the Future*, 2004;
(2) *Sustaining the Mission, Preserving the Environment, Securing the Future*, AUSA Torchbearer, 2007

RAND Green Warrior Report

- Commanders, Staff and leaders must consider environmental impacts early and often
 - Protect soldier health and minimize risk
 - Avoid costly clean-up after the fact
 - Save precious and costly resources
 - RAND researched Iraq, Afghanistan, Balkans
 - 111 Case Studies compiled
 - Recommendations include
 - Improve policy and identify base camp proponency
 - Invest in skilled personnel and innovative technologies
 - Incorporate strategic aspects of the environment into planning
 - Improve pre-deployment and field environmental training
 - Carefully select and manage contractors
- Promote sustainable practices – *sustainability* as Army model
 - Reduced logistics tail – fewer convoys and Soldiers at risk
 - Safer, more efficient, better sited base camps – less waste
 - More stable and sustainable country upon redeployment



Interaction Between Deployed Forces and the Environment

Effects of Army Operations on Environment

- Combat operations
- Land use
- Waste

Army Actions to Secure Environmental Resources

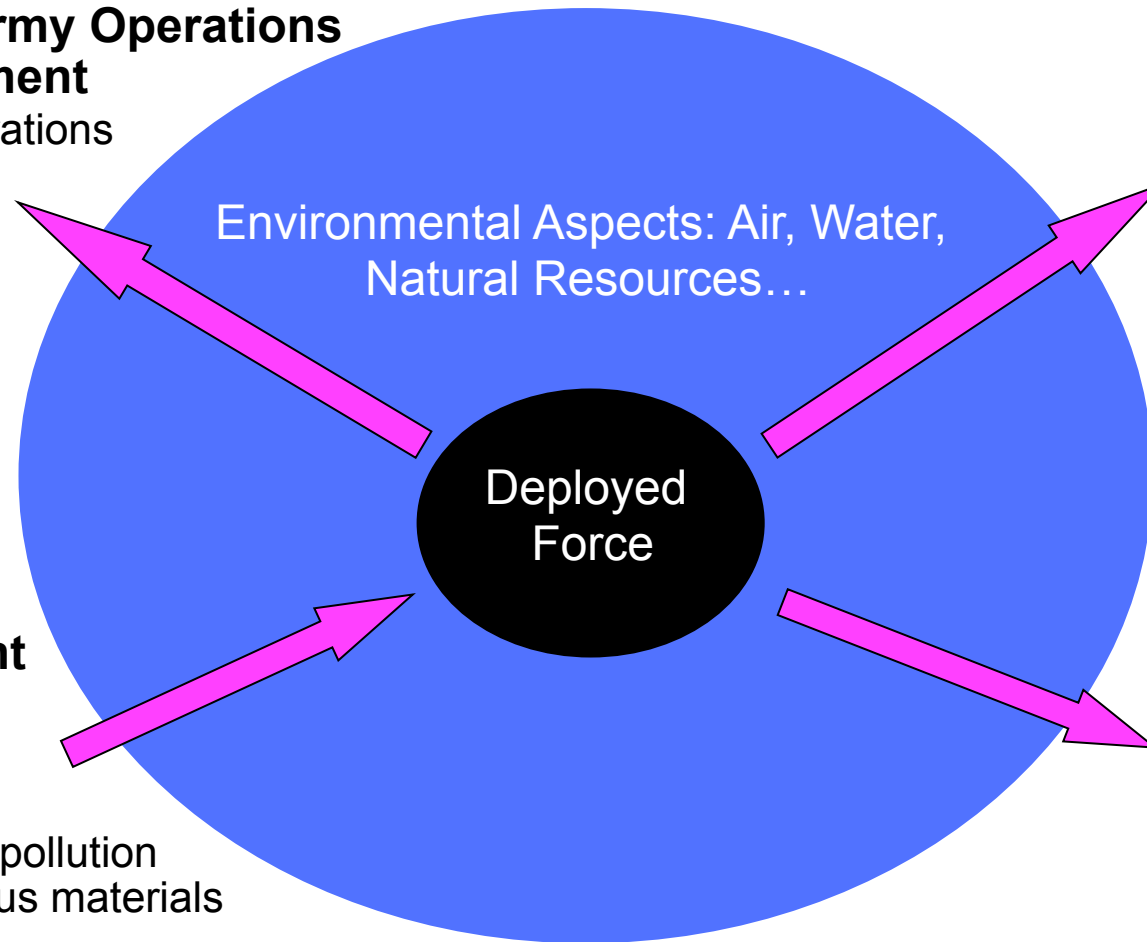
- Dams
- Oil wells
- Infrastructure

Effects of Environment on Army

- Disease
- Climate
- Exposure to pollution and hazardous materials
- Vectors

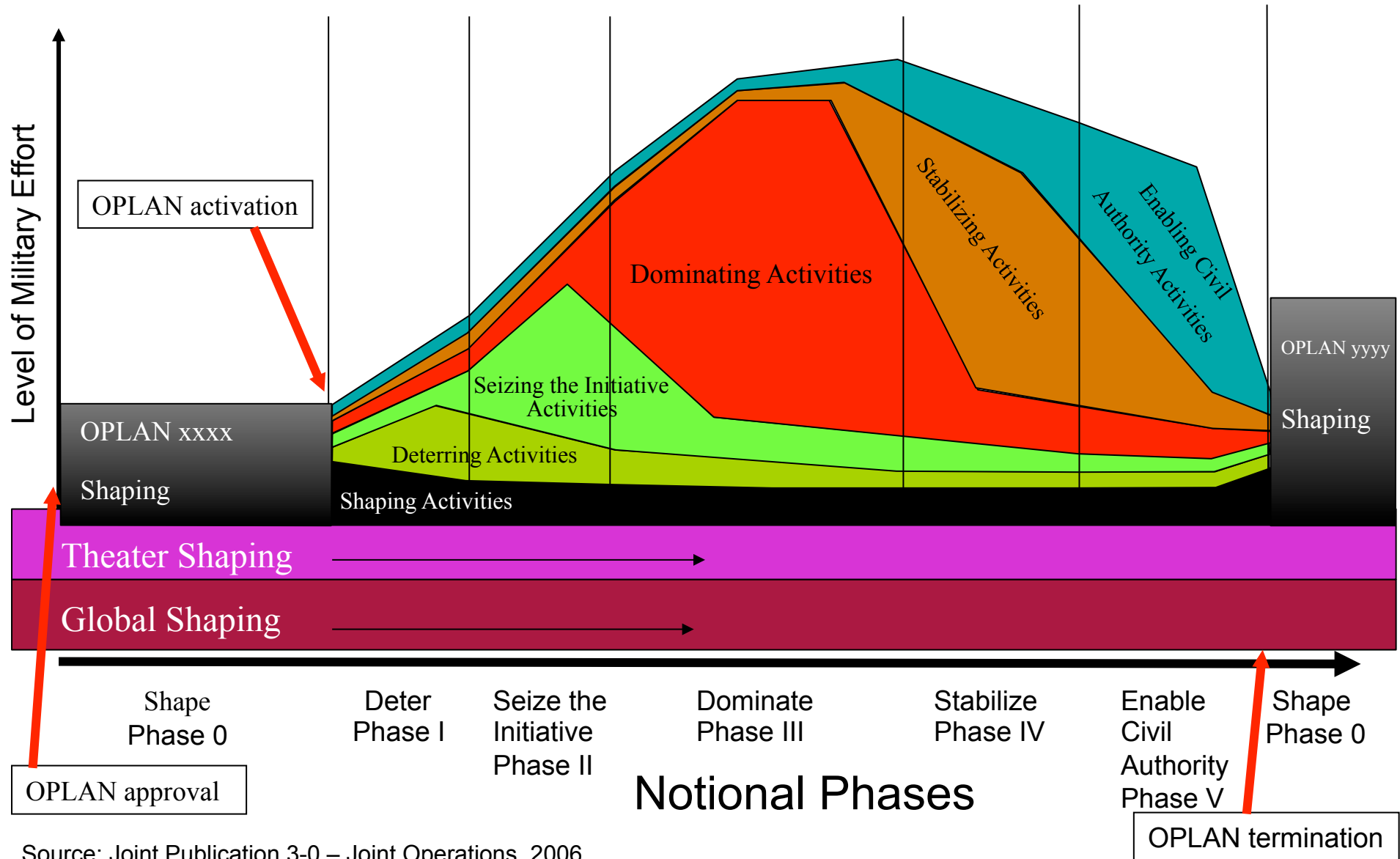
Army Actions to Improve Environment

- Stability operations
- Environmental management at base camps



Six-Phase Planning Construct (Phase 0 to V)

Importance of "Phase 0" – Shaping/Engagement



Source: Joint Publication 3-0 – Joint Operations, 2006

Fully Burdened Energy and Water Costs

Sustain the Mission (SMP) Project

Background

- Energy and water represent the most important natural resources in terms of military value - but have been typically undervalued
- Theater supply convoy loads – 50% fuel, 20% water, 30% other
- Resupply of fuel and water for troops in theater costs lives

SMP 1: Energy and Water Costing to Sustain Army Missions

- Calculate full ownership costs of energy and water to sustain training and contingency operations for a Striker Brigade (SBCT)
- Evaluate investment in Army sustainability – comparative cost-benefit analysis of increased use of mobile photovoltaic systems

SMP 2: Analytical Methodology – Fully Burdened Costs

- Decision support tool for Army-wide employment by Army G-4
- SBCT in mature theater, immature theater, and training base

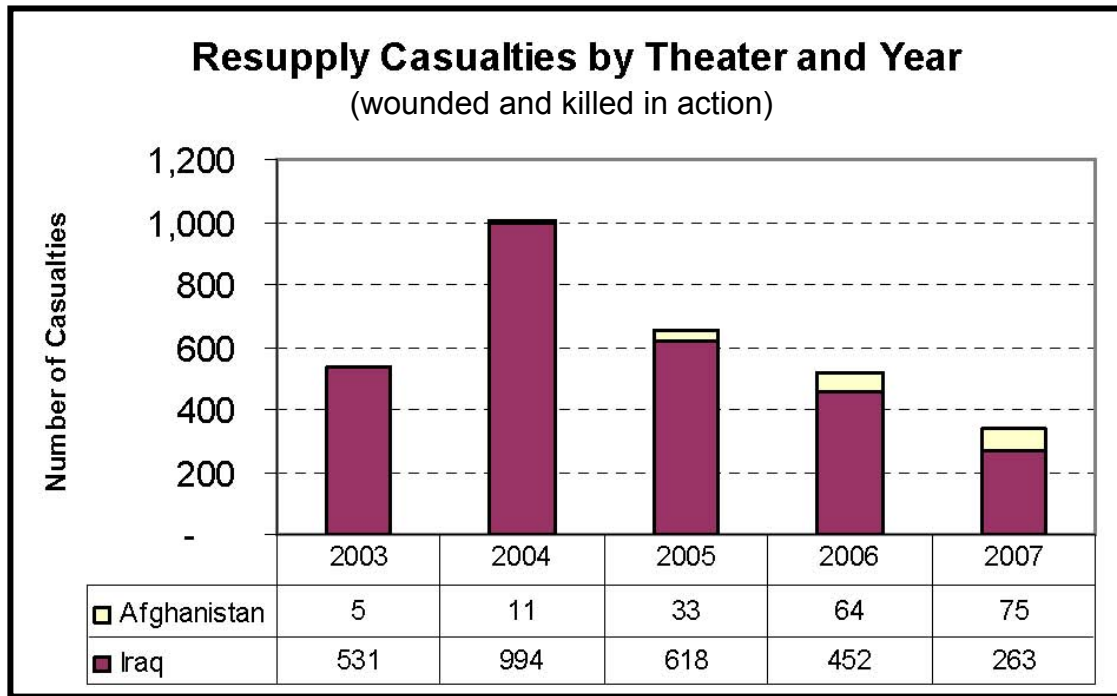
SMP: Casualty Factors for Fuel & Water Resupply Convoys

- Casualty factors for Iraq incorporated into decision support tool

Summary of SMP2 Tool Results for Fuel and Water (\$/gallon)

Commodity	In-Theater (Iraq)	In Theater (Immature)	Training Base
FBCF (Fuel)	\$14.13	\$17.44	\$15.27
FBCW (Water)	\$5.42	\$16.76	\$1.66

Source: AEPI Report Sustain the Mission Project: Energy and Water Costing Methodology and Decision Support Tool – Final Technical Report



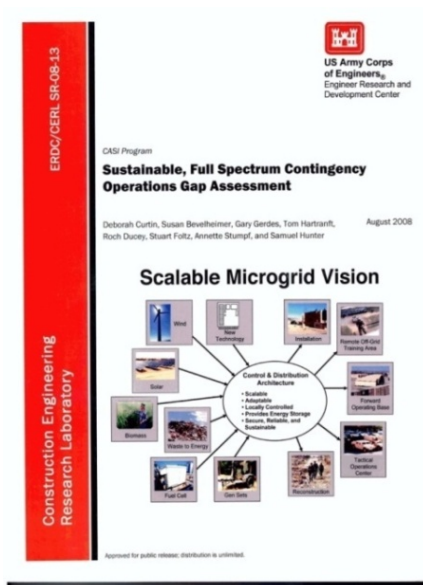
Source: Center for Army Lessons Learned (CALL)



**... crucial need for a self-sustainable energy solution ...
 reducing dependence on fuel
 for power generation ...
 reducing number of road-bound convoys and the danger
 to our military forces in Iraq**

Source: MG Richard Zilmer, Cmdr Multi-National Sources West, Jul 06

Sustainable Full-Spectrum Operations thru Improved Science and Technology (S&T)



Purpose: Addresses importance of sustainability as a force multiplier through increased operational efficiencies and reduced logistical burdens and costs

Relevance to Army

- First comprehensive technology “gap” analysis and S&T roadmaps focused on base camp systems:
 - Planning and Management
 - Design/Construction
 - Power and Energy
 - Water/Wastewater
 - Waste/Materials, e.g., solid waste, recycling
- Supports Stability Operation doctrine (FM 3-07) - restore essential services (sewer, water, power)
- Supports Army TRADOC Base Camp Integrated Capabilities Development Team (ICDT)



Base Camp Capabilities Development

System-of-Systems for the Future Modular Force

Drivers

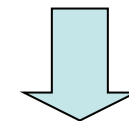
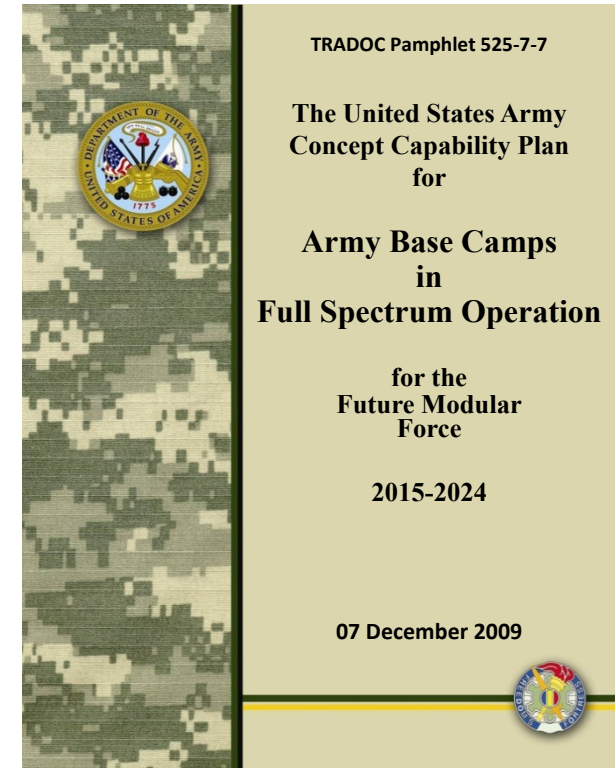
- Army lessons learned and related site visits
- Extended deployments – enduring camps
- Former Army Chief of Staff Initiative 18
- RAND Green Warrior, CASI S&T Gap Analysis

Base Camp Integrated Capabilities

Development Team (BC ICDT) - chartered Apr 08

TRADOC Pamphlet 52-7-7 – signed Dec 09

- Identify capabilities for base and base support operations in contingencies
- Provide force multiplying effects
 - Reduce threat - smaller logistics footprints, e.g., fuel/water shipments
 - Increase flexibility, through standardized designs, e.g., modular, scalable, adaptable
 - Improve operations, e.g., power, water, waste

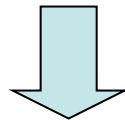


**Follow-on DOTMLPF
Integrated Capabilities
Recommendation (DICR)**

Green Warrior Implementation Strategy

Dec 2009 Army Workshop – Recommendations

- **Identify Proponency** – vision; incentivize sustainability investments
- **Develop Policy** – base camp operations; acquisition; contracting
- **Develop Strategic Communications** - business case for sustainability
- **Provide Oversight** – existing Army enterprise reporting systems
- **Develop Sustainability Education/Training** – senior leaders; realistic
- **Institutionalize Sustainability** – Army Campaign Plan, DOTMPLF



Enhancing Operational Sustainability of Base Camps: OSD and Joint Staff workshops in 2010 – develop a strategic framework focused on energy, environment, safety, and occupational health

DoD and Army Contingency Basing Policy

DOD Directive 3000.10 “Contingency Basing Outside the United States” (10 Jan 13)

- Promoting scalable interoperable capabilities that **support joint, interagency, intergovernmental, and multinational partners.**
- Providing common standards for planning, design, and construction in accordance with the Under Secretary of Defense for Acquisition, Logistics, and Technology (USD(AT&L)) Memorandum (Reference (a)); developing common standards for contingency services; **and establishing standards for equipment, base operations, and base transition or closure.**
- **Using operational energy efficiently** in accordance with the guidance stated in the DoD Operational Energy Strategy and DoD Directives (DoDDs) 5134.15 and 4140.25 (References (b), (c), and (d)), **minimizing waste, and conserving water and other resources.**
- **Integrating comprehensive risk management for emergency management, environment, safety, explosives safety, occupational health, and pest management** into planning, design, and operations in accordance with paragraph 4.3. of DoDD 4715.1E (Reference (e)) and for security in accordance with DoDD 5200.43 (Reference (f)).
- **Minimizing the logistics footprint** by optimizing the delivery of materiel solutions, contracting practices, and services.
- Providing **the appropriate mix of military, civilian, and contractor personnel competencies** in the DoD Total Force planning process in accordance with paragraph 4c of DoDD 1404.10 (Reference (g)) and the guidance in DoD Instruction (DoDI) 1100.22 (Reference (h)).
- **Conducting contingency basing education and training for military and civilian personnel** in accordance with paragraph 4.1.4. of DoDD 5124.02 (Reference (i)) and paragraph 4a of DoDD 1322.18 (Reference (j)).

DoD and Army Contingency Basing Policy

Army Policy Establishing, Managing, and Transitioning Contingency Bases (1 June 11)

- **Providing reliable, scalable sites and services** from which to project combat power, sustain, and protect the force;
- **Reducing the burden on mission personnel** from base development, base operations, and base force protection activities;
- **Promoting practices that are resource efficient and reduce adverse operational impacts on the environment, host nation cultural resources and local population;**
- **Utilizing effective sustainability principles, to include objectives in the Army Sustainability Campaign Plan, and optimizing provision and use of operational energy and water;**
- **Implementing comprehensive base master planning;**
- **Incorporating common base camp standards and construction/facility design guidelines** from the Army Facilities Components System (AFCS) and emerging Unified Facilities Criteria (UFC);
- **Integrating comprehensive Environmental, Safety and Occupational Health (ESOH) measures, as appropriate;**
- **Accelerating efforts for the development of integrated solutions** across Doctrine, Organization, Training, Material, Leader Development, Personnel and Facilities (DOTMLPF), with an **emphasis on resource efficient solutions;**
- Establishing Joint interoperability standards;
- Ensuring base camp equipment is properly documented in order to maintain property accountability.

Contact Information



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