Environmental Considerations and Sustainability of Base Camps in Contingency Operations

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12 May 2011
Agenda

- Environmental Considerations & Sustainability Study
- Capability Based Assessments
  - Base Camps for Full Spectrum Operations
  - Sustainment
- Way Ahead
- Conclusions
Base Camps throughout our History

Encampments
Life Support Areas
Major Supply Points
Secure Lines of Communication
Enable Power Projection
Background

- US Forces are currently required to conduct extended operations over time in deployed locations.
- Over time, these deployed locations may evolve into enduring base camps.
- There are currently no standards addressing the planning, design, construction, operations, management, transfer or closure of base camps. In the past 20 years the Army has established over 1000 base camps; each one was a “one off” effort.
- “The United States Army Concept Capability Plan for Army Base Camps in Full Spectrum Operation for the Future Modular Force.” (TRADOC Pamphlet 525-7-7) addresses the planning, design, construction/deconstruction, operations and management of base camps.
- G-4 has established a Contingency Basing Community of Practice (CoP)/Council of Colonels (CoC)
- ASA IE&E has been given direct oversight role

Environmental Considerations and Sustainability Issues are prevalent across all types and sizes of base camps
Purpose and Scope

• Purpose
  – Provide an overview of Contingency Base Camps as viewed in the 2010 US Army Engineer School (USAES)/Center for Army Lessons Learned (CALL) Afghanistan Collection Trip August of 2010.
  – Present an Analysis of the requirements, existing capabilities and associated gaps relating to the environmental considerations and sustainability during Contingency Operations

• Scope
  – Recent Studies and Analysis
  – Contingency Basing Community of Practice Efforts
  – Recent Capabilities Based Assessments
  – Multiple scenarios
Why is this Important?

- Current & future operations DO and WILL require distributed FOBs to enable position & influence in asymmetrical warfare
- Serious shortfalls exist in our current approach to base camps that put our warfighters and mission success at risk

- Providing integrated solutions to these shortfalls will yield
  - Reduced “Tail to Tooth” ratio
  - Force multiplication
  - Casualty reduction
  - Energy Security

Since the beginning of recorded history, the place where the Soldier lay to rest, refit and prepare for battle has been a necessary evil that drained combat power & whose vulnerability has been a profound weakness.
Why Now?

The Washington Post

Alarms sound over trash fires in war zones of Afghanistan, Iraq

WASHINGTON — Hundreds of military service members and contractor employees have fallen ill with cancer or severe breathing problems after serving in Iraq and Afghanistan, and they say they were poisoned by thick, black smoke produced by the burning of tons of trash generated on U.S. bases.

- Washington Post, 6 August, 2010

U.S. Army soldiers are seen through the haze of burning trash as they patrol in Baqubah, Iraq, Oct. 8, 2006. (AP Photo/Matt Sayles)

“Non-traditional installations (NTIs) are overseas locations that Army service component commands (ASCCs) establish and manage to support the full range of military operations. These locations include forward operating sites, cooperative security locations, and base camps.”

“Army Audit Agency — 20 May 2010

1. The Army does not have a Secretariat-level proponent for base camps.

2. The Army does not have an overall strategy to establish, sustain, and transition Non-Traditional Installations (NTIs); the Army and its Soldiers no longer possess the skills required to properly manage base camps in deployed or contingency environments.

3. The Army did not implement the strategic goals it established for NTIs and did not appoint a proponent for NTIs.

4. Doctrine and training did not evolve with the changes resulting from Army transformation.

NTIs can be found in any region and combatant command; every situation from humanitarian relief to peacekeeping to combat.”

The New York Times

Electrical Risks at Iraq Bases Are Worse Than Said

WASHINGTON — Shoddy electrical work by private contractors on United States military bases in Iraq is widespread and dangerous, causing more deaths and injuries from fires and shocks than the Pentagon has acknowledged, according to internal Army documents.


Tents were destroyed late last month at a Marine base near Falluja, Iraq, after an electrical fire broke out.

During just one six-month period — August 2006 through January 2007 — at least 283 electrical fires destroyed or damaged American military facilities in Iraq, including the military’s largest dining hall in the country, documents obtained by The New York Times show. Two soldiers died in an electrical fire at their base near Tikrit in 2006, the records note, while another was injured while jumping from a burning guard tower in May 2007.
Systemic Base Camp Challenges

- Consume vast amounts of **resources**
- Generate vast quantities of liquid & solid **waste**
- Challenging to **protect** from attacks
- Too much **manpower** to establish and shut down
  - Ability to “lift & shift” is severely limited
- Combat power **diverted** from COIN tasks to convoy/base security, base ops & maintenance
- Lack of **standardization**, robustness, systems architectures, interoperability & scalability
- Total life cycle **costs** are prohibitive
Engineers in OEF

- US Army Engineer School and Center for Army Lessons Learned (CALL) Collection and Analysis Team (CAAT)

2010 Collection Plan

- Engineer Support for Stability Operations
- Command & Control
- Mobility Operations
- Base Camps
- Engineer Officers/NCOs in Stability Operations
## 2010 Collection Plan - 4.0 Base Camps

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Planning and Design

- Site Selection
- Standards
- Project Approval Processes
- Real Estate
- Capabilities
- Master Planning
- Design Support
- Terminology
- Resourcing
Construction

Resourcing

Methods

Execution

Materials

Standards

LOGCAP

Techniques

MILCON

Techniques
Operations and Management

**Responsibilities**

- Public Works Engineers
- Maintenance
- Integrate & Manage Contractors
- Proponency

**Roles**

- CORs
- QA/QC

**C2 Structure**

- Training
- Facility Ops
Special Considerations/Weatherization

Winterization

Terminology

Lessons Learned

Requirements Generation

Risks

LOGCAP

Preventive Maintenance
Environmental and Sustainability

Integrated Waste Management

Simple Conservation

Environmental Documentation

Contracted SME

Spot Generation

Waste Water Mgmt
Currently in final draft stages.

It has recognized that there are DOTMLPF-P related gaps that must address:

- Power generation and distribution
- Water generation and distribution
- Waste management
- Environmental controls, and management systems
- ESOH issues
- Planning and design shortfalls

Ability to solve these gaps is directly related to the importance of the descriptors:

- Scalable
- Adaptable
- Affordable
- Modular
- …..
Overlapping Army Initiatives
Areas of Interface that require Synchronization

Each of these interfaces must be identified and specifically managed.
Base Camp CBA Milestones

Expected Outcome:
Initial Requirements Documents
ICD (T) 3rd Qtr FY11
Initiate DICRs (3rd 4th Qtrs FY11)

Results: Proceeded to FSA with top 123 Gaps
Evaluated existing and programmed capabilities against FAA T/C/S
Identify gaps (195 total gaps)
• Analyze the risks associated with gaps
• Prioritize the gaps

6 Required Capabilities (254 enabling tasks)
RC 1 - Strategic System & Policy Integration
RC 2 – Planning & Design
RC 3 – Construction
RC 4 – Operations
RC 5 – Management
RC 6 – Transfer & Closure
Base Camp Capabilities Hierarchy

1. Strategic System and Policy Integration
   - 1.1 Base Camp System Integration
   - 1.2 Policy
   - 1.3 Doctrine
   - 1.4 Institutional Training Program
   - 1.5 Integrated Base Camp C2
   - 1.6 Coordinated Management of Base Camp Resources

2. Planning and Design
   - 2.1 Preliminary Planning & Site Investigation
   - 2.2 Location Selection
   - 2.3 Land Use Planning
   - 2.4 Facility and Structure Requirements
   - 2.5 Infrastructure & Utilities Requirements & Considerations
   - 2.6 Antiterrorism/Force Protection & Survivability Requirements & Considerations
   - 2.7 General Site Planning
   - 2.8 Master Planning
   - 2.9 Generate Plans, Designs, Cost Estimates, and Outputs

3. Construction
   - 3.1 General Construction Requirements
   - 3.2 Construction of Buildings, Infrastructure, and Utilities
   - 3.3 Construction of Protection Measures

4. Operations
   - 4.1 Supply Operations
   - 4.2 Field Services
   - 4.3 Soldier Support Services
   - 4.4 Real Property Asset Management
   - 4.5 Base Camp Services
   - 4.6 Protection
   - 4.7 Facilities and Structures Maintenance
   - 4.8 Infrastructure

5. Management
   - 5.1 Command and Control
   - 5.2 Mission Support

6. Transfer and Closure
   - 6.1 Base Camp Records, Archives
   - 6.2 Transfer of Base Camps
   - 6.3 Closure of Base Camps
Prioritized Tasks & Gaps Summary by RC
EC & Sustainability Tasks by RC

RC 1 - EC & Sustainability Tasks

RC 2 - EC & Sustainability Tasks RC

RC 3 - EC & Sustainability Tasks RC

RC 4 - EC & Sustainability Tasks RC

RCs 5 & 6 - EC & Sustainability Tasks

81 related tasks
24 direct tasks
Base Camp CBA Summary

37 Gaps related to Environmental Considerations and Sustainability with over potential 400 Solutions: presented for adoption or further study

- Integrated Waste Management—Sanitation, waste collection, and treatment systems
- Master planning/design and Real Estate – land use, EBS, abandon, dismantle, and demolish base camps
- Utilities – power generation and distribution systems, physical plants, utility infrastructure
- Water (potable and non-potable) production, distribution and management
- ESOH and hygiene support services (such as fire prevention and response or spill control)
- Maintain water (potable and non-potable) production and distribution
- Conduct geospatial engineering operations and functions
- Construction materials management and reuse – modular, scalable, sustainable
- Integrated pest management and vector control support.
- Force health protection
Sustainment CBA Summary

Functional Solutions Analysis
Process Map

- COA CoC - 23 Feb 11
- Proposers & CEB provide guidance on COAs - 23-28 Feb 11
- Sustainment CBA Master Risk
- CG provides guidance on COAs - 1 Mar 2011
- CG selects/coC - 25 Mar 2011
- Complete Sustainment DCR and turn-in to ARIC - 31 Aug 11
- PATxK
- Transfer ICD to MTO 1 Apr

Timeline
- 31 Mar 11 - FSA to ARIC
- 18-22 Mar - Adjudication
- 4-18 Mar - World-wide Staffing
- 23 Feb - 4 Mar - 3rd Floor (Proposers) COA Guidance
- 16 Mar - CIEF Update on FSA Progress
- 1 Mar - CG COA Guidance
- 25 Feb - COL (P) LeMasters COA Guidance
- 25 Mar - BOD Final Update
- 25 Mar - CG COA Decision
- 21 Jan - Analysis Data completed by Writers

Complete Solution Set

- 83 Gaps in 17 functional areas brought into FSA
  - No gaps forwarded to ARICIC for Dental, Legal Services, Religious Support, and Band
- Levels of Risk
  - 7 Extremely High
  - 42 High
  - 34 Moderate
- 416 Solutions identified across the 83 Gaps
- Estimated cost to implement all solutions
  - $20 Billion
- 37 Gaps Approved by ARICIC for Full FSA

Estimated Cost = $20 Billion
- Mitigates 83 Gaps
7 Gaps related to Environmental Considerations and Sustainability with 69 Solutions: 1 Gap and 14 Solutions presented for adoption or further study

- Assess/predict effects of environmental conditions when conducting FSO.
- Provide environmental support when conducting full spectrum operations.
- Provide waste management when conducting full spectrum operations.
- Provide environmental clean up when conducting full spectrum operations.
- Provide environmental engineering reconnaissance/survey when conducting full spectrum operations.
- Provide engineering in order to assure mobility, enhance protection, enable expeditionary logistics, build capacity, and minimize environmental impacts.†
- Plan design, construct, operate, transfer and close base camps in a joint, international and multinational environment to provide safe, secure, and largely self-sustaining base camps to support full spectrum operations.†

†Did not make cut after risk assessment, so were not brought forward.
DOTMLPF Analysis Solution Summary

- Revise doctrine for large scale clean up operations to include sampling requirements and procedures.
- Update doctrine on battlefield assessment/prediction of effects of environmental conditions.
- Develop doctrine for base camps, to include incorporation of EBS information into planning.
- Develop doctrine to support base closure.
- Respond for archiving and maintaining EBS data.

- Provide doctrine requiring sustainability in base camp operations, to include energy, water, and waste management to maximizes effectiveness and efficiencies.
- Increase Engineer Facilities Detachments (EFDs) to 1 per base camps with 5000 people or more.
- Increase Forward Engineer Support Teams (FEST)-As and FESTs-Main.
- Assign environmental engineers to 1 per BN.

- Provide waste management SME support for development of performance work statements/scopes.
- Develop WG/board for integration of logistics, engineering, environmental, safety, and health issues.
- Create deployable teams to provide SME support for waste management practices.

- Develop SME support to oversee conservation and reuse (integrated into brigade and battalion staffs).

- Develop Army awareness training on waste mgnt and train all Soldiers in unit-level waste management.
- Develop training for tactical expertise on ESOH inspections, hazardous waste, and prevention measures.
- Develop training for tactical expertise on ESOH inspections, hazardous waste, and prevention measures.

- Train Environmental SMEs. (Either through MOS, branch, ASI, or specialized ad hoc team).
- Train Soldiers in environmental sampling procedures.
• Increase quantity of waste management equipment sets.
• Develop SKOs for the engineers or base camp mayor cells to include waste management equipment such as waste incinerators.
• Develop Environmental Sampling Kits SKOs. Adapt ENFIRE or FIRESTORM or IKE to include environmental data collection.
• Modify existing laboratory capability for environmental sample analysis.
• Develop IT for tracking, storing, archiving, and accessing environmental data.
• Continue evolutionary development of set kits and outfits for conducting EBS.
• Develop automated system linking EBS and OEHSA platforms, archives results, and populates reports.
• Improve the databases of existing environmental assessments and data (improve structure, make user-friendly and accessible).
• Develop component parts and systems (that reflect the relationship to holistic utility systems) for power, water, waste, and force protection and virtual base camp simulation and modeling capability.
• Develop a tactical microgrid system with alternative energy systems at appropriate scales.
• Continue evolutionary development of systems to generate purified water.
• Develop tactical utility systems that maximize sustainability, such as grey-water/ black-water recycling, waste-to-energy, water from alt. sources, alt. energy systems, and improved habitation systems.
• Increase authorized ESOH equipment available to base camp TOE sets, kits, and outfits, such as secondary containment systems, air cascade systems, fire fighting, HAZMAT response equipment, and personal-protective equipment.
• Develop low-cost, small footprint materiel systems for water production and recycling.
• Continue spiral development of systems for monitoring waste streams and systems for efficient waste management and recycling.
• Incorporate appropriate training (such as ESOH, HAZMAT, spill control, and fire prevention) into leader development courses at all levels including assessment/prediction of environmental conditions as part of their mission planning requirements.
• Educate leaders on waste management requirements and the need for efficient and effective waste systems through integrated planning for life cycle waste management in operations.
• Emphasize to leaders the importance of including environmental reconnaissance/survey in early planning stages.
• Emphasize to leaders the importance of conducting Environmental Baseline Surveys (EBS) prior to occupying an area.
• Place command emphasis on waste management in TO and base camp operations.
• Develop performance measures for the reutilization, recycling, or disposal of accumulated waste and material.

• Expand pool of SMEs, develop and track an ASI or secondary MOS for environmental engineers.
• Develop EPA-lab-qualified personnel to conduct lab analysis needed for environmental sample processing.

• Provide training facilities that includes existing buildings, open areas, ranges, etc. for assessment/prediction of environmental effects, construction impacts for operation and construction practices.
• Establish a mock base camp training site where base camp elements may be constructed (as well as existing facilities that may be modified or evaluated for suitability of use.)
• Revise/update Army policy on waste management to be more specific and to standardize waste management in-theater to reduce waste streams and supporting costs and resource requirements.
• Develop Army policy regarding tracking, storage, archiving, and documentation of environmental data.
• Develop policy to incorporate sustainability into the planning, design, and construction operations and the management of contingency base camps.
• Make base camps a program of record and appoint and resource a proponent.
• Develop policies for triggers for base camp levels of capability (basic, expanded, and enhanced) such as habitation tents to portable rigid walls to fixed structures.
• Standardize policies and procedures for base camp closure, establishing Army policy for the retrograde and disposal of base camp materials.
• Develop policies and procedures for OCO waste management.
From the Past

Through Current Conditions

To Future Conditions

MODULAR
SUSTAINABLE
SCALABLE
SOLUTIONS
Generate water on site

Power -- efficient heating & cooling systems
(~70% of demand)

Water reuse -- Gray & black water recycling

Renewable energy sources

Power -- efficient functional systems
(~30% of demand)

Waste to energy conversion

Smart power grid management
Impacts of Decision-Making

- Disposable
  - Solid Waste Generation
  - Power Requirements
  - Water Requirements
  - Grey Water Generation
  - Fuel/Transport for Resupply

- Non-Disposable
  - Hall
  - Tableware
Questions?
BACKUP
# What's Been Going On

1. **Assign Army Secretariat and ARSTAF Proponents**  
   USA Policy Memorandum 6 May 2010

2. **Draft Army Strategy for Contingency Bases by end of 2nd Quarter FY-11.**  
   Under review by Council of Colonels

3. **Develop Army Stakeholder Roles and Responsibilities.**  
   Under review by Council of Colonels

4. **Codify Contingency Basing Community of Practice.**  
   Draft Charter under review

5. **Identification of Policy/Doctrine Gaps by end of 2nd Quarter FY-11.**  
   TRADOC CBA (FSA) ready for signature

6. **Publish Army Policy for Contingency Basing**  
   Completed O-6 formal ARSTAF review

7. **Develop a synchronized way ahead for future efforts that Leverage Army and Joint efforts.**  
   Draft Campaign Plan by 3rd Quarter FY-11  
   Scope Joint CBA in 2nd Quarter FY-11  
   Army Campaign Plan Mission Objective 2-10

8. **Update and publish AR 415-16 Army Facilities Components System (AFCS).**  
   First Quarter FY-12

9. **Establish Joint Contingency Construction Standards and Standard Designs.**

10. **Improve delivery of services.**  
    NDIA Draft Industrial Committee Charter
Planning and Design

- Site Selection
- Real Estate
- Master Planning
- Standards
- Terminology
- Design Support
- Capabilities
- Project Approval Processes
- Resourcing
Construction

• Resourcing
  Troop Labor, LN Contract, LOGCAP, MILCON
• Execution
  - Site Adaptable Standardized Designs
  - Work Classification Issues For Real Property And Personal Property.
  - Disconnect Between Afghan First and LOGCAP Acceptance
  - Need to mentor, teach and prepare LN contractors
  - Tendency to overload good LN contractors
• Materials
  - No Established Class IV Yard(s) With Common Construction Items
• Techniques/Methods
  - Lack Of Understanding 2\textsuperscript{nd} And 3\textsuperscript{rd} Order Effects (Drainage Plans)
  - Investigate Emerging And Innovative Technologies
  - Purchase New Technologies For Greater Efficiencies.
Operations and Management

- Centralized Proponent
- Establish Roles and Responsibilities.
- Establish Structure for C2
- Designated base camp engineers for public work functions
- Dedicated CORs and staff to oversee maintenance/facility ops.
- Baseline processes and operations.
- Effectively integrate and manage contractor resources.
- Understanding resourcing decisions are needed.
- Contractors should not provide QA/QC services.
- No available materials or specialized training.
- No standardized means to assist follow on units
- Military Engineers can support many aspects.
- Contracting can be a viable means to execute services.
Special Considerations/Weatherization

- Consistent terminology
- Requirements generation and contracting.
- Propagate and institutionalize lessons learned.
- Conduct After Action Reviews on contracting processes.
- Complex process of accepting facilities for LOGCAP
- Many safe facilities do not meet current standards for LOGCAP.
- Rework required and additional expense incurred.
- Recent modifications to the current LOGCAP
- Winterization and other preventive maintenance need to occur well in advance of inclement weather.
- Execution of winterization and other preventive maintenance should be incorporated into the LOGCAP contracts.
- Ensure that commanders understand associated risks with engineering/planning/siting decisions. (such as for tent spacing and location).
Environmental and Sustainability

- Environmental Documentation
- Contracted Environmental SME
- Impacts on prolonged mission accomplishments and risks
- Need for Integrated Waste Management Planning
- Need to implement simple conservation methods.
- Waste Water Management should move toward more sustainable practices.
- Reduce spot generation by installing Mini Grids.
- Larger base camps should transition to more efficient turbine power plants.
- LOGCAP is maintaining most power generation.
- No incentive for the contractor to find efficiencies, save money and reduce the need for fuel.
BC ICDT CBA SLIDES
Functional Area Analysis Summary

6 Required Capabilities (254 enabling tasks)
RC 1 - Strategic System & Policy Integration
RC 2 – Planning & Design
RC 3 – Construction
RC 4 – Operations
RC 5 – Management
RC 6 – Transfer & Closure

9 Vignettes

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<td>Small</td>
<td>Short</td>
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<tr>
<td>V2</td>
<td>Small</td>
<td>Mid-Term</td>
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<td>V3</td>
<td>Small</td>
<td>Long</td>
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<tr>
<td>V4</td>
<td>Medium</td>
<td>Short</td>
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<tr>
<td>V5</td>
<td>Medium</td>
<td>Mid-Term</td>
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<td>V6</td>
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<tr>
<td>V7</td>
<td>Large</td>
<td>Short</td>
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<tr>
<td>V8</td>
<td>Large</td>
<td>Mid-Term</td>
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<tr>
<td>V9</td>
<td>Large</td>
<td>Long</td>
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Size
Small: 100-600
Medium: 600-6000
Large: greater than 6000

Duration
Short: Minimum 60 days
Mid-Term: Minimum 180 days
Long: Sustained Operations (undetermined end-state)
Functional Needs Analysis Summary

Evaluated existing and programmed capabilities against FAA T/C/S to

- Identify gaps (**195 total gaps**)  
- Analyze the risks associated with gaps  
- Prioritize the gaps

Results:
**Proceed to FSA with top 123 Gaps**
The future force requires the capability to integrate base camp efforts at the national and strategic levels as a holistic system to provide consistent policy and doctrine, comprehensive training, integrated command and control (C2), and coordinated resource support of base camps in contingency operations.

RC 1 had the most high-risk gaps

20 High Risk and 20 Moderate Risk gaps mostly attributed to:

- no designated leads (recently resolved)
- inadequate policy and doctrine.

These gaps are considered the root cause for many of the gaps throughout this CBA.
RC 2 had the third most high-risk gaps.

6 High Risk and 16 Moderate Risk Gaps are primarily linked to:
- multiple solutions for the joint force (Lack of standardization)
- addressing components of a base camp as individual systems
RC 3 had the second least high-risk gaps
1 High Risk and 10 Moderate Risk Gaps are primarily linked to:
- inadequate doctrine, plans and materiel to support modular/scalable construction
- inefficient utilities and force protection
- insufficient organizational structure to support QA/QC and on site COR/COTR.

The future force requires the capability to construct base camps during contingency operations in JIIM environments to provide a base of operations capable of supporting the full spectrum of operations.
The future force requires the capability to operate base camps during contingency operations in JIIM environments to provide a base of operations across the full spectrum of operations.

RC 4 had the second most high-risk gaps. 14 High Risk and 20 Moderate Risk Gaps indicates:

- complexity of the problem
- a large number of functional gaps across multiple organizations
The future force requires the capability to manage base camps during contingency operations in JIIM environments to enable operational commanders and staffs to focus on operational missions with increased flexibility and fewer distractions.

RC 5 had the fourth most high-risk gaps; however, proportionately has a high-risk gap to task ratio equal to RC 1 – Strategic System & Policy Integration (most high-risk gaps)

4 High Risk and 8 Moderate Risk Gaps are primarily linked to:
- Inadequate doctrine
- Inadequate organizational structure
- Inadequate training
The future force requires the capabilities to transfer or close base camps to protect U.S. interests and promote good relations during contingency operations in JIIM environments.

RC 6 had the least high-risk gaps

2 High Risk and 2 Moderate Risk Gaps are primarily linked to:
- inadequate policy and doctrine.
1.1 Strategic Level Synchronization

1.1.8 Set Base Camp Priorities
1.1.9 Determine Strategic National Base Camp Issues
1.1.10 Provide Base Camp Requirements to Strategic National Planners and Decision Makers
1.1.11 Perform as DOD Executive Agent for Base Camps
1.1.12 Perform as DOD Executive Agent for Base Camp Standards
1.1.13 Identify Integration and Interoperability Requirements and Solutions
1.1.14 Conduct Research and Development (R&D)
   1.1.14.1 Integrate Capabilities and Prioritize R&D and Acquisition Programs
   1.1.14.2 Provide Scientific and Technical Base Camp Requirements for R&D and Force Planning
1.1.15 Provide Acquisition Life Cycle Support
   1.1.15.1 Coordinate Acquisition Functions for Base Camps

1.2 Policy

1.3 Doctrine

1.4 Institutional Training Program

1.5 Integrated Base Camp Command and Control

1.6 Coordinated Management of Base Camp Resources
   1.6.4 Allocate Base Camp Resources Worldwide
   1.6.5 Allocate Base Camp Resources Theater-Wide
   1.6.6 Provide Acquisition Life Cycle Support
   1.6.7 Determine Needs and Document Requirements and Solutions
   1.6.8 Acquire, Manage, and Distribute Funds

1.6.4 Allocate Base Camp Resources Worldwide

1.6.5 Allocate Base Camp Resources Theater-Wide

1.6.6 Provide Acquisition Life Cycle Support

1.6.7 Determine Needs and Document Requirements and Solutions

1.6.8 Acquire, Manage, and Distribute Funds
2.5 (Infrastructure Utilities and Requirements and Considerations)

2.5.1 Plan and Design Base Camp Utilities
- 2.5.1.1 Plan and Design Power Generation and Distribution Systems
- 2.5.1.2 Plan and Design Water (Potable/Non Potable) Systems
- 2.5.1.3 Plan and Design Sanitation/Waste Collection/Treatment (Water/Solid) Systems
- 2.5.1.4 Plan and Design Shower, Latrine and Laundry Systems
- 2.5.1.5 Plan and Design Communications Infrastructure
- 2.5.1.6 Plan and Design Bulk Fuel and Liquid Storage and Distribution Systems

2.5.2 Plan for Base Camp Transportation Infrastructure
- 2.5.2.1 Construct and Maintain Roads and Highways
- 2.5.2.2 Construct and Maintain Railroad Facilities
- 2.5.2.3 Plan and Design Parking Areas and Motor Pools
- 2.5.2.4 Construct and Expand Airfield Facilities

2.6 Antiterrorism and Force Protection and Survivability Requirements and Considerations
- 2.6.1 Plan and Design Perimeter Security
  - 2.6.1.1 Plan and Design Entry and Access Control Points
  - 2.6.1.2 Plan and Design Guard Towers
  - 2.6.2 Prepare Protective Positions
  - 2.6.3 Prepare Fighting Positions

2.7 General Site Planning
- 2.7.1 Conduct General Site Planning

2.8 Master Planning
- 2.8.1 Conduct Strategic Master Planning
- 2.8.2 Conduct Site Specific Master Planning
- 2.8.3 Conduct Adaptation of Master Plans

2.9 Generate Plans, Designs, Cost Estimates, and Outputs
- 2.9.1 Provide General Engineering Support
3.1 General Construction Requirements
- 3.1.1 Perform Modular Construction
- 3.1.2 Perform Scalable Construction
- 3.1.3 Perform Conventional (Concrete, CMU, Brick, Wood frame) Construction
  - 3.1.3.1 Perform Built-in-Place Construction
  - 3.1.3.2 Perform Prebuilt, Erected on Site Construction
  - 3.1.3.3 Restore Existing Structures or Infrastructure

3.2 Construction of Buildings, Infrastructure, and Utilities
- 3.2.1 Construct Power Generation and Distribution Systems
  - 3.2.1.1 Construct Power Generation Systems
  - 3.2.1.2 Construct Power Distribution Systems
- 3.2.2 Construct Water Production and Distribution Systems (Potable and Non-potable)
  - 3.2.2.1 Construct Potable and Non-Potable Water Production Systems
  - 3.2.2.2 Construct Potable and Non-Potable Water Production Systems Provide Water Support, Provide General Engineering Support
- 3.2.3 Construct Sanitation/Waste Collection/Treatment Systems
  - 3.2.3.1 Construct Waste Disposal Systems
  - 3.2.3.2 Construct Waste Treatment Systems
- 3.2.4 Construct Shower, Latrine, and Laundry Systems

3.3 Construction of Protection Measures
- 3.3.1 Construct/Reinforce Perimeter Security
  - 3.3.1.1 Construct/Reinforce Entry and Access Control Points
  - 3.3.1.2 Construct Guard Towers
- 3.3.2 Prepare Protective Positions
- 3.3.3 Prepare Fighting Positions
- 3.3.4 Harden Key Infrastructure and Facilities
3.1 General Construction Requirements

3.1.4 Provide Contracting Support and Perform Contracting Officer Duties

3.1.5 Perform Contracting Officer's Technical Representative Duties

3.1.6 Deploy Construction Management Teams

3.1.7 Provide Base Camp Contracting Documents (Technical Requirements, Plans And Specifications) to Acquisition Community for Contracting.

3.1.8 Acquire Construction Materials for Base Camp Construction

3.2 Construction of Buildings, Infrastructure, and Utilities

3.2.5 Construct Information Infrastructure. Provide Global Information Grid Transport Backbone Networks for Data Communications

3.2.5.1 Construct the Land Area Network (LAN) Non-Secure Internet Protocol Router

3.2.5.2 Construct Cryptographic Facilities

3.2.6 Construct Bulk Fuel and Liquid Storage and Distribution Systems

3.2.7 Construct Base Camp Transportation Infrastructure

3.2.7.1 Construct and Maintain Roads and Highways

3.2.7.2 Construct and Maintain Railroad Facilities

3.2.7.3 Construct Parking Areas and Motor Pools

3.2.7.4 Construct and Expand Airfield Facilities

3.2.8 Construct Base Camp Buildings

3.2.8.1 Provide General Purpose Shelters and Systems

3.2.8.2 Construct C2, Administrative, and Logistics Support Facilities

3.2.8.3 Construct Housing/ Barracks

3.2.8.4 Construct Dining Facilities

3.2.8.5 Construct (Dispensary/Hospital/TMC) Facilities

3.2.8.6 Construct SCIF

3.2.8.7 Construct Detention Facilities

3.3 Construction of Protection Measures
4.1 Supply Operations

4.1.1 Provide Logistics
- 4.1.1.1 Procurement
- 4.1.1.2 Provide Supplies

4.1.2 Provide Distribution
- 4.1.2.1 Conduct Unit Logistics Package Operations
- 4.1.2.2 Establish A Hub/Node
- 4.1.2.3 Conduct Aerial Port of Debarkation Operations
- 4.1.2.4 Conduct Hub Operations

4.2 Field Services

4.2.1 Conduct Mortuary Affairs

4.2.2 Provide Hygiene Support

4.2.3 Provide Water Support (Potable and Non-Potable)
- 4.2.3.1 Purify Water
- 4.2.3.2 Provide Packaged Water
- 4.2.3.3 Provide Ice
- 4.2.4 Provide Aerial Delivery Support
- 4.2.5 Provide Integrated Pest Management and Vector Control Support
- 4.2.6 Develop, Maintain, and Coordinate a Joint Comprehensive Medical Surveillance Program
- 4.2.7 Provide Nutrition Support

4.3 Soldier Support Services

4.3.1 Provide Financial Management Support
- 4.3.1.1 Finance Operations
- 4.3.1.2 Resource Management Operations

4.3.2 Provide Legal Support

4.3.3 Support Casualty Reporting

4.3.4 Deliver Religious Services

4.3.5 Conduct Postal Operations

4.4 Real Property Asset Management

4.4.1 Maintain, Revise, and Update EBS

4.4.2 Perform Occupational and Environmental Health Surveillance

4.4.3 Maintain, Revise, and Update Host Nation or Theater Variances

4.4.4 Maintain As Built Documentation/Plans

4.4.5 Maintain Base Camp Master Plan

4.4.6 Deploy Installation Management Teams
6.1 Base Camp Records Archives
   - 6.1.1 Archive Environmental Closure Reports
   - 6.1.2 Archive Base Camp Master Plans

6.2 Transfer of Base Camps
   - 6.2.1 Transfer Base Camps to Other U.S. Agencies
     - 6.2.1.1 Transfer Base Camps to another U.S. Army Unit
     - 6.2.1.2 Transfer Base Camps to another U.S. Military Service During Displacement
     - 6.2.1.3 Transfer Base Camps to a U.S Nongovernmental Organization
   - 6.2.2 Transfer Base Camps to Non U.S. Agencies
     - 6.2.2.1 Transfer Base Camps to Host Nation
     - 6.2.2.2 Transfer Base Camps to an Allied Military Organization
     - 6.2.2.3 Transfer Base Camps to another Non-Governmental Organization
   - 6.2.3 Reutilize or Dispose of Materiel

6.3 Closure of Base Camps
   - 6.3.1 Dismantle/Demolish Base Camps
   - 6.3.2 Reconfigure/Repurpose/ Mothball Base Camps (Caretaker Status)
   - 6.3.3 Abandon Base Camps