Forward Operating Base Sustainment

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Overview

- Changing Paradigm
- Sustainment Snapshot
- Afghanistan Support Challenges
- Evolving Solutions
Paradigm Shift in OEF

Water delivery – A problem to the Tactical Edge

Classical Battlefield Model
Fuel to Water Ratio

Afghanistan Experience

Truck Loads of Fuel and Water Delivered to the Tactical Edge

Data Source CLB-8 period June 13 – September 11 2009

When you drink water, you’re consuming fuel!

Scalable water-to-fuel ratio: up to 5-to-1
Paradigm Shift

Bottled water due to:

- Limited packaging capability
- Limited testing capability
### Sustainment Snapshot

#### Al Asad - Example of a mature FOB

<table>
<thead>
<tr>
<th></th>
<th>Reqmt</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>14,000</td>
<td>26,280</td>
</tr>
<tr>
<td>Tents</td>
<td>120</td>
<td>3535</td>
</tr>
<tr>
<td>Trailers</td>
<td>207</td>
<td>15,164</td>
</tr>
<tr>
<td>Fuel (Ga/Day)</td>
<td>325,560</td>
<td>3,850,000</td>
</tr>
<tr>
<td>Potable Water (Ga/Day)</td>
<td>885,000</td>
<td>21,000,000</td>
</tr>
<tr>
<td>Power</td>
<td>23</td>
<td>800</td>
</tr>
<tr>
<td>Incineration (Tons/Day)</td>
<td>100</td>
<td>60</td>
</tr>
</tbody>
</table>

**Similar Ratio**
## Sustainment Snapshot

### Leatherneck - Maturing

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Reqmt</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>11,858</td>
<td>11,858</td>
</tr>
<tr>
<td>Tents</td>
<td>297</td>
<td></td>
</tr>
<tr>
<td>Trailers</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>Fuel (Ga/Day)</td>
<td>55,000</td>
<td>2,400,000</td>
</tr>
<tr>
<td>Potable Water (Ga/Day)</td>
<td>231,000</td>
<td>600,000</td>
</tr>
<tr>
<td>Power (MW)</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Incineration (Tons/Day)</td>
<td>47</td>
<td>47</td>
</tr>
</tbody>
</table>

*4-to-1 Ratio*
**COP Payne: Less-than-mature / austere**

<table>
<thead>
<tr>
<th></th>
<th>Reqmt</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>1200</td>
<td>1200</td>
</tr>
<tr>
<td>Tents</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Trailers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel (Ga/Day)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potable Water</td>
<td>1600</td>
<td>20,000</td>
</tr>
<tr>
<td>Power (MW)</td>
<td>800KW</td>
<td>400KW</td>
</tr>
<tr>
<td>Incineration (Tons/Day)</td>
<td>.25</td>
<td>.75</td>
</tr>
</tbody>
</table>

Approximately 1-to-1 Ratio
Afghanistan Support Challenges
Support Challenges

Weapon Types
21 May to 19 November

IEDs

Ground Resupply Dangers
Support Challenges

• Results in hoarding
• Many FOB’s had nearly 30 DOS of Fuel and Water

“Just in case” vs. “Just in time”
Support Challenges

Waste piling up

Non-Rechargeable Battery Hazard

Trash build up on COP

Burning trash on FOB
Limited Assets – Aerial delivery accounts for only about 5% of all cargo movement

(CO, CLB-3 Interview)

UAV Development

Two Bidders selected for Services Contract

Move 6,000Lbs in less than 6 Hrs for 3 consecutive days
Evolving Solutions

Tactical Water Purification System

Lightweight Water Purifier

Water Packaging System (WPS)

Hydration System Resupply

Current

Coming

Evolving

Shelters

Foamed

Relocatable Buildings w/thermal Insulation

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Goals

• Leverage technology to reduce demand for FOB sustainment through combination of:
  – Alternate and renewable energy sources
  – Better shelter efficiency factors
  – Improved electrical production and distribution

• Reduced demand through behavior changes
• Backup
OEF Resupply Challenge Example

Highlighted Throughput Constraints

54 hours to go 60km

19 truck convoy from Camp Leatherneck to Musa Qala

Security Requirements - Cobra and R2C

Enemy Gets A Vote - Multiple IED and RPG Attacks

Musa Qala
Bastion/Leatherneck

AFGHANISTAN
CENTCOM Priorities

- Relocatable Building Shortage
  - Mitigation Strategy
    - 2 Harvest Falcon Camps
    - 5 Force Provider Sets
    - 300 Tents

- Aviation Throughput
  - CENTCOM Mitigation
    - 2.3M ft² of AM2 Matting
    - Increase ramp space/aircraft beddown capability
Technology Continuum

**Integrated with people and processes.**