



Forward Operating Base Sustainment

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Overview

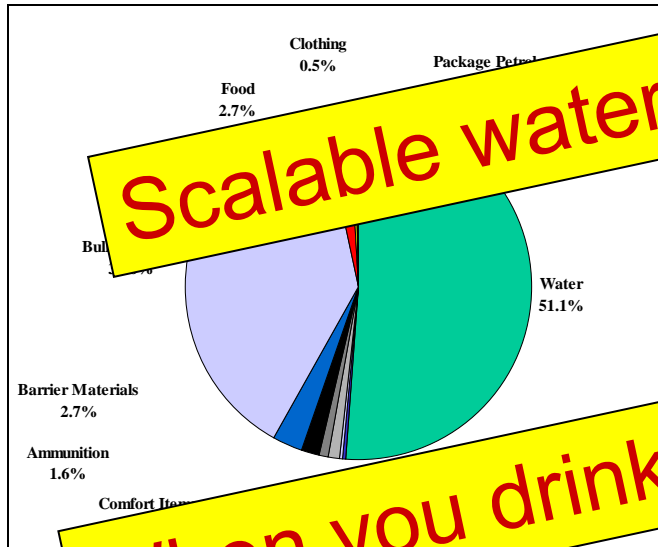
- Changing Paradigm
- Sustainment Snapshot
- Afghanistan Support Challenges
- Evolving Solutions



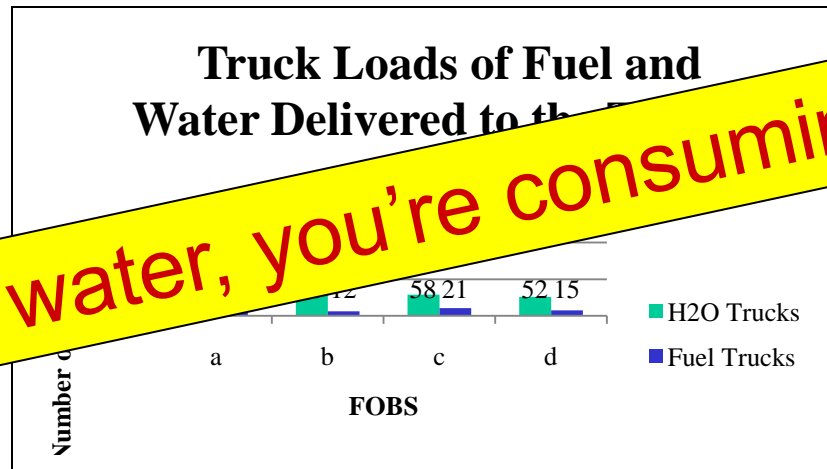
Paradigm Shift in OEF

Water delivery – A problem to the Tactical Edge

Classical Battlefield Model Fuel to Water Ratio



Afghanistan Experience



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

When you drink water, you're consuming fuel!

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



Paradigm Shift

Bottled water due to:

- Limited packaging capability
- Limited testing capability



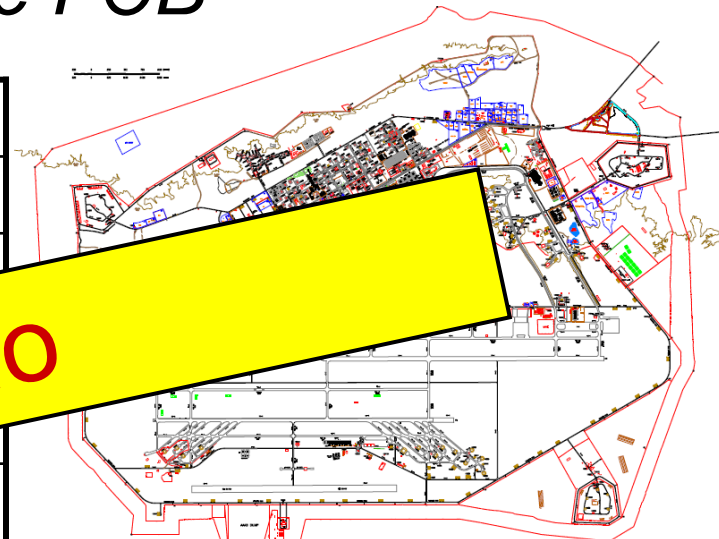
Sustainment Snapshot



Al Asad - Example of a mature FOB

	Reqmt	Capacity
Population	14,000	26,280
Tents	120	3535
Trailers	205	
Fuel (Ga/Day)		
Pot	55,000	21,000,000
Pow	23	800
Incineration (Tons/Day)	100	60

Similar Ratio



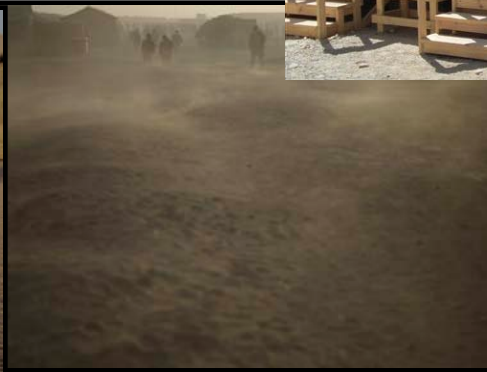
Sustainment Snapshot



Leatherneck - Maturing

	Reqmt	Capacity
Population	11,858	11,858
Tents	297	
Trailers		
Fuel (Gal/Day)		2,400,000
Potable Water (Gallons/Day)	231,000	600,000
Power (MW)	2	10
Incineration (Tons/Day)	47	47

4-to-1 Ratio



Sustainment Snapshot



COP Payne: Less-than-mature / austere

	Reqmt	Capacity
Population	1200	1200
Tents	50	
Trailers		
Fuel (Ga/Day)		20,000
Potential (G)	1600	20,000
Power (KW)	800KW	400KW
Incineration (Tons/Day)	.25	.75

Approximately 1-to-1 Ratio

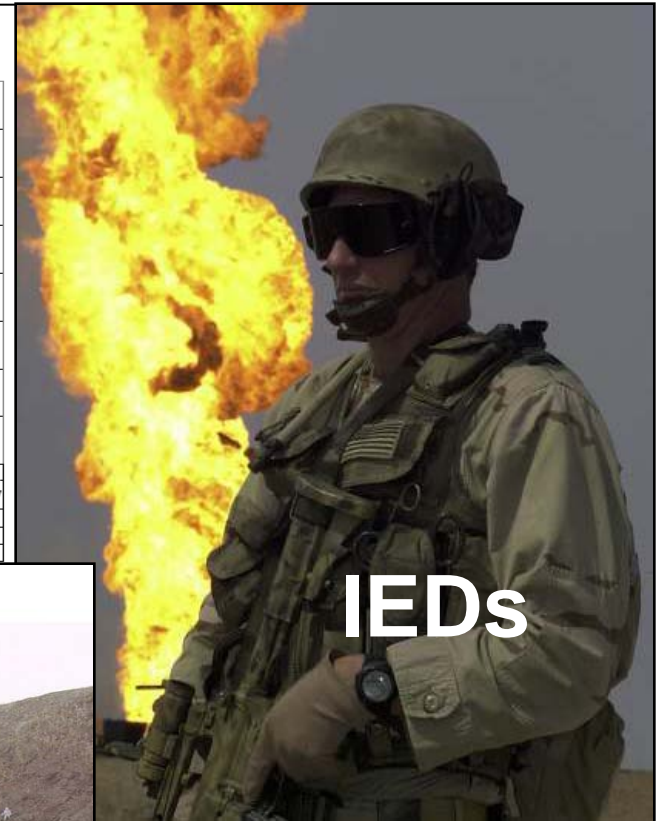
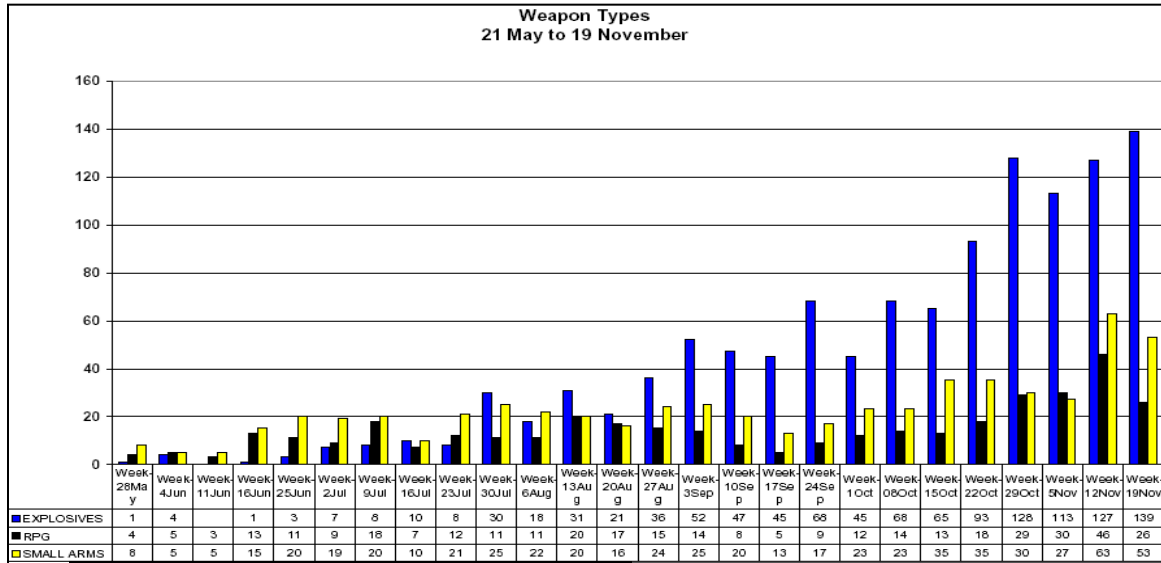




Afghanistan Support Challenges



Support Challenges



IEDs



Ground Resupply Dangers



Support Challenges

- Results in hoarding
- Many FOB's had nearly 30 DOS of Fuel and Water



Lake of Water



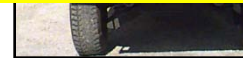
Lightweight Water Purifier



“Just in case” vs. “Just in time”



Bay of Batteries



Alternate
Energy Sources





Support Challenges



Waste piling up

Evolving Solutions



UAV Development

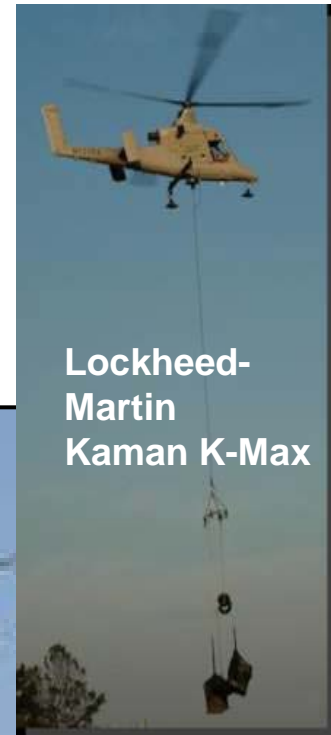
Two Bidders selected for Services Contract

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



Limited Assets – Aerial delivery accounts for only about 5% of all cargo movement

(CO, CLB-3 Interview)



Lockheed-Martin
Kaman K-Max



Boeing A160T

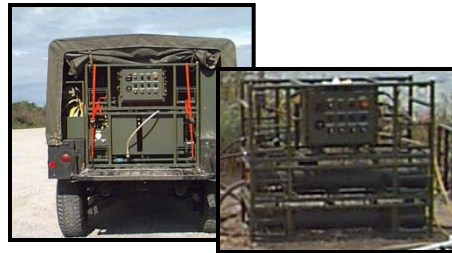


Evolving Solutions

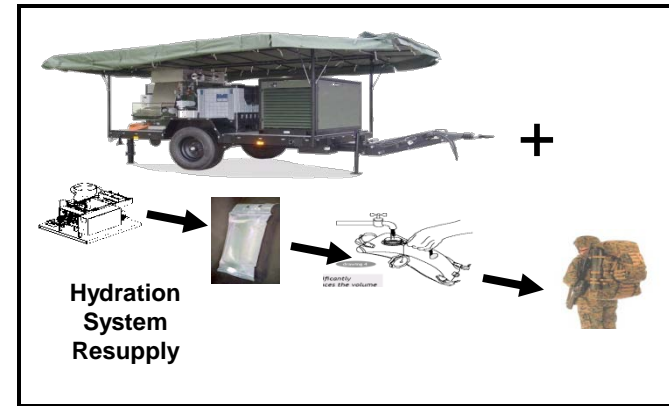
Tactical Water Purification System



Lightweight Water Purifier



Water Packaging System (WPS)



Current

Coming

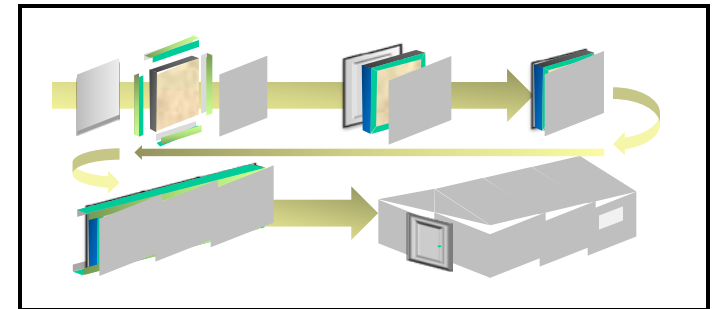
Evolving



Shelters



Foamed



Relocatable Buildings w/thermal Insulation



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



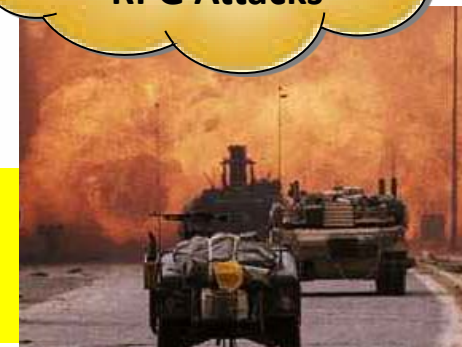
Highlighted
Throughput
Constraints

54 hours
to go
60km

Security
Requirements -
Cobra and R2C



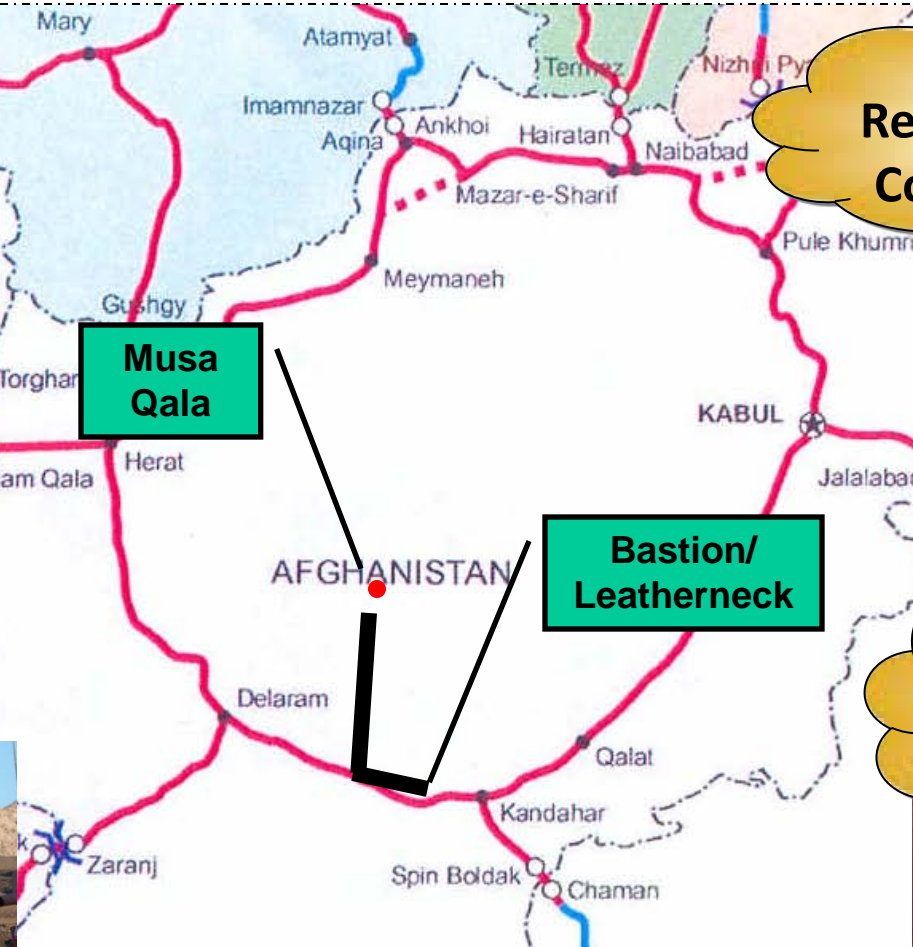
Enemy Gets A
Vote -
Multiple IED and
RPG Attacks



19 truck convoy from Camp
Leatherneck to Musa Qala

Musa
Qala

Bastion/
Leatherneck



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

