Engineering Research Development Center
Contingency Base
Virtual Forward Operating Base R&D Program

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18 October 2012
Engineering Research Development Center Contingency Base Virtual Forward Operating Base R&D Program

Presented at the 2012 Science, Technology & Requirements Forum held 17-18 October in Fort Leonard Wood, MO.
Agenda

- Contingency Base Planning and Design Goals
- Virtual Forward Operating Base (VFOB™) Effort
- Summary
- Questions
ERDC/CERL Contingency Basing Planning & Design Goals

- Reduce Resource Requirements
- Understand Functional Systems and System Dynamics
- Optimize Systems Designs
- Improve Sustainability
- Increase Modularity, Scalability, Adaptability, Reusability, Durability, and Reliability
- Enhance Survivability
- Improve Deployability

Force Multiplier + Reduce Casualties + Combat Multiplier
Virtual Forward Operating Bases (VFOB™)

VFOB Objective

- System of Systems
- Multi-scale
- Integrated Relationships
- Complex, Adaptive
- Open Source
- Modular Constructs
- Multi-functionality
- Easy Updates, Modifications
- Access to Technical Support
- Linked to Existing Simulation Capabilities
- Desk Top and Remote Access
- Intuitive User Interface

User Communities

Current VFOB-Lite efforts

Development, Testing, R&D Communities

Current 6.2 VFOB efforts

Frequency of Use

Knowledge, Training Necessary for Use

Sustainability (efficiency)

Where future deployed forces need to be operated

- complex adaptive systems integration
- systems integration
- system management
- multi use systems
- standard systems
- standard designs
- standard “parts”
- ad hoc, equipment and methods

Networked integrated CAS

Where current deployed forces tend to operate

Flexibility (effectiveness)

VFOB™ models Power, Water, Waste use for Contingency Bases

Innovative solutions for a safer, better world
**VFOB™ is a Multi-level Suite of Tools**

**Steady State**

- **Resource Calculator**
  - Linked Systems-level tool based on mission, PAX, Location

- **Planning Tool (VFOBLITE)**
  - Geo-rectified, Interface between systems and components

**Dynamic**

- **Power Model (PD2AT)**
  - Power generation and distribution model
  - Still in development

- **Waste Analysis Models**
  - Still in development

- **Water Resource Model**
  - Still in development

- **Detailed Component Analysis Models (DCAM)**
  - “Bottom-up”, detailed, defines use levels
### VFOB™ Layout and Information Tool Editor (VFOBLITE)

**Drag and Drop Templates, Systems, Components**

**Innovative solutions for a safer, better world**
Summary

- **ERDC/CERL is leading the way in developing methods and tools for planning and design for contingency bases**
  - Manage and operate CBITEC one of critical demonstration locations for TECD 4a for new capabilities
  - Co-Lead for TECD 4a Base Sustainment
  - NATO Net Zero Basing Lead for contingency base modeling.

- **ERDC/CERL VFOB™ effort has begun spiraling out planning and tools**
  - Resource Calculator Tool
    - Undergoing first round user test and evaluation
    - USMA evaluating as training tool
  - PD2AT
    - Completed proof of concept
    - Creating user community defined use case scenarios
  - VFOBLITE
    - Established geo-rectification of maps and templates, systems sets, and components.
    - Linked with Resource Calculator and PD2AT
    - Developing systems library for object model that is capable of linking with AFCS/JCMS
  - Developing dynamic systems time dependent use relationships
  - DCAM Library
    - Expanding and improving models for non-Force Provider base camps and new technologies
    - Will be used to validate existing relationships
    - Will be used to evaluate effects of new technologies on resource-use behavior
  - Developing Water and Waste models
  - Starting Dashboard Model Start FY14
Questions

25 Feb 20,000 BC… First Expeditionary Base Camp