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Abstract Reference #8788

Improving Stability Operations Data Sharing: Leveraging a COI Pilot to prove Concepts and Develop Trust

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Agenda

- Bottom Line Up Front
- Basis for this effort
- COCOM Demand Signals
- COI Charter
- COI Overview
- High level capability roadmap
- Problem Analysis: where to start, what to share
- Systems approach – Major Building Blocks
- The Pilot Team and the work process
- Scenario
- Basic Tenets
- Civ-Mil portal
- UMPC
- XForms
- Mobile Phone Application
- Next steps
- Additional Research

BLUF

- Purpose of the pilot initiative:
  - Proof of concept: net-centric sharing unclassified information services with partners
  - Demonstrate improved civil-military information sharing concepts and capabilities
  - Show: progress building relationships & capability
- Represents a start down the “To-Be” road - Identifies key components
- Approve recommendations for further work

What was the basis for this effort?

ASD(NII) Grimes

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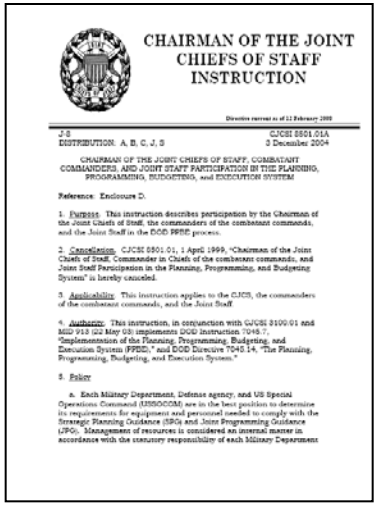

CHAIRMAN OF THE JOINT CHIEFS OF STAFF INSTRUCTION

CJCSI 3501.01A
3 December 2004

CHAIRMAN OF THE JOINT CHIEFS OF STAFF, COMBATANT COMMANDERS, AND JOINT STAFF PARTICIPATION IN THE PLANNING, PROGRAMMING, BUDGETING, and EXECUTION SYSTEM

COCOM IPLs

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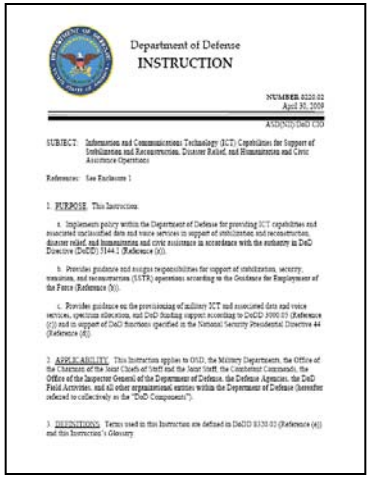


Department of Defense
INSTRUCTION

OSD Policy Mandates

= **Get it started**

COCOM's Demand Signal for Solutions

- **(U) FY11-15 IPLs identify requirements for unclassified info sharing with coalition, interagency, international and non-governmental organizations as part of the Building Partnerships Portfolio:**
  - USAFRICOM – Building Partners Capability
  - USCENTCOM – Building Partnership Capacity
  - USEUCOM- Building Partner Capacity Planning and Execution
  - USJFCOM- DoD and Interagency Training and Capabilities (BP)
  - USNORTHCOM- Building Partnerships
  - USPACOM- Build Partner Capacity
  - USSOUTHCOM- Humanitarian Assistance and Disaster Response (Building Partnership Capacity)

COCOM IPL's reflect the need

COI Charter

- Get operators, technologists, academicians, civil, military
- Determine nature of the information sharing problem
- Frame high level capability roadmap
- Scope a pilot
- Get it done in a year
- Open source, open standards, license free
- Comply with net-centric data sharing policy

Stability Operations COI Overview

- More than DoD > USAID, DoS, UN, IOs, NGOs
- OCONUS Focus > Domestic response not examined
- Cyclone Nargis – final catalyst – summer 2008
- ASD (NII) recognized need to begin
- IIS solicited support from DoS HIU
- Concept approved by Information Mgmt Office of NII
- Kickoff 1 OCT 08
- 4 plenary sessions, 4 data working group, multiple pilot working group – now 250 members
- Consultation with SME's

What is a COI?

Community of Interest: A collaborative group of users that must exchange information in pursuit of its shared **goals, interests, missions, or business processes** and therefore must have shared vocabulary for the information it exchanges. - DoD Directive 8320.2

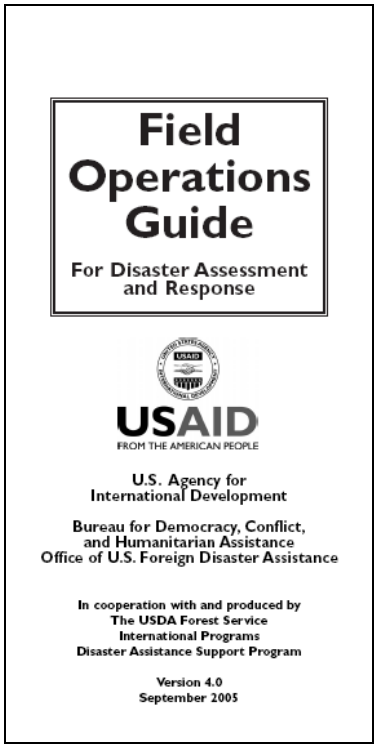
Key findings

High Level Capability Roadmap

1. Do **HADR Pilot** – illustrative of broader Stab Ops environment
2. Methodology should support **tailorable content** based on end-user role
3. **Geospatially coordinated information**
4. **Assessment reports based upon an agreed vocabulary**
5. Imagery + Assessment Report most useful>> **Food, Water, Shelter**
6. Role based access with a PKI solution – future consideration- get the basics done first
7. Information sharing capabilities must include **small form factors** i.e., 3G cell phones, smart phones, UMPC
8. **Open source** / open standard when and where practical- **no fees**
9. Examine **existing portals** – don't build anything new - integrate existing efforts
10. Leverage U-Core and STANAG 5525 >> Accessible, Visible, Understandable to programs of record >> abide by DoD policy
11. Common data model for the Community

Where to start and what to share?
HADR Assessments

- Victims / Displaced persons
- **Food**
- Nutrition
- Health
- **Water**
- **Shelter**
- Sanitation
- Agriculture & Livestock
- Search & Rescue
- Logistics
- Infrastructure



Civil

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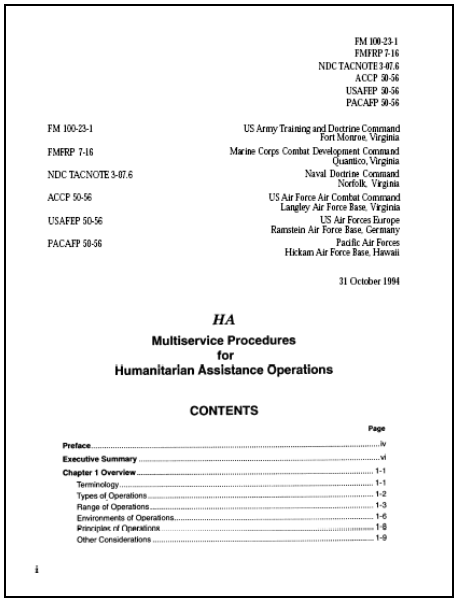
FM 100-23-1

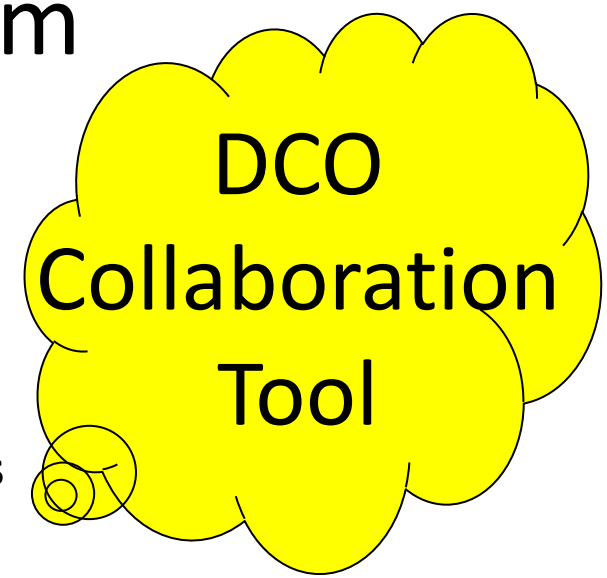


Military

Major Systemic Considerations

- ✓ Collaborative Environment - Harmonieweb proponent - Chief, Collaboration Support/Portal Development & Implementation J6 Directorate, USJFCOM
  - ✓ Social media, collaboration space
  - ✓ List and Map views with RSS / GeoRSS content
  - ✓ MMS jpg
- ✓ Bridge – Civil-Military – C2 Data Services - Checkmate system, JIEDDO submission, sponsor TRADOC Program Integration Office – Battle Command
  - ✓ STANAG 5525 – NATO/MIP JC3IEDM semantics
  - ✓ U-Core
  - ✓ ABCS – MCS
  - ✓ SMS txt
- ✓ Internet Based Humanitarian Presence – generated internally- Google Maps Mashup- GeoRSS
- ✓ XForms – FWS Services (similar to USAID FOG & OFDA Form 82) Naval Undersea Warfare Center, Division Newport
  - ✓ W3C XML standard for web forms
  - ✓ Orbeon open source Xforms technology
  - ✓ Generates JC3IEDM messages for the C2 Data Service

The Pilot Working Group Team



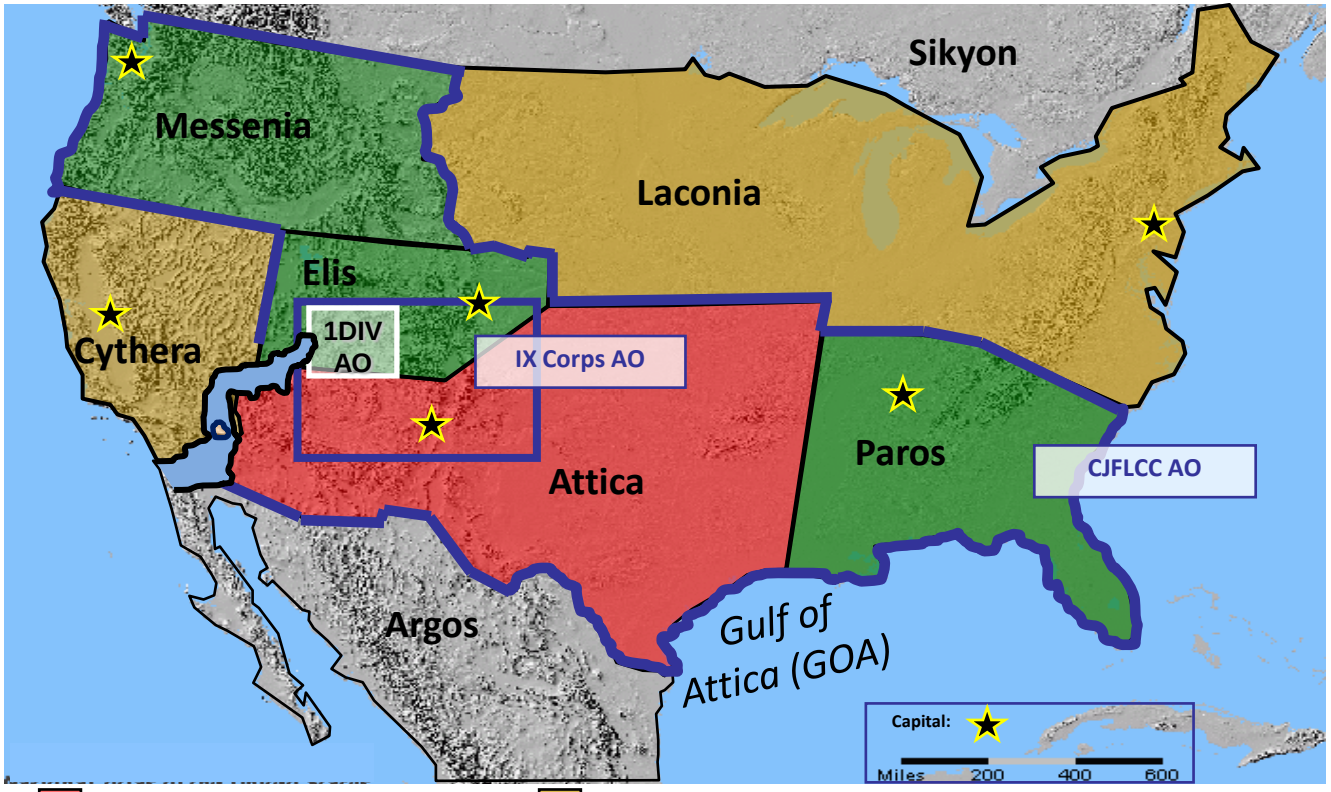
- C2 Data Services – **Leavenworth, Kansas**
  - Dave Vincent , Computer Science Corporation
- Dataswarm UMPC – **Leavenworth, Kansas**
  - Dr. Scott Bublin, Mobile Reasoning
- Cellphone-based reporting – **Fort Leavenworth, Kansas**
  - Bruce Montgomery, Combined Arms Center
- Harmonieweb – **Norfolk, Virginia**
  - DoD Unclassified HADR Portal – David McWee, Microlink
- Food Water Shelter Assessment Services- **Newport, Rhode Island**
  - Erik Chaum, Naval Undersea Warfare Center
- NGO Site – trusted HA partner – **Arlington, Virginia**
  - Sean McCarthy, FCI

HADR Pilot Scenario

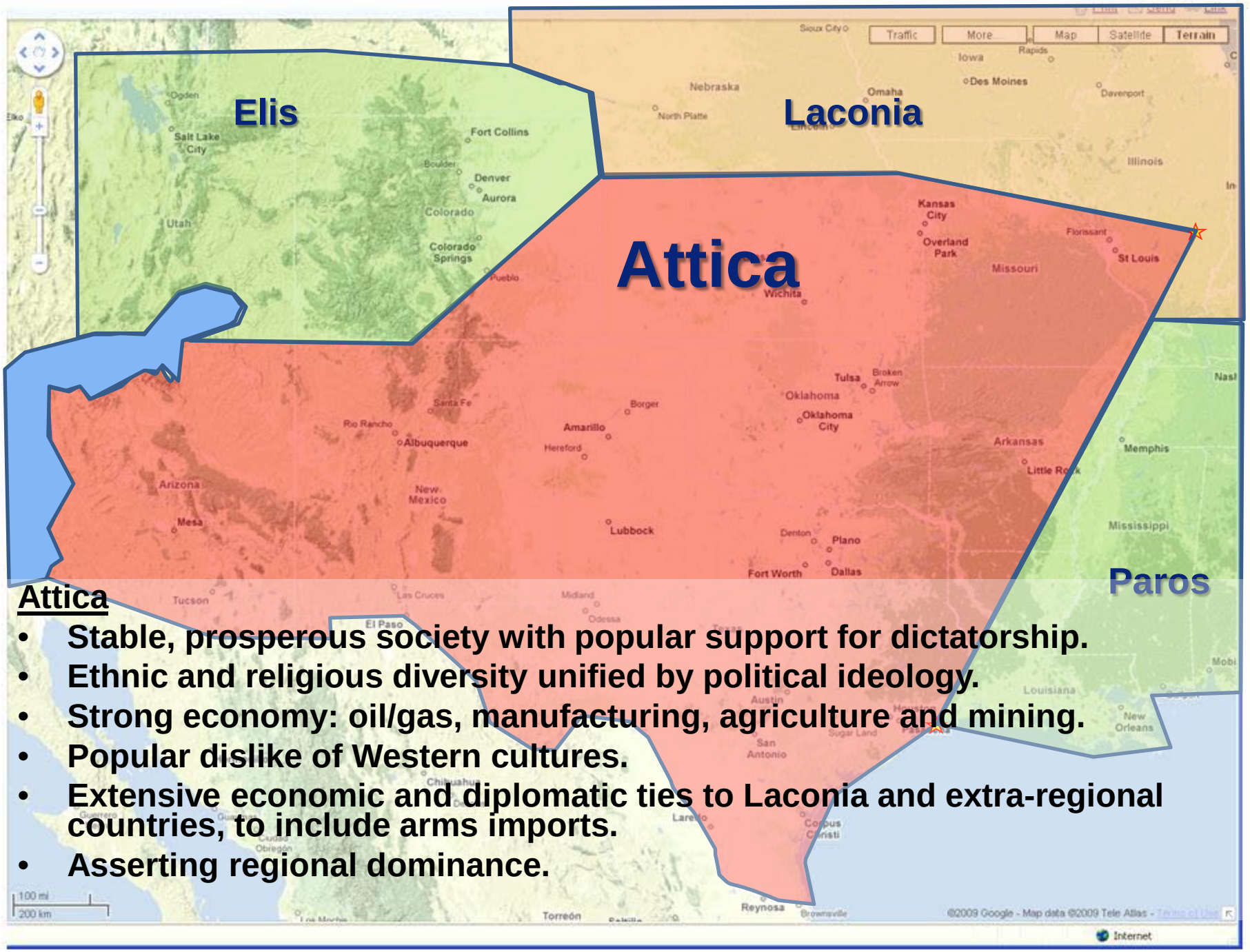
Caveat: The fictional Aegean region is overlaid on the US.
This is a by-product of exercise OMNI FUSION 2009.
This is coincidental and does not intend to imply a domestic focus.
The Stab Ops COI is focused on OCONUS operations.

Geography

Fictional Aegean Region

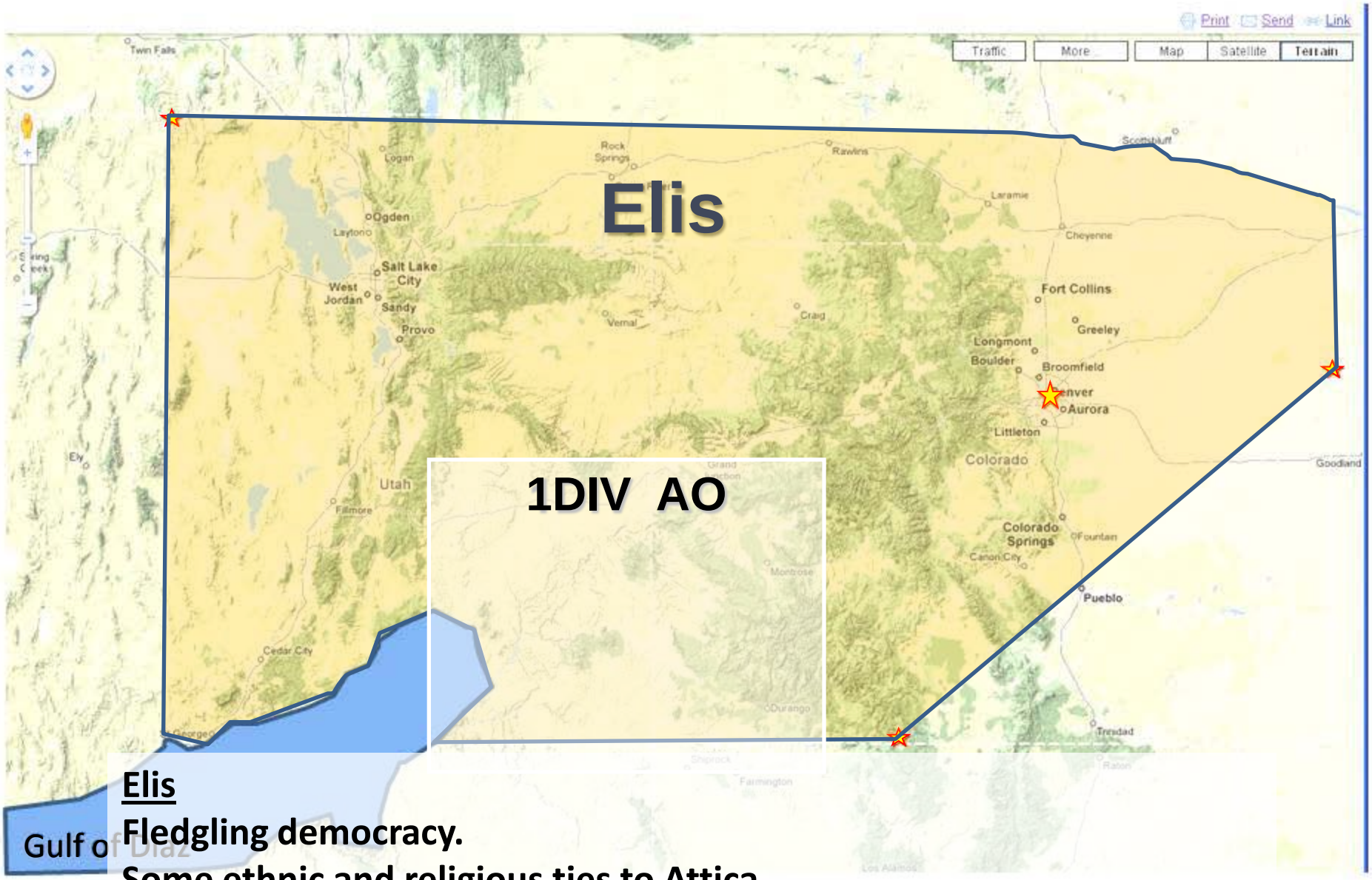


Belligerent state
Neutral state
State supporting Attica
State supporting Coalition



Attica

- Stable, prosperous society with popular support for dictatorship.
- Ethnic and religious diversity unified by political ideology.
- Strong economy: oil/gas, manufacturing, agriculture and mining.
- Popular dislike of Western cultures.
- Extensive economic and diplomatic ties to Laconia and extra-regional countries, to include arms imports.
- Asserting regional dominance.



Elis

Fledgling democracy.

Some ethnic and religious ties to Attica.

Elis' relations with U.S. and West have created tension with Attica.

Coalition Forces

CJTF-Freedom

++ MEDCOM (DS)

++ TSC

++ TIB

++ TIOG

Tenth XXXX ARFOR CJFLCC

CJFSOCC

CJFACC

CJPOTF

CJFMCC

CJCMOTF

IX XXX

1 XX	4 XX	7 XX
1st HBCT	4th HBCT	1 MECH (AS)
1st SBCT	4th SBCT	4 CMBG (CA)
2d SBCT	2d IBCT	12 MECH (UK)
1st IBCT	3d IBCT	4th IBCT
5th IBCT	5th IBCT	5th MBCT
2nd UK	4th FIRES	7th FIRES
1st FIRES	4th MEB	7th MEB
1st MEB	4th CAB (M)	12th MEB
1st CAB (H)	11th CAB (M)	7th CAB (H)
1st BFSB	4th BFSB	7th BFSB
		205th MED

X XXX

2 XX	3 XX	5 XX
2d HBCT	3rd HBCT	5th HBCT
9th HBCT	9th IBCT	6th SBCT
6th IBCT	10th IBCT	11th IBCT
7th IBCT	3d FIRES	6th MAR REG
8th IBCT	3d MEB	7th MAR REG
2d FIRES	3d CAB (M)	5th FIRES
2d MEB		5th MEB
2d CAB (H)		5th CAB (H)
12th CAB (L)		5th BFSB

9 XXX *

6 XX	1 XX(+)
6th HBCT	1st REG (IN)
12th IBCT	2nd REG (IN)
13th IBCT	3rd REG (IN)
6th FIRES	9th REG (FA)
6th MEB	2nd RCR (UK)
6th CAB (H)	

* Task Organized under CJFLCC after landing.

Situation

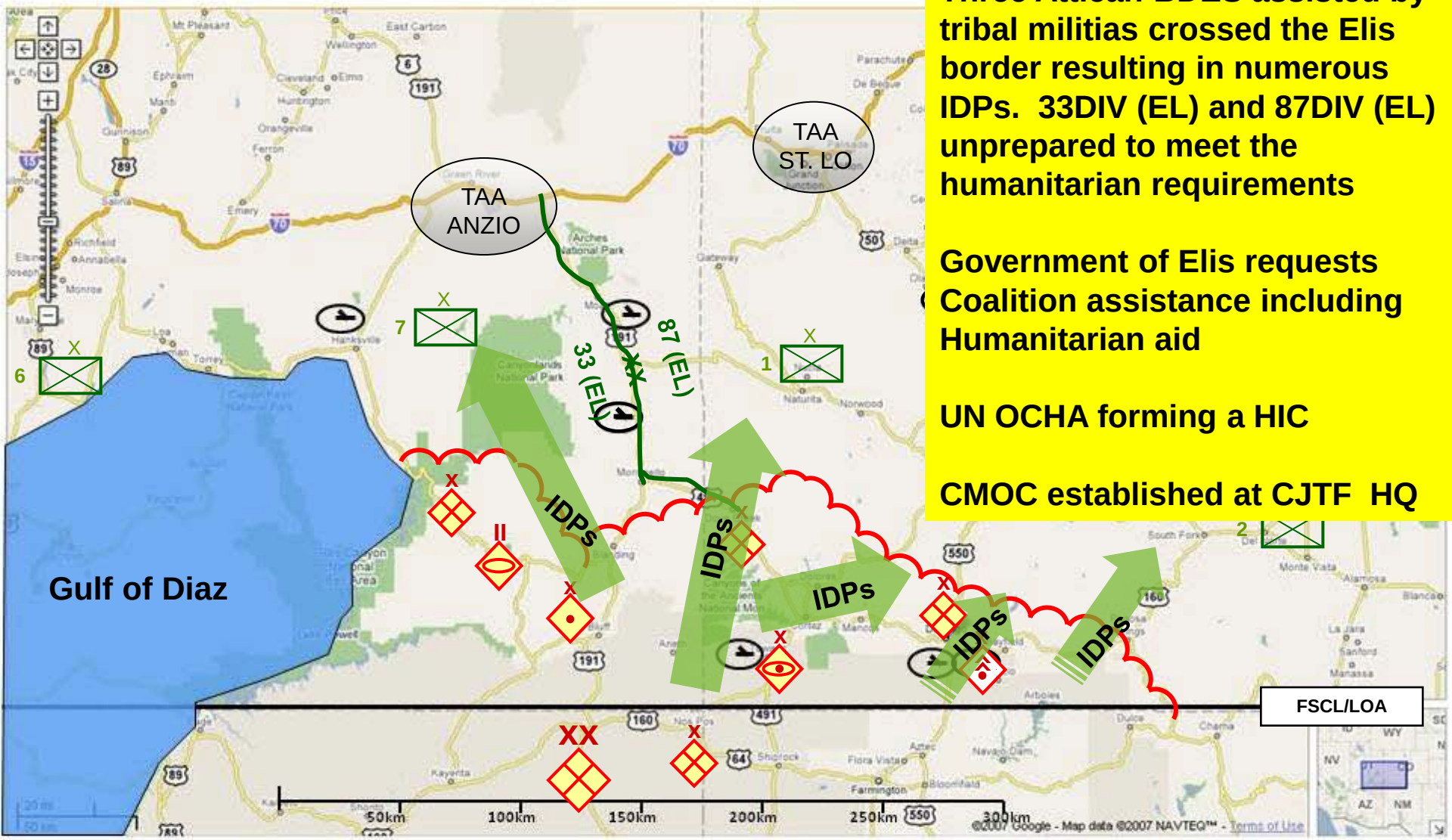
Elis Border Incursion

Three Attican BDES assisted by tribal militias crossed the Elis border resulting in numerous IDPs. 33DIV (EL) and 87DIV (EL) unprepared to meet the humanitarian requirements

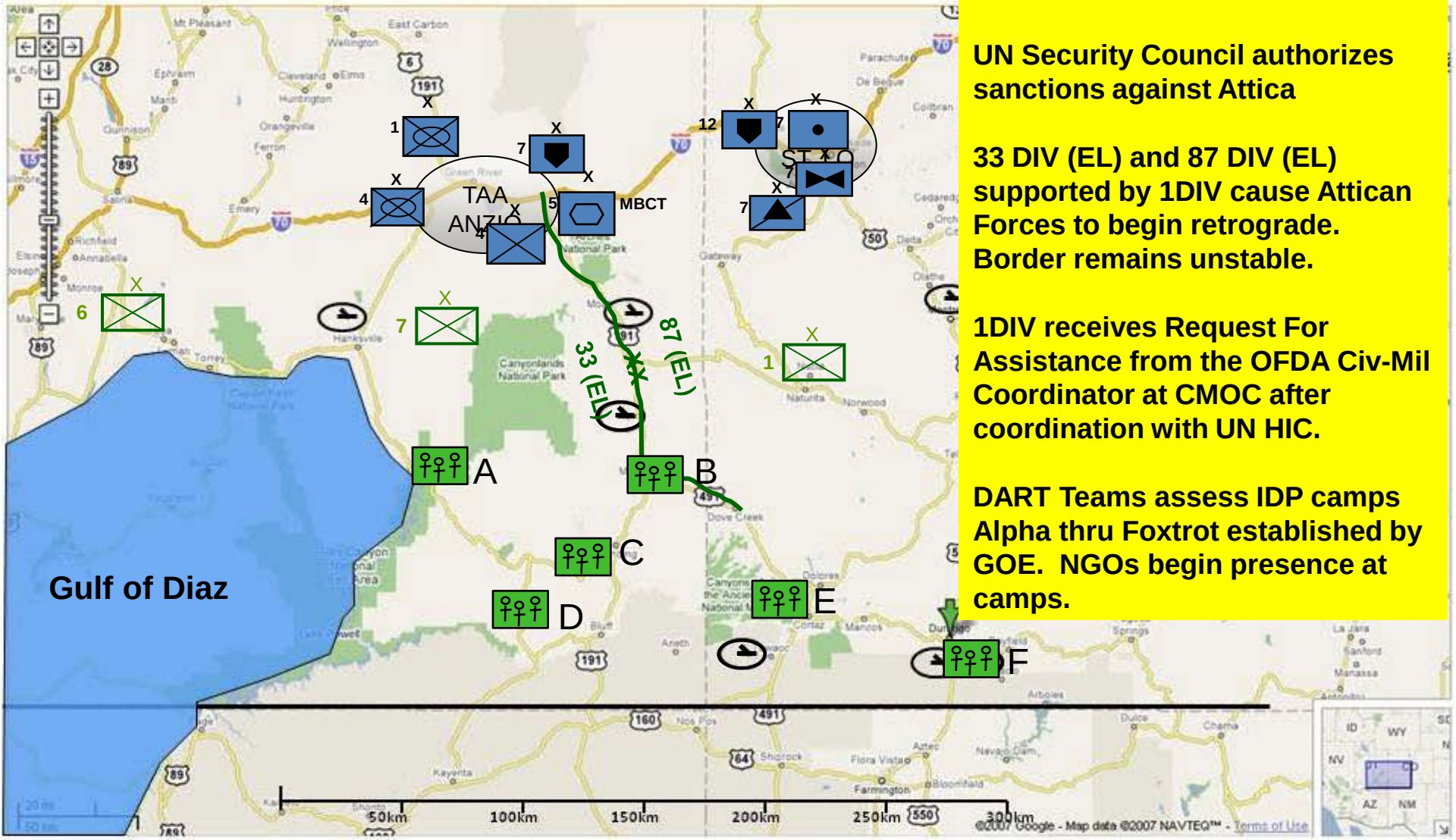
Government of Elis requests Coalition assistance including Humanitarian aid

UN OCHA forming a HIC

CMOC established at CJTF HQ



Humanitarian Scenario



30 September 2009

Key Basic Tenets

- Military supports USAID in HA efforts
- Military interactions with the NGO community will be coordinated with US country team, particularly OFDA disaster assistance response team (DART) representatives.
- The characteristics, missions, and capabilities of individual NGOs are diverse. All are involved in direct humanitarian aid with host populations. Each organization operates individually.
- NGOs provide the bulk of HA at the grassroots level.
- The military structure can provide logistics and security assistance to remote and unsecured areas.
- NGOs may operate in areas of high risk, where other organizations are hesitant to go. NGO assessments are often an excellent source of information on the HA situation.

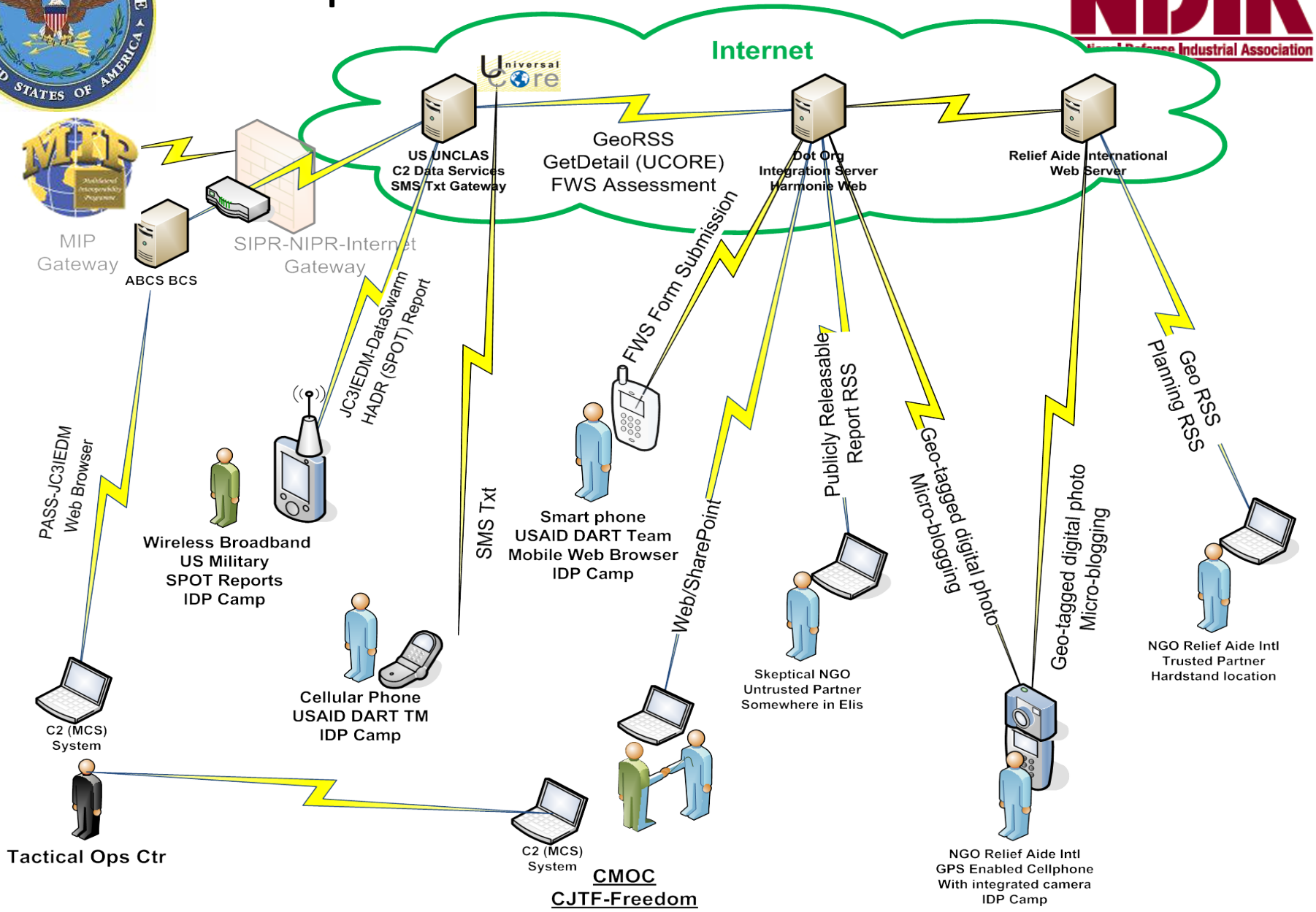
Scenario Assumptions

- Cellular Broadband Wireless Service covers AOR
- Some NGOs willing to collaborate in a federated approach
- Some NGOs unwilling to use portal but will exploit syndication
- US Country Team designee from OFDA in CMOC
- US-centric humanitarian response in 1 DIV AOR
- Permissive environment at IDP camps

Pilot Threads

- USAID OFDA DART Team member Bruce Montgomery uses Short Message Service to provide “Clear, concise, timely, practical, operational findings” of IDP Camp Alpha
- USAID OFDA DART Team member Bruce Montgomery uses the Mobileweb browser to access, populate, submit FWS assessment template.
- US Service member Scott Bublin uses handheld computer and wireless broadband to render aide-focused SPOT report at Camp Bravo.
- USAID Civ-Mil Country Team Designee Erik Chaum in CMOC completes FWS template (xForms) and coordinates with the military.
- Cooperative notional NGO, ReliefAide International, Sean McCarthy shares findings and geospatial information via syndication from Camp Charlie.
- ReliefAide member David McWee provides digital geo-tagged photo from Camp Charlie.
- ReliefAide member David McWee employs Social Media “Twitter” to “Tweet” [microblog] observations.
- Skeptical NGO wanting operational situation reports that are vetted as publicly releasable and available via syndication from HarmonieWeb

Pilot Operational View Architecture



HARMONIEWeb.org

Lists
Links
Account
Login
Request an Account
Lost Password Help
Partner Organizations
Request Privileged Domain
Create HelpDesk
Request
Help Desk Status

External Links
- STAR-TIDES Program
- Reliefweb
- International Committee of the Red Cross
- Georgia

Documents
Getting Started in HARMONIEWeb

Login/Go to Portal

HARMONIEWeb.org is an internet accessible environment for the exchange of information across the civil-government boundary associated with Stability, Security, Transition and Reconstruction Operations or Humanitarian Assistance and Disaster relief.

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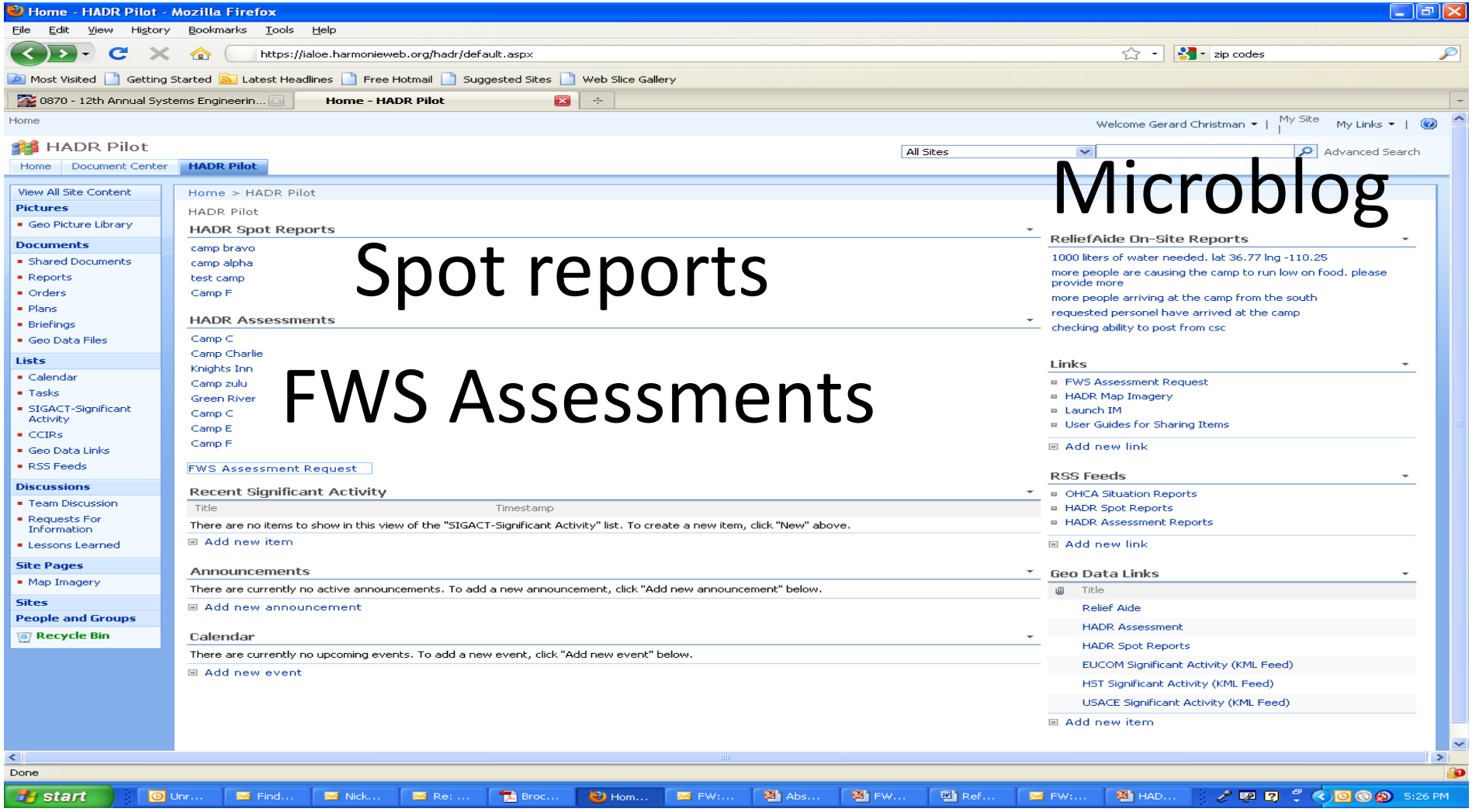
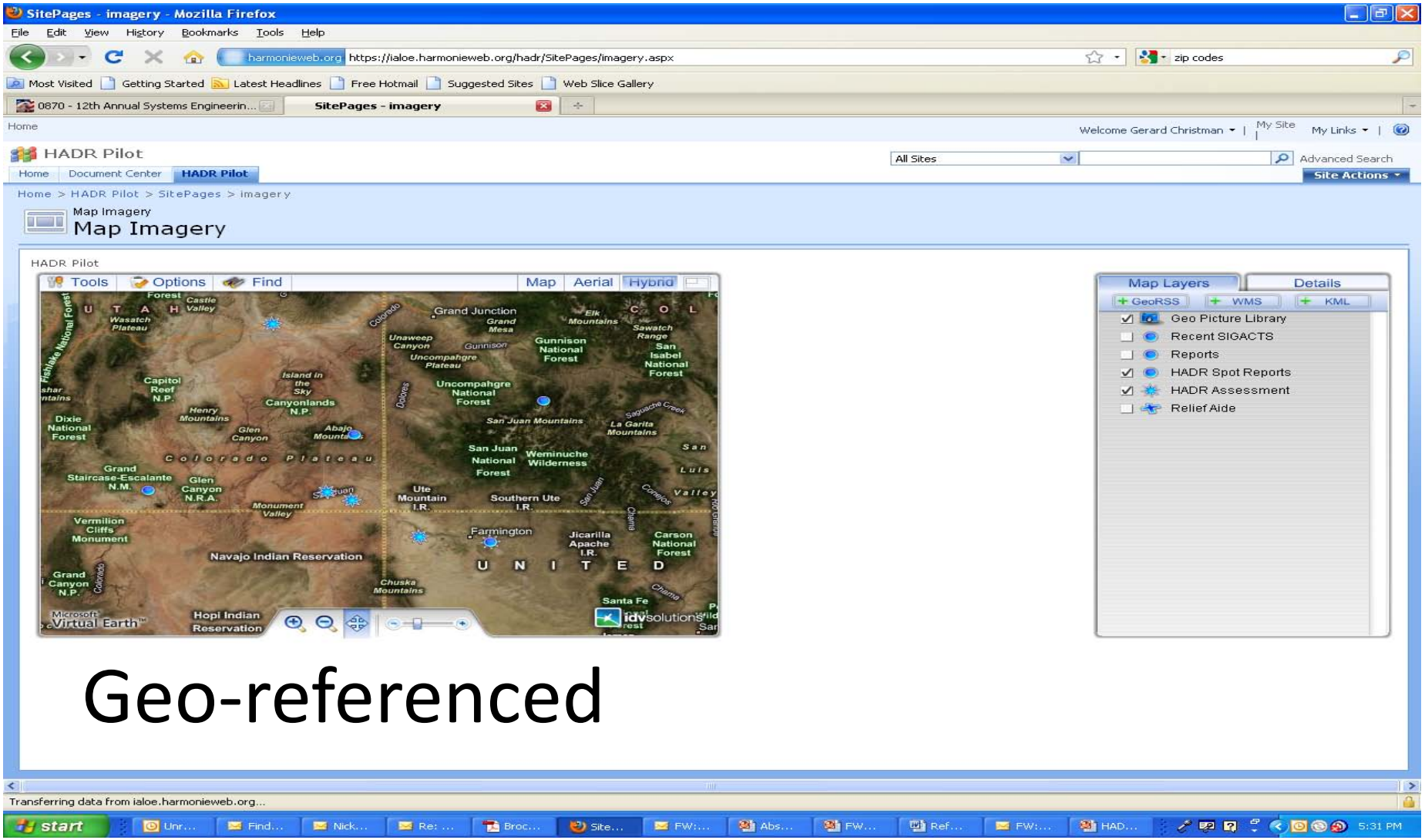
Civ-Mil portal



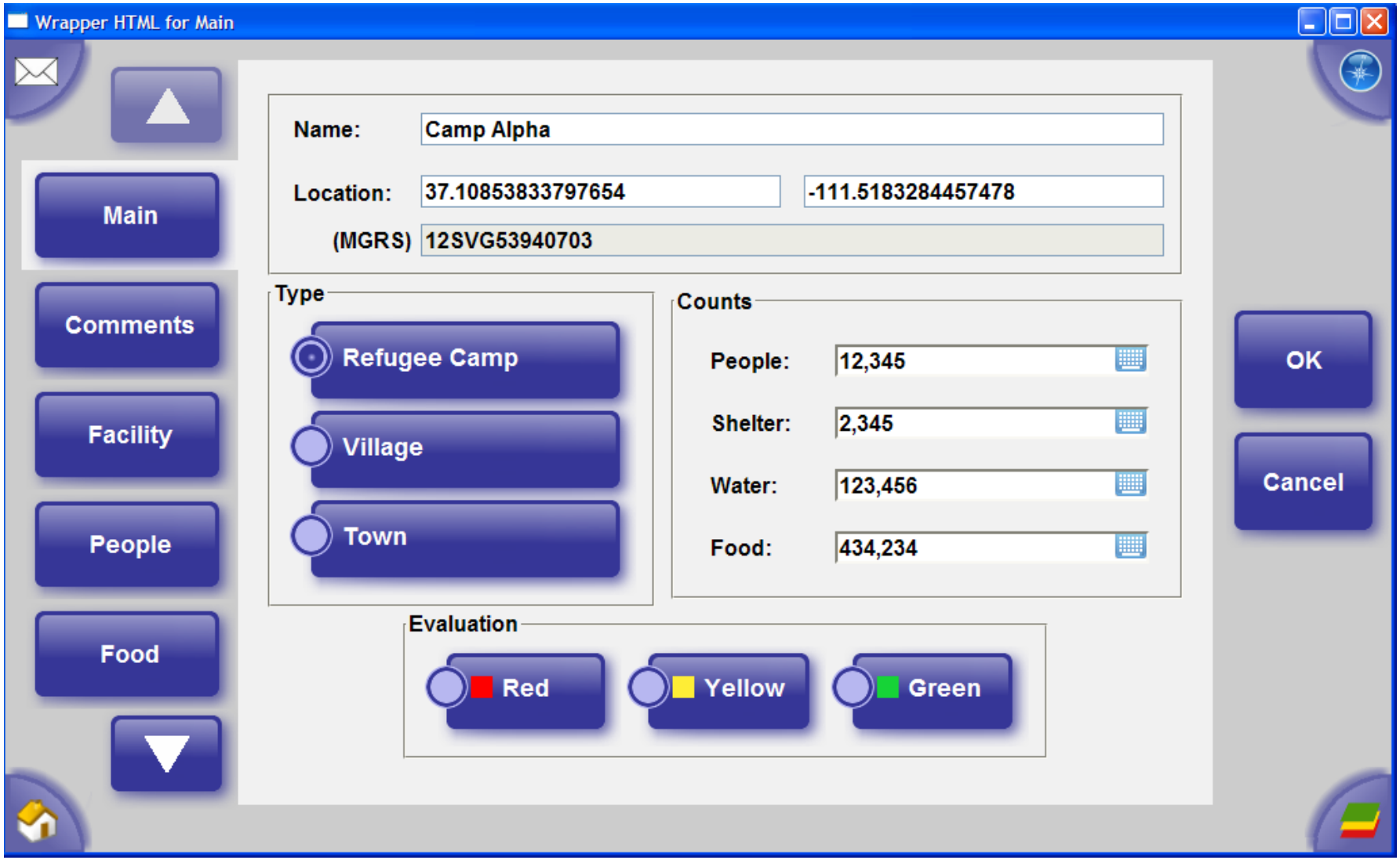
Civ-Mil portal

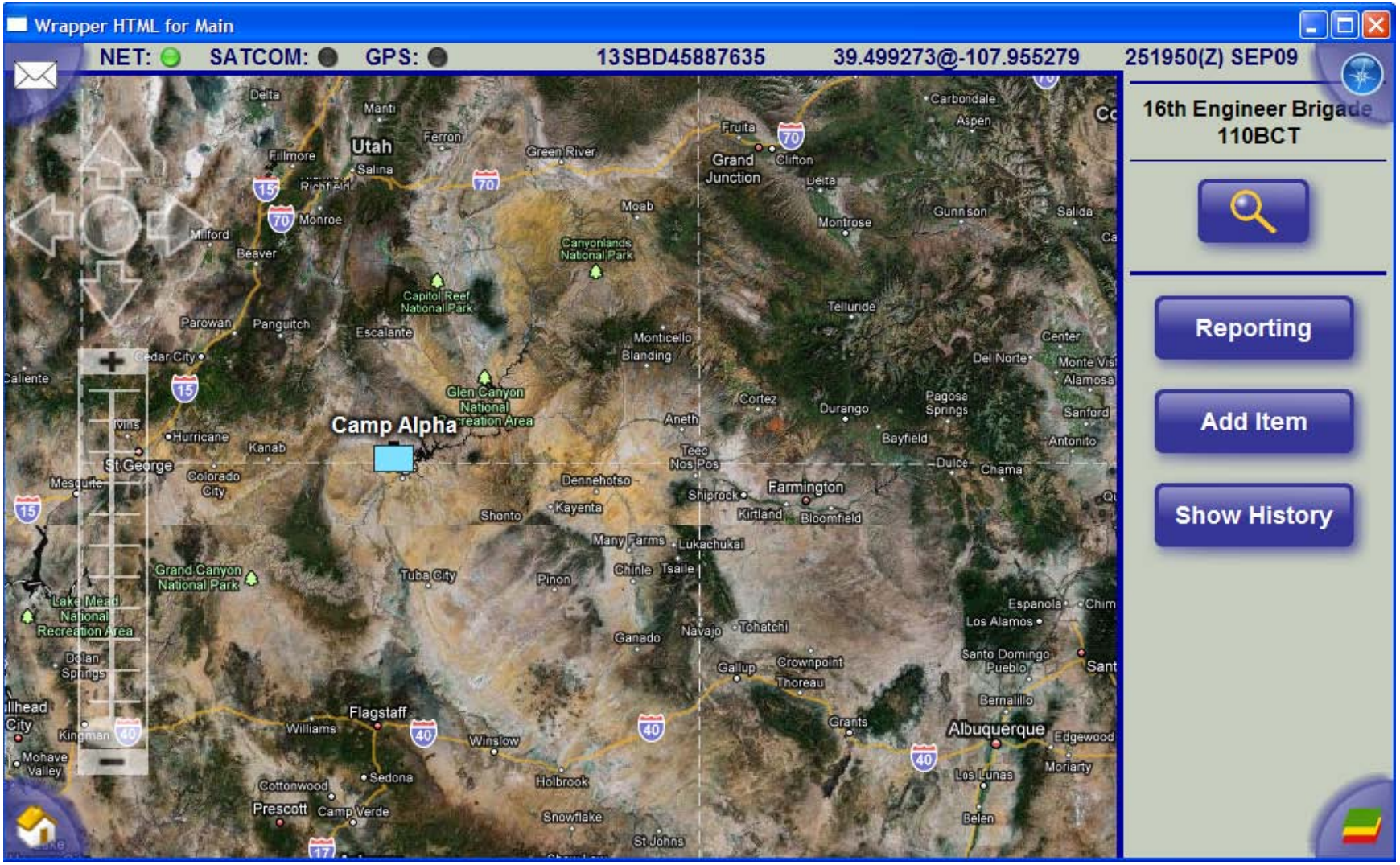


Geo-referenced

UltraMobile PC
UMPC

UMPC SPOT Report



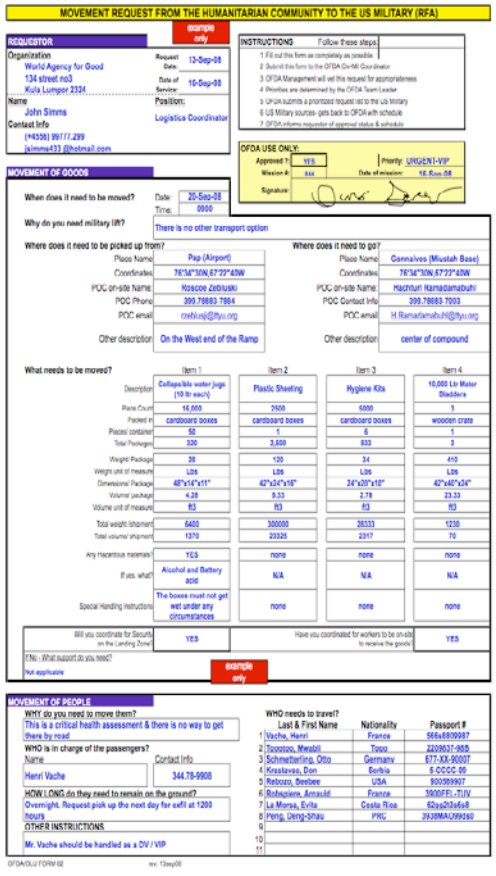

Wrapper HTML for Main
NET:
SATCOM:
GPS:
13SBD45887635
39.499273@-107.955279
251950(Z) SEP09
16th Engineer Brigade
110BCT
Reporting
Add Item
Show History
Camp Alpha
Utah
Delta
Manti
Ferron
Fillmore
Salina
Green River
Grand Junction
Fruita
Clifton
Carbondale
Aspen
Moab
Monticello
Blanding
Telluride
Montrose
Gunnison
Salida
Canyonlands National Park
Capitol Reef National Park
Glen Canyon National Recreation Area
Escalante
Parowan
Panguitch
Milford
Beaver
Monroe
Cedar City
St George
Hurricane
Kanab
Colorado City
Mesquite
Cortez
Durango
Pagosa Springs
Bayfield
Farmington
Aneth
Teec Nos Pos
Dennehotso
Shiprock
Kirtland
Bloomfield
Dulce
Chama
Del Norte
Alamosa
Sanford
Antonito
Center
Shonto
Kayenta
Many Farms
Lukachukai
Chinle
Tsaile
Pinon
Tuba City
Grand Canyon National Park
Lake Mead National Recreation Area
Dolan Springs
Kingman
Mohave Valley
Navajo
Tohatchi
Ganado
Gallup
Crownpoint
Thoreau
Los Alamos
Espanola
Santo Domingo Pueblo
Bernalillo
Albuquerque
Edgewood
Moriarty
Los Lunas
Belen
Grants
Flagstaff
Williams
Winslow
Holbrook
Sedona
Cottonwood
Prescott
Camp Verde
Snowflake
St Johns

Food, Water, Shelter Assessment Requests

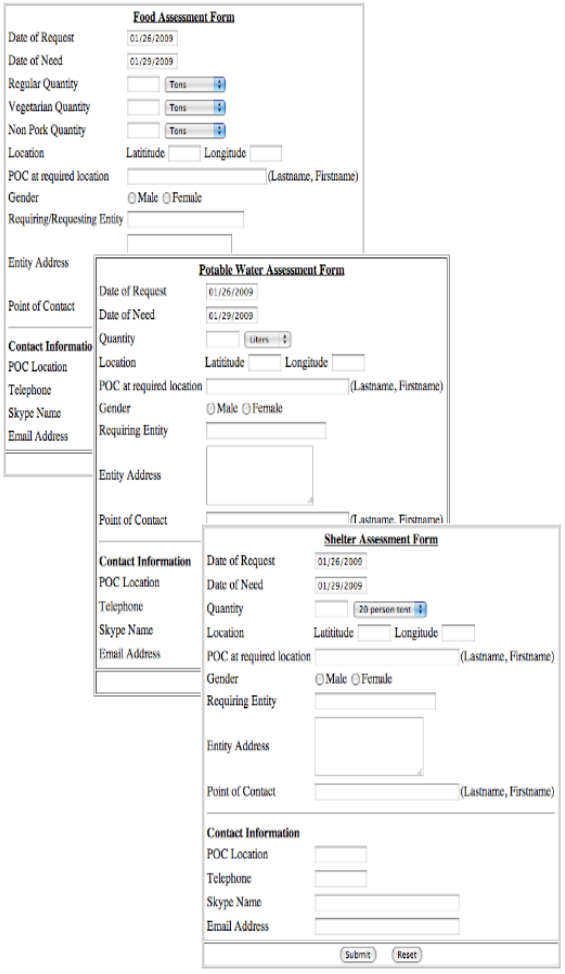
- Objective:
  - Provide a simple web-form and supporting services that can be used to report and coordinate FWS assessments and requests.
  - Ensure that FWS Assessment Requests can be understood by military C2 systems supporting HADR ops - STANAG 5525

- Implementation Approach:
  - W3C XForms standard and XML processing
  - Orbeon XForms technology

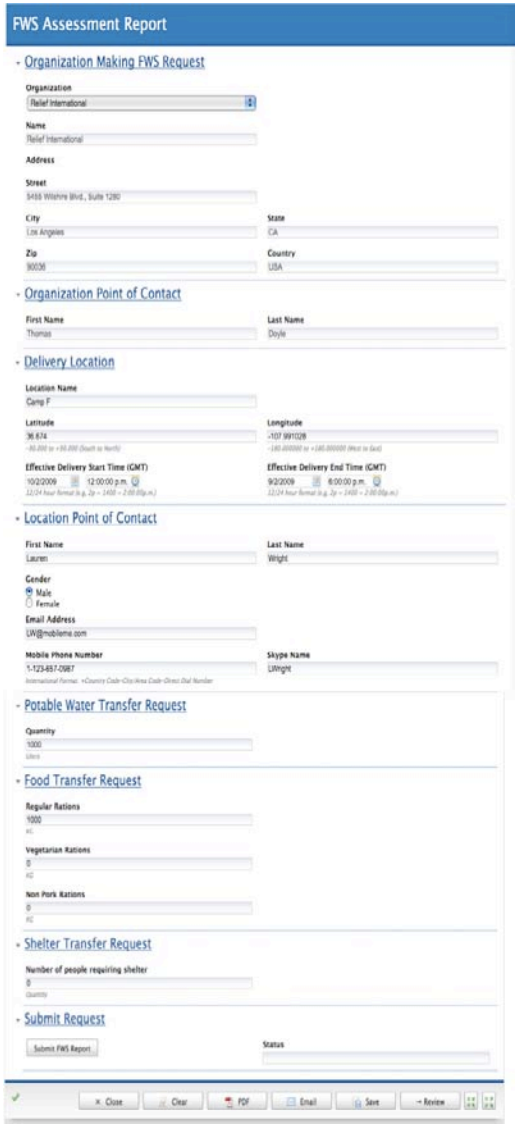
Paper to Network-Enabled



OFDA/OLU FORM 82

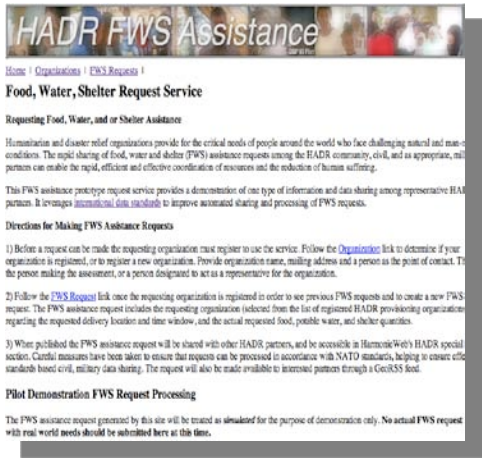


COI Notional FWS Forms

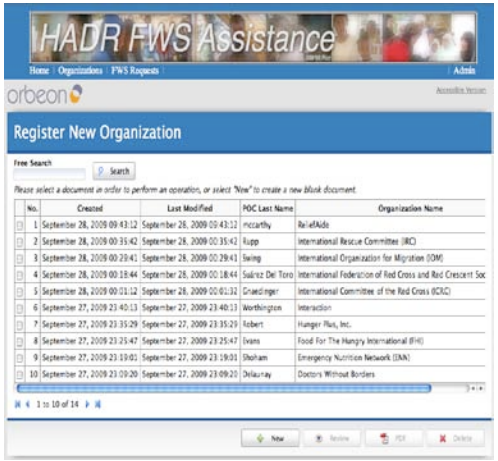


Deployed FWS Form (XForm Technology)

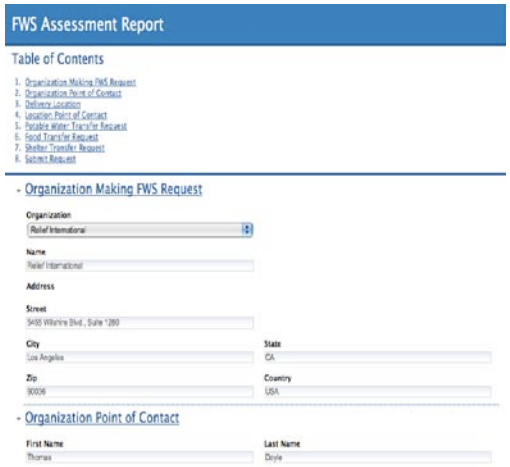
FWS Services & Pages



Overview & Instructions



Register Organizations



FWS Assessment Request

PC or SmartPhone

Civil - Military Sharing

STAB OPS COI FWS
Assessment Sharing

HarmonieWeb

FWS

NGOs

Optional Share
with Military

(*Transform*)

CDS*

Civil-Military
Sharing Services

US C2
Data Services

Sharing with
Military Partner

(STANAG 5525,
JC3IEDM)

Optional Share
with STAB OPS COI
(*Mediate*)

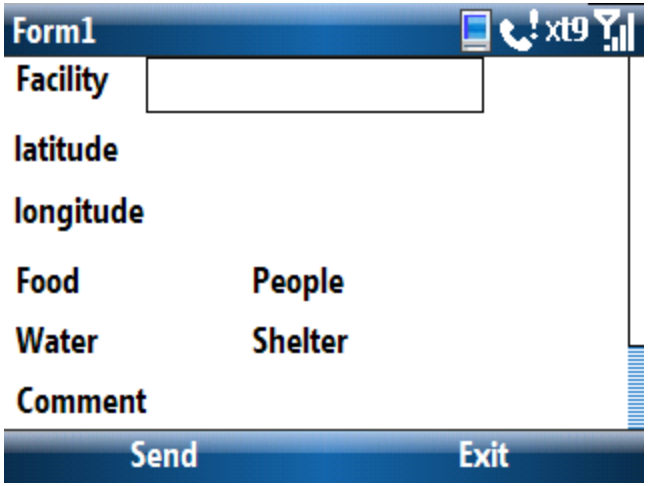
Spot
& FWS

GeoRSS

* No CDS in Demonstration

Mobile phone app

- 3.3B mobile phones worldwide
- Windows Mobile 6.0
- Food, Water, Shelter



Leverage existing Committees for Governance

Prescribed methodology

Mission Area & Domain Portfolio Managers

Executive Board (FO/GO) Chair or Co-Chair

- Promote & review COI activities
- Resolve cross-COI discrepancies

Steering Committee Forum (Chair or Co-Chair)

- Ensure appropriate participation
- Act as primary COI POC
- Track milestones & success criteria

Joint Implementation Working Group (Appropriate Lead/Co-Lead)

- Define & implement high level COI capability roadmap and schedule milestones
- Stand up Pilot WG as needed
- Synchronize COI products with existing processes (e.g., JCIDS, Acquisition, PPBE)

Data Management Working Group (Appropriate Lead/Co-Lead)

- Develop shared vocabulary for a given problem area in accordance with the DoD Net-Centric Data Strategy

Pilot Demonstration Working Group (Appropriate Lead/Co-Lead)

- Develop repeatable process to demonstrate COI products (e.g, COI vocabulary)
- Leverage core enterprise services
- Execute as risk reduction for next Pgm of Record (PoR) spiral

Additional Working Groups as needed

Building further consensus

- Shared Process
  - Coordinated: Relief Aid, Transportation, Security, Health
- Shared Service
  - Situation & Assessment Reporting, Coordination, Request
- Shared Data needs
  - **Victims/Displaced persons**
  - ✓ Food
  - **Nutrition**
  - **Health**
  - ✓ Water
  - ✓ Shelter
  - **Sanitation**
  - **Agriculture & Livestock**
  - **Search & Rescue**
  - **Logistics**
  - **Infrastructure/facilities**

Synchronizing with other existing processes

Tightly Couple with ISIP Focus Area 6

- Establish a set of web-service specifications to drive the net-centric development of functionality common to civil support and SSTR operations built on DoD Core Enterprise Service (CES) standards
- Establish various authentication and access standards/mechanisms to allow DoD and its external mission partners, both planned and unanticipated, to achieve an appropriate level of access to information concerning civil support and SSTR operations
- Develop standards for control measures to ensure the integrity and protection of information
- Establish data exchange standards to facilitate the sharing and integrating of information from across the various portal instantiations
- Develop a common look-and-feel among civil support/SSTR portals to facilitate ease of use and to reduce training requirements
- Leverage solutions developed by the combatant commands

Synchronizing with other existing processes

Leverage existing Civil Affairs Assessments

IKE w/GATER

Mobile GATER

Desktop GATER

Online GATER

UROC Centralized Geodatabase

Graphic Visualization

Tabular Visualization

Synchronizing with other existing processes

Integrate into JFCOM **Joint Concept Development** and **Experimentation**

- **JFCOM** is the DoD lead agency
  - Identifies major challenges facing the joint warfighter, to include combined and interagency operations; projects change year-to-year based on Warfighter Challenges prioritized by the COCOMs
  - Projects solve challenges in terms of doctrine, organization, training, materiel, leadership and education, personnel, facilities and/or policy changes
- Limited Objective Experiment (LOE)
  - Proposed solution is introduced into a simulated environment to observe its effect; prove/disprove an hypothesis by comparison to a baseline solution or to an observable standard.

  FY10 Experiments:
    - **Comprehensive Approach Interagency Concept (CAIC).** Problem statement: "The Joint Force Commander lacks a common concept to synchronize the diverse efforts of U.S. Government agencies, IOs, and NGOs into an integrated effort in response to crises and conflicts."

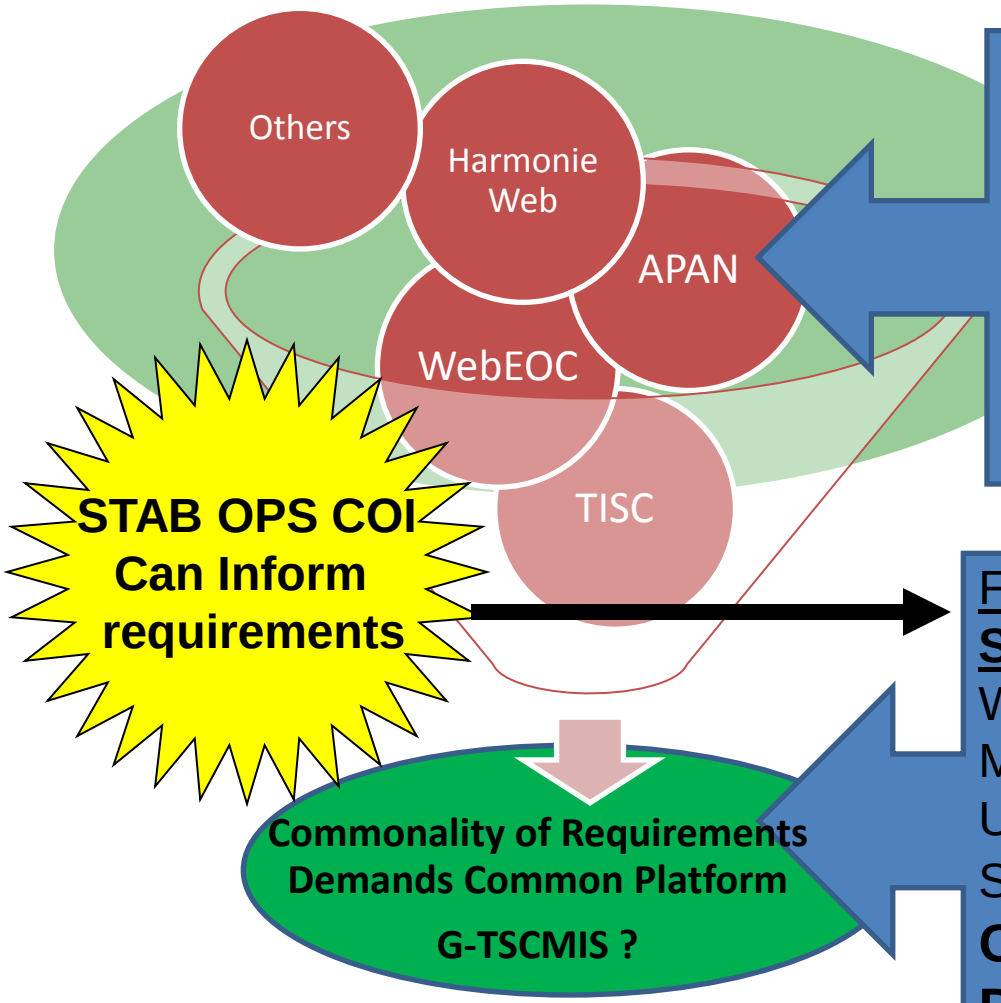
Synchronizing With Other Existing Processes

Integrate into **Army Experimentation** at BCBL-L
TALON STRIKE/OMNI FUSION 10

- Plan, Prepare and Execute the TALON STRIKE/Omni Fusion 10, Exercise/Experiment, as the lead US Battle Lab
- Serve as Experiment Director for event
- Host/Conduct Initial and Final Planning Conferences, Co-Host Mid-Planning Conference in the UK
- Provide lab facility for the US DIV (Pope Hall) and US BCT (potentially from the National Simulations Center) role players
- Staff EXCON/HICON and support personnel for event

Synchronizing With Other Existing Processes

Shape Global Theater Security Cooperation Management Information Services Concept



Today: Disparate Regional Solutions:

Does Not Meet Existing Policy
No Data Discovery
Funding Inefficiencies
Difficult to Access by Ad Hoc User
Does not meet BP or TSC Reqmts
Stab Ops; HA/DR; HCA; IW

Future: Department Wide **Unclas Info Sharing** Core Platform:

Whole of Government Approach
Managed Outside NIPR
Un-Anticipated Users
Satisfy Theater Security Cooperation **Stab Ops; HA/DR; HCA; IW; Interagency**
Dynamic Data Discovery
May Need to Update Data Policy

Synchronizing With Other Existing Processes

Leverage STANAG 5525 and MIP Semantics

Engage

NATO OTAN ALLIED COMMAND TRANSFORMATION

To implement

MIP

semantics (STANAG 5525)

OMG SOPES

At the NATO

CFC/CMO

Civil-Military Fusion Centre

Your reachback to Civil-Military resources for complex crises

To promote information sharing amongst ISAF PRTs-

Members following the standard and their C2 POR

FULL MEMBERS

CAN	TacC2IS
DEU	HEROS-2/1
DNK	DACCIS
ESP	SIMACET
FRA	SICF, SIR
GBR	ATacCS/ComBAT
ITA	SIACCON
NLD	ISIS
NOR	NORTaC/NORCCIS
SWE	ISMARK, SLB
TUR	TACCIS
USA	MCS

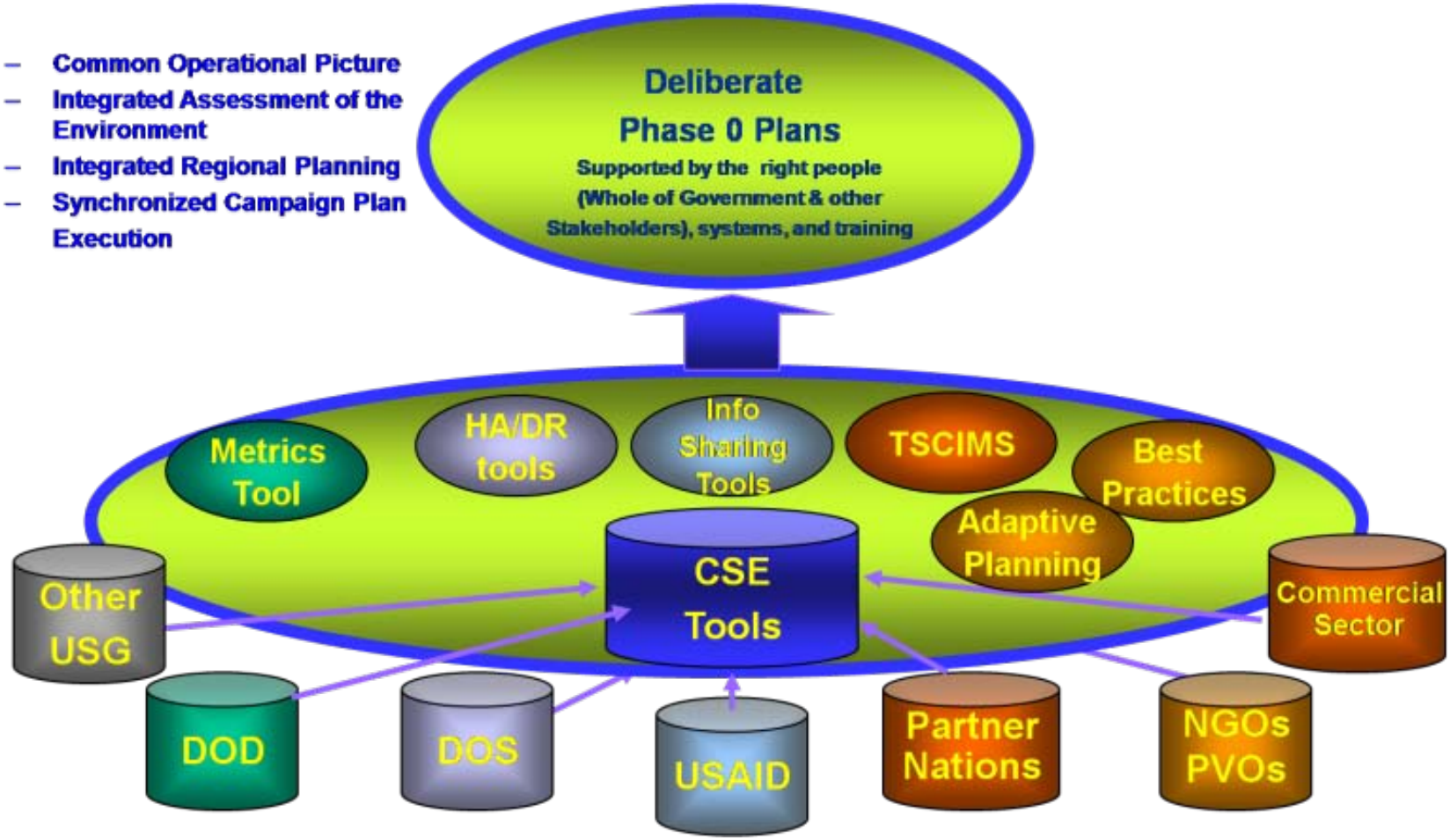
ASSOCIATE MEMBERS

ACT	BiSC-AIS-LC2IS
AUS	JCCS, BCSS
AUT	PHOENIX
BEL	ISIS
BUL	FICIS
CHE	FIS HE
CZE	GF-TCCS
FIN	FINACCIS
GRC	HARCCIS
HRV	CAF
HUN	HAVIR
LTU	TAVVIS
POL	SZAFRAN / C3IS Jasmine
PRT	SICCE
ROU	SIAAB
SVK	C2SYS
SVN	SITAWARE

** Country codes according NATO STANAG 1059 Ed 8.*

Integrate effort into Cooperative Security Joint Capability Technology Demonstration Program

- Common Operational Picture
- Integrated Assessment of the Environment
- Integrated Regional Planning
- Synchronized Campaign Plan Execution



Further Efforts and Research

1. Leverage existing bodies involving IA partners for Governance
2. DASD (PS&SO) and OASD(NII) IIS couple COI with ISIP focus area 6
3. Authorize further systems integration, expand data modeling efforts, develop processes and CONOPS.
4. Leverage existing CA module for Assessments
5. Authorize Joint Experimentation and Concept Development – Comprehensive Approach Interagency Concept
6. Endorse experimentation w/Army at BCBL-L Exercise Talon Strike/Omni Fusion 10
7. Report outcomes to inform requirements of G-TSCMIS Concept
8. Authorize engagement of NATO ACT to leverage STANAG 5525 (MIP Semantics) and LC2IS
9. Integrate effort into Cooperative Security Joint Capability Technology Demonstration Program

References

1. *Data Sharing in a Net-Centric Department of Defense* [Department of Defense Directive 8320.02]. (2004, December 2). Retrieved October 8, 2009, from U.S. Department of Defense website: http://www.dtic.mil/whs/directives/corres/pdf/832002p.pdf

2. *Information and Communications Technology (ICT) Capabilities for Support of Stabilization and Reconstruction, Disaster Relief, and Humanitarian and Civic Assistance Operations* [Department of Defense Instruction 8220.02]. (2009, April 30). Retrieved October 8, 2009, from U.S. Department of Defense website: http://www.dtic.mil/whs/directives/corres/pdf/822002p.pdf

3. Orbeon XForms. (n.d.). *XForms*. Retrieved October 8, 2009, from http://www.orbeon.com/