# Policy–Related Outcomes from Camp Roberts Field Activities

# EXECUTIVE SUMMARY

Explorations and experiments have been conducted for nearly a decade at Camp Roberts in California and related environments.[[1]](#footnote-1) These have contributed to DoD and inter-agency policies, helped to refine requirements and operating concepts, built trust and encouraged information exchange among diverse participants. The results suggest the value that these multi-institutional, semi-structured learning environments can offer.

Policies that have benefitted from these activities include: Homeland Security Presidential Directive (HSPD) 12 -- *Policy for a Common Identification Standard for Federal Employees and Contractors*; HSPD 24/ NSPD 59 --*Biometrics for Identification and Screening to Enhance National Security*; a refinement of Section 1401 of Public Law 107-314 on technology transfer between DoD and first responders; and a 13 January 2012 DepSecDef Memo on the collection, storage and sharing of biometrics information.

The activities also have contributed to: the development of a crowdsourced reporting system for the Afghan elections of 2009 and 2010; an informal agreement to allow the U.S. Government to release imagery to help catalyze voluntary geographic information initiatives during emergencies; the development of a team from the Federal Emergency Management Agency (FEMA), Civil Air Patrol, and Humanitarian OpenStreetMap to create a domestic capability that could collect and collate aerial imagery.

Ongoing discussions include: Support to FEMA innovation efforts to bridge FEMA, DoD, Health and Human Services (HHS), and other agencies with voluntary organizations and informal communities that contribute to response operations; UAVs in CONUS airspace; Unclassified information sharing (interagency and international); Examination of renewable and non-traditional energy sources; Cybersecurity of humanitarian systems; Common logistics data standards; and Challenges from Hurricane Sandy, including crowdsourced maps of cellular coverage and electrical power, crowdsourced collection of eye-level photography for damage assessments, aerial location of cellular devices, rethinking the disaster response center.

Going forward, these activities will have to continue meeting the needs of diverse sponsors in a fiscal environment that is likely to be increasingly austere. Even in this environment, the combination of several types of Camp Roberts and related activities can make valuable contributions at many levels. They allow the early screening and filtering of requirements, concepts and technologies, saving time and money and improving outcomes. Moreover, the unpredictable, complex and dangerous world we face also will demand leaders who can think and operate creatively. Camp Roberts activities can be combined with joint Service education to support these goals.

## BACKGROUND

The Department of Defense (DoD) benefits when its policies and programs are supported by evidence and driven by validated requirements. Each quarter, usually at Camp Roberts in California, field explorations and related activities provide an environment where policy makers and program managers can work with scientists and engineers to co-design solutions that meet field requirements and co-develop both policies and metrics around the application of emerging technologies. These provide opportunities for combatant commands (COCOMs) and DoD research groups to revise their requirements based on fieldwork at Camp Roberts, saving the Department both time and money.

These field explorations are hosted by two DoD academic institutions—the Naval Postgraduate School (NPS) and the National Defense University (NDU)—which have direct responsibility for supporting the joint warfighter in a variety of mission assignments. Together, NPS and NDU seek to match requirements from combatant commands, as well as other USG agencies, against three types of potential solutions:

1. Cutting-edge research in the private sector and academia
2. Research to cross-pollinate existing capabilities across DoD
3. Technology transfer among agencies, particularly around the mission sets of Humanitarian Assistance/Disaster Response (HA/DR), Building Partner Capacity (BPC), Stability Operations and Defense Support of Civil Authorities (DSCA).

The field explorations and experiments fall into three categories. The first, Tactical Network Topology (TNT) serves Special Operations Command (SOCOM). Its name derives from the wide area mesh communications network on which early intelligence, surveillance, and reconnaissance (ISR) work was done. The second, Technical Support and Operational Analysis (TSOA) serves the Army Research Lab (ARL) and is focused on force protection. Its work is managed outside of NDU and generally classified, and it is therefore not covered in this report. The third, Joint Interagency Field Explorations (JIFX), serves the Office the Secretary of Defense (OSD), COCOMs and the Department of Homeland Security (DHS), along with a range of new partners, including the Department of State (DoS), FEMA, and HHS. A related program alongside JIFX is focused on the HA/DR mission set, along with Stability Operations, BPC, and DSCA. It is called RELIEF (Research and Experimentation for Local and International First Responders). JIFX and RELIEF both work in a mostly unclassified environment to foster among between agencies and international partners.

In all three cases, scientists and engineers from a range of contractors, academic institutions, and partner stakeholders interact to co-develop interoperable solutions to shared problems. The objective is to accelerate innovation across an ecosystem of problem solvers and stakeholders, without regard to competitive relationships, agency fiefdoms, or hierarchies. In practical terms, it has not been unusual in the Camp Roberts environment to find that the Boeing team has flown a communications payload on a Lockheed Martin UAV and connected to the cell phone of local police chief, or to find the Deputy Administrator of FEMA sitting with representatives of HHS discussing how to transfer DoD battery technology to improve domestic disaster response. There are few places in government where such an environment is re-created on an ongoing basis for the purpose of advancing both DoD and USG needs in parallel. The quarterly periodicity allows for some opportunities to be followed up quickly, while others may choose to skip events and participate semi-annually or as their time allows.

This report responds to a request to NDU by OSD Policy to examine ways that policy recommendations have been, or could be, derived from these multi-institutional, semi-structured learning environments.[[2]](#footnote-2)

## TNT (2003 – present)

In 2003, the U.S. Special Operations Command (SOCOM) partnered with NPS to create a program to solve an expensive, recurring problem. Although vendors were delivering technologies that met all the requirements outlined in their contracts, the technologies were failing when they reached the field. They were often not interoperable with other systems, or they failed human factors tests at late stages of development. In both cases, fixing the technologies so late in their design cost time and money.

When a Special Forces operator attended NPS in 2003, he worked with the school’s faculty to craft a solution: a pre-acquisition program in which vendors would co-develop their prototypes of new technologies in a field environment. By ensuring that competitors were incentivized to make their individual systems work as an interoperable system-of-systems from a project’s early stages, SOCOM reduced costs while increasing performance. SOCOM also gained a venue in which it could refine its requirements by trying new tools before it had vendors under contract. This field program was named after the network test bed on which many of the experiments were built: the Tactical Network Topology (TNT).

DoD and national-level policies benefitted from both the personal relationships developed around this program and several specific experiments. Many of these benefits resulted from interactions among observers from multiple departments, such as DoD, the DHS Screen Coordination Office (SCO), the FBI Criminal Justice Information Services (CJIS) Division, and the National Security Staff. Guidance that benefitted from these discussions included:

1. Homeland Security Presidential Directive 12 -- Policy for a Common Identification Standard for Federal Employees and Contractors.
2. Homeland Security Presidential Directive 24/ National Security Presidential Directive 59 -- Biometrics for Identification and Screening to Enhance National Security.
3. Refinement of Section 1401 of Public Law 107-314 -- "Secretary of Defense shall designate a senior official of the Department of Defense to coordinate all Department of Defense efforts to identify, evaluate, deploy, and transfer to Federal, State, and local first responders technology items and equipment in support of homeland security."
4. January 13, 2012 Deputy Secretary of Defense Memorandum "Authority to Collect, Store and Share Biometrics Information of Non-US Persons with US Government Entities and Partner Nations.”

NPS and NDU are currently researching additional policy impacts related to these collaborations in areas such as the domestic use of UAVs, the releasability of night vision technologies, and various communications approaches. Policy issues that might result from these efforts will be shared with OSD as they are discovered.

## RELIEF (2009 – present)

In December 2008 Lin Wells from NDU was introduced to TNT by the NPS Provost. This provided a chance for NDU to explore application of the TNT model to mission areas such as HA/DR, Stability Operations, BPC, and DSCA, which are covered by NDU’s Transformative Innovation for Development and Emergency Support (TIDES) project. NPS and NDU started an unofficial collaboration which led to a field investigation in February 2009 (TNT 09-02)[[3]](#footnote-3) when TIDES explored options for renewable power generation, water purification, and integrated cooking at Camp Roberts. This was supported by the U.S. Southern Command (SOUTHCOM) in conjunction with development of the Prepositioned Expeditionary Assistance Kits (PEAK) Joint Capability Technology Demonstration (JCTD). Based on the success of these activities, NPS and NDU agreed to more regular participation by NDU at Camp Roberts and related events. This was begun in August 2009 (TNT 09-04) using the RELIEF name and has continued to this day, cancelling events only because of major disasters in Haiti (February 2010) and New York (November 2012).[[4]](#footnote-4)

RELIEF facilitated several capability wins in its first three years. The most important of these included:

August 2009: *Developing a Crowdsourced Reporting System for the Afghan Elections of 2009 and 2010*. RELIEF leaders challenged a diverse set of participants to build an election-monitoring system for Afghanistan that would operate in an open, unclassified environment. Using imagery provided by the National Geospatial Intelligence Agency (NGA) under the NEXTVIEW license, government, corporate, NGO and other participants built tools by which Afghans could submit reports of fraud and violence via SMS (Short Messaging System) into a mapping platform from which trends could be inferred statistically. The range of participants suggests both the diversity of the group and the opportunities for innovation: Google, GeoIQ, Ushahidi, Development Seed/MapBox, Sahana, InSTEDD, OpenStreetMap, Stamen Design/Walking Papers, and the Synergy Strike Force. The monitoring system was deployed to the field in Afghanistan within 16 days of initial conception. When the Afghan government prohibited journalists from reporting on fraud and violence two days before the elections, this system became one of the only means by which such data could be collected in the unclassified realm.

*Policy implication*: An unclassified election monitoring system gives the USG an open source option for data gathering that can be used both for public diplomacy and information analysis. Policy questions remain as to when and how Military Information Support Operations (MISO) might harness such a capability. There also are intelligence-related policy issues: DoD exchanges of “white” (population-centric) information with NGOs, International Organizations (IOs) and others can benefit all parties but also may put individuals from those organizations at risk because such information still can be considered intelligence, even though it may not involve military forces. Is present guidance on these exchanges adequate? These issues are explored more fully in the forthcoming NDU paper, *Sharing to Succeed*.[[5]](#footnote-5)

Nov 2010 – May 2012: *Informal agreement to allow the USG to release imagery to help catalyze voluntary geographic information initiatives during emergencies*. When the earthquake struck Haiti in January 2010, there were no useful post-disaster maps of the dense urban environments there. Because the private sector released high-resolution imagery and made it free to trace, 640 volunteers in the OpenStreetMap community surged to build a detailed map of Haiti in two and a half weeks. They completed over a year of cartographic work in two weeks—less time than it would have taken the USG to write a contract--and they did it for no cost. NGA and DoS’s Humanitarian Information Unit (HIU) worked over consecutive RELIEF events for approximately a year and a half to develop a process by which the USG could systematically release satellite imagery to communities like OpenStreetMap to help catalyze these types of free volunteer mapping efforts after future disasters. The result is an informal agreement among agencies that has turned into a semi-official workflow managed from the State Department HIU.

*Policy implication*: The use of satellite imagery to catalyze new mapping data in a crisis zone is under active policy review at NGA and State. DoD Policy should be aware of this ongoing review. Sam Bendett and John Crowley are the points of contact at NDU.

Feb 2012 - August 2012: Development of a *FEMA, Civil Air Patrol, and Humanitarian OpenStreetMap Team*. FEMA saw NGA’s success with volunteer mapping and moved to create a domestic capability that could collect and collate aerial imagery. Working with the Civil Air Patrol (CAP), FEMA and NGA helped to rewrite the CAP’s Concept of Operations (CONOPS) for some of their traditional mission assignments (the CAP collects a significant amount of post-disaster assessment imagery within the U.S.). In an *ad hoc* (unplanned) experiment, members of the Humanitarian OpenStreetMap Team showed a process called MapMill for crowdsourcing the categorization of the CAP imagery according to the level of damage shown in the photos. This improvised rapid development cycle (sometimes called a code sprint) led to a paradigm shift that was implemented during Hurricane Sandy, when over 5,000 volunteers used the MapMill platform to categorize 35,000 images from the CAP in a matter of hours. According to the Deputy Administrator of FEMA, this process decreased the time for delivering individualized assistance to affected households by several *days*.

*Policy implication*: Aerial imagery collection by the CAP is controlled by the USAF under the U.S. Northern Command (NORTHCOM), with mission assignments from FEMA. As this mission assignment becomes more important to developing immediate situational awareness for senior decision makers, it may be worth reviewing the CONOPS to see what additional policy implications there may be, including prioritization of air space, provision of satellite communications (or other means, such as airborne communications relay) support to the CAP for transmission of photography from austere airfields to FEMA, and the potential use of UAVs to serve this mission assignment. DoDIs 8110.01(now in revision) and 8220.02 provide a policy basis for such information and bandwidth sharing.

### Current RELIEF Policy Issues (Feb 2013): At RELIEF 13-02 in Feb 2013, FEMA Deputy Administrator Serino led staff from several FEMA departments in an exploration of how to create a team whose job would be to bridge FEMA, DOD, HHS, and other agencies with voluntary organizations and informal communities that contribute to response operations. This built on lessons from the “Innovation Team” that FEMA deployed during the response to Sandy. These explorations had two parts: experiments around technologies that the USG could deploy in support of informal communities, and a set of policy discussions around the identification of gaps and methods that a team might use to bridge those gaps.

The outcomes from this work yielded several areas where OSD might explore changes to existing policies, and operators examine TTPs. Under Presidential Policy Directive 8 (PPD-8), FEMA is directed to pursue “whole of community” approaches to disaster response operations. FEMA is also pursuing a strategic shift to make its operations more “survivor-centric.” Deputy Administrator Serino has directed his staff to alter the existing Disaster Recovery Center (DRC) approach (where survivors are expected to travel to central locations to register and receive federal services). FEMA is seeking to take the DRC to the doorsteps of survivors, using roving teams that will canvas neighborhoods, thereby accelerating damage assessments, registrations for individualized assistance, and reaching vulnerable populations who are unable to travel to fixed DRCs. FEMA is also building kits that communities can use to build local assistance centers, which would function as a “community DRC” and mobilize additional *whole of community* resources. In both cases, FEMA requires additional communication support: first to support roving teams and second to support community centers.

The RELIEF experiments identified specific areas where DOD policy could make changes that would allow existing DOD assets to assist FEMA.

1. *Agreement to Deploy Communications Networks under DoDI 8220.02*. DOD and USCG have small, low-power omni-directional wave-relay networks that support their data networks in the field. FEMA and DOD could pursue an agreement to deploy these and other ICT assets to funnel bandwidth from operational terrestrial data networks deep into disaster impact zones, linking a chain of community DRCs and providing a bubble of communication in areas where FEMA teams are canvassing neighborhoods. During Sandy, such an agreement would have enabled FEMA to take to a commercial fiber-optic hub in Brooklyn and run a chain of linked wave-relay nodes down the Rockaway peninsula. This network would have connected official DRCs with dozens of informal community efforts, increasing coordination and providing volunteer EMS stations with communications. A field experiment at RELIEF 13-02 ran a string of existing USCG wave relay nodes from a commercial VSAT satellite terminal to a remote site, proving the concept.
2. *Agreement to use DOD-controlled Cellular Spectrum for Survivor Registration and Assistance under DoDI 8220.02*. During response operations, commercial telecommunications companies usually are trying to rebuild networks that have been severely degraded or destroyed by a disaster or accident. While these companies generally deploy cellular towers on wheels (COWs) and light trucks (COLTs), they tend to turn off cellular data services to maximize bandwidth towards voice and SMS. Because FEMA’s communications networks are generally designed to provide spot coverage to specific fixed sites while the telecommunications industry rebuilds its networks, FEMA lacks a capability to provide cellular data services over neighborhood levels to support its concept of taking the DRC to the doorstep with tablets and handhelds.

DOD currently controls some spectrum around the 1800 Mhz band (one of the cellular regions). Experiments at RELIEF demonstrated that FEMA’s quad-band Apple iPads were capable of working on the DOD cellular spectrum with no modifications. It might be possible for DOD to allow FEMA to use this spectrum during emergency response operations until commercial telecommunications carriers restore data services. This policy would enable far more rapid damage assessment and individualized assistance to disaster survivors. These considerations need to be rela-ted to current FCC interest in auctioning off more spectrum in the 1800 Mhz band.

1. *Integration of Crowdsourced Imagery Analysis into Situational Awareness.* As noted above, an experiment at RELIEF in August 2012 with NGA, FEMA, and Civil Air Patrol altered the CONOPS by which CAP collects imagery immediately after a disaster. This new CONOPS requires rapid analysis of thousands of individual nadir and oblique images of damage in the first hours after an emergency. Because the USG lacks a surge capacity to perform such analysis at this tempo and scale, an unplanned experiment was improvised during RELIEF which proved the concept of using crowdsourcing to perform this work. The tool was deployed during the response to Hurricane Sandy in October-November 2012, accelerating Federal situational awareness by several days (an after-action report will be published with more accurate numbers). FEMA Deputy Director Serino discussed it further in February 2013. DoD may wish to investigate a policy of integrating crowdsourced data into both CONUS and OCONUS situational awareness, since the capability has no geographic limits.

## JIFX (2012 – present)

In August 2012, NPS, with funding and direction from OSD/AT&L, built on the success of the TNT project to create an effort called Joint and Interagency Field Exploration (JIFX). JIFX provides a venue for COCOM operators, acquisition officials, S&T advisors and technical personnel to refine requirements in a pre-acquisition environment, accelerate technology development and foster innovation and collaboration among related technologies. In February 2103, DHS S&T provided funding to enhance the interagency aspects of the project, and RELIEF activities were moved under JIFX.

JIFX is managed by a council of COCOM and interagency stakeholders who establish exploration priorities, and validate the scope and sequence of the quarterly events. In addition to fostering understanding and developing a community among operators, COCOM requirement developers, technologists and researchers, JIFX activities provide a rare venue for addressing interagency and cross-sector capability gaps and policy issues around emerging tactics, techniques and procedures (TTPs). They also give vendors a chance to get feedback early on tools and build prototypes of interoperable systems with technology typically at Technology Readiness Levels [TRLs] 4-7.

In its short life, JIFX has already helped CENTCOM re-evaluate its intention to pursue a JCTD called LLEAF. Based on the field explorations, they found that the underlying power management technology worked as stated, but the ecosystem around it would provide only marginal benefits. It is believed that this one exploration saved DoD over $500K, as well as lost time avoided.

*Exploration to convert TTPs from experiments on explosive remnants of war control points into policy for Village Stability Operations (VSO)*. A Navy Explosive Ordnance Disposal (EOD) officer (LT Deward Cummings) who was pursuing a master's degree at NPS, drew on his experiences in Afghanistan to suggest that JIFX explore how DoD could change its TTPs to help local communities deal with unexploded ordnance (UXO) and other explosive residue of war. Currently, communities have few ways to deal with UXO and DoD liabilities and operational commitments limit what assistance can be provided by US forces. LT Cummings’ innovation was to teach communities how to use local materials to a) safely determine if UXO can be handled, and b) build explosive remnants of war control points where UXOs can be safely stored while awaiting disposal. JIFX cooperated with several DoD material science labs to develop a method for using fiber-reinforced concrete to build enclosures at control points that would channel kinetic energy upward instead of outward. The TTP and enclosures were proven effective in several tests, and reduced to a graphic illustration that requires no translation. The approach is currently deployed by CENTCOM and is being taught in the USN EOD school and in several other DoD training programs. Secondary benefits of teaching how to mix fiber reinforced concrete are being discovered, including improvements to local building techniques and the potential development of local industries around these construction techniques. OSD may wish to consider policies around a) fostering the use of local materials, b) developing training programs with USAID/OTI for local nationals that allow them to learn construction techniques using local materials, and c) enshrining this novel approach to dealing with the explosive remnants of war as DoD EOD policy in support of VSO.

## POTENTIAL POLICY ISSUES

There are many issues with policy implications which could be explored at Camp Roberts and related venues. These include:

### UAVs in CONUS Airspace

The FAA has indicated that it will allow UAVs to fly in CONUS airspace by 2014. For HA/DR and DSCA scenarios this will require several entities to develop CONOPS for supporting UAV use in these environments. The field experiments/explorations at Camp Roberts could provide a venue for working through many of the requirements, technologies, practices, and policies.

Between TNT, TSOA, and JIFX/RELIEF, participants already have flown a wide range of UAVs—from hand-launched fixed and rotary wing aircraft to Predator-class surrogates. In one event, 26 different UAV platforms were flown. This depth of experience and breadth of aircraft types provides NORTHCOM and DHS with a potential testing ground for entities like the CAP to attempt the escort of UAVs through controlled airspace.

### Unclassified Information Sharing (Interagency and International)

Since WikiLeaks, information sharing between the State Department, USAID, and DoD has been subject to closer scrutiny. For the past two cycles of RELIEF, the State Department Bureau of Consular Affairs has participated in the experiments and opened an avenue to explore unclassified information sharing around non-combatant evacuation (NEO) operations and HA/DR operations. This experimentation can help DoD and DoS to reinvigorate the tools and policies for sharing.

### Energy

The experiments around renewable and non-traditional energy sources at Camp Roberts are raising several policy issues:

One issue involves the deployment of technologies that can make use of “dirty” fuel. Generators have been tested that can operate with fuel contaminated with water or various kinds of sludge. While the technology has proven effective at Camp Roberts, Army policy may prohibit its use, since DoD fuel policy must consider the comprehensive effects of fuel, not only on efficiency, but also on maintenance, e.g. dirty fuel may affect seals, gaskets, and other parts of an engine. To allow some types of generators to use fuel other than official formulas like JP-8 may require a review of policy and a determination of when such fuel can be used, for how long, and under what conditions.

Another policy issue arises in Stability Operations, HA/DR scenarios, and Building Partner Capacity, where DoD units provide power to non-USG mission participants. The development of low-cost power sources that can be left behind with local nationals, and sustained by them, raises policy issues as to how these technologies get developed and deployed, how consumables are planned, what funding sources can be used (Title X, USAID, etc.), and how local labor gets trained in the operations and maintenance of the technologies. The development of a business model (including power distribution, storage, and billing) for local sustainment will also be needed.

### Cybersecurity of Humanitarian Systems

Many crowdsourcing and humanitarian platforms are built using open source software that has been developed within open communities of practice. While some developers may have security experts in the mix, virtually none can afford to harden their code through rigorous security audits and red teaming. Since DoD is relying more and more on information produced from these platforms, NPS has sponsored the Joint Information Operations Warfare Center (JIOWC)/JVAB red team from San Antonio to provide security audits of major crowdsourcing platforms. This type of advice may generate DoD policies around standards that open source communities can deploy to protect their platforms, the people who deploy those platforms, and affected populations. OSD may wish to explore security standards for elements of the Department that work with crowdsourcing tools.

## CHALLENGES

Because the field explorations at Camp Roberts bring operational requirements setters, technologists, program managers, and policy makers into dialogue around shared problems, the individual expectations of each group need to be brought into balance. Operators, typically from COCOMs, want opportunities to refine their requirements in conjunction with technologists and other innovators. Technologists like to use the time in the field to perform human factors testing and to discover unexpected linkages with other technologies. Program managers and oversight executives want rigorous hypothesis testing. Policy makers expect that experiments will lead to proposals for changes to legal, policy, and regulatory issues. Senior leaders expect that the process will advance their departmental priorities, while secondarily advancing interagency collaboration.

Camp Roberts and related venues provide an environment for pursuing each of these ends. However, the exploration program *itself* is an experimental space. It is constantly evaluating how well it is serving each of these constituencies, and evolving. As the program matures, it is showing how to build ways systematically to measure its perfor-mance and effectiveness. Such metrics should show how work in field explorations/ experiments can lead to reduced program costs and accelerated timelines. However, the challenge embedded in this desire is that a major reduction in costs for any given *project* can lead to reduction in a program manager’s *budget* during the next fiscal year. Thus it can be hard to obtain data about the impact of participation in these field activities.

There is another problem relating to the use of traditional program evaluation frameworks in these environments. The Camp Roberts activities have created something almost unique in government: *a safe place to fail*. Engineers are encouraged to take their technologies beyond their breaking points. In doing so, they discover how their tools perform under real world conditions, with uniformed personnel providing unofficial, unvarnished opinions in a pre-acquisition environment. The value of this approach is clear: in the words of several vendors, the availability of a safe place to fail and the honest feedback that occurs in this space have accelerated their product development by 6-9 months. Rigorous hypothesis testing clearly is important. However, one also needs to be careful that the publication of failures not have chilling effects and slow development of innovative approaches. They need not. Recent tests of PEAK equipment in the Philippines show how component shortfalls can be turned into overall program successes—although the original water sub-system proved to be not robust enough, an acceptable alternative was found that can be integrated into future systems.

An unanticipated problem that can arise from running a multi-institution program is that the dominant use of DoD metrics can undermine one of the first priorities of interagency work: to build trust. When outside entities feel that they are being brought into a DoD-centric evaluation framework, they essentially become outsiders, not stakeholders. The activities at Camp Roberts and related environments have shown ways to build ties among diverse entities such as the intelligence community and NGOs, as well as civil society organizations with military civil affairs units. But effective collaboration can never be assumed.

The JIFX/RELIEF program will continue to wrestle with the proper balance between these kinds of conflicting demands. However, it could be advantageous to free at least some projects from traditional evaluation approaches and give them the chance to develop metrics that capture fully the effectiveness and efficiency of this innovation accelerator and trust building environment.

## UPCOMING EXPERIMENTATION

The May 2013 field explorations will focus on the HA/DR and DSCA missions and will be sponsored by the DHS Science and Technology Directorate.[[6]](#footnote-6) Several challenges from Hurricane Sandy will form the focus of the work:

1. **Crowdsourced Maps of Cellular Coverage and Electrical Power**. After Sandy hit NY and NJ, it was difficult for FEMA to build a comprehensive map of power outages and cellular coverage. A set of experiments will explore how to combine federal situational awareness with crowdsourcing to generate heat maps of the areas most likely to be without power and communications (This might also include WiFi).
2. **Crowdsourced Collection of Eye-level Photography for Damage Assessments**. Every disaster now generates hundreds of thousands of images of damage. Many of these are posted on popular social media channels. This experiment will explore how social media companies can build a common standard for aggregating and categorizing photographs which are marked as public.
3. **Aerial Location of Cellular Devices**. Lost hikers often carry cell phones. With new technology, it may be possible to fly sensors on manned or unmanned aircraft to find specific cell phones in wilderness areas. This tool could also be applied to border control.
4. **Rethinking the Disaster Response Center**. After a disaster, FEMA opens disaster recovery centers (DRCs) so that residents can receive aid. Because many citizens cannot or will not travel to central locations, FEMA is exploring taking the DRC to the doorstep as well as rethinking how central nodes would be structured or rethought to fit around this new CONOPS. This experiment will explore the systems necessary for supporting neighborhood canvasing by FEMA Corps and FEMA staff, as well as the physical design of DRCs.
5. **Common Logistics Data Standards**. DOD transports a large percent of domestic humanitarian aid. It also is critical for transferring patients between medical centers, some of which are deployed by the US government. UN OCHA has begun a process to develop common data standards for humanitarian action called the Humanitarian Exchange Language (HXL), based on the Web 3.0’s Resource Description Framework (RDF). This experiment will explore the development of common data standards between DOD, USAID/OFDA (Office of Foreign Disaster Assistance), UN OCHA (Office for the Coordination of Humanitarian Affairs), and the World Food Program (WFP) which runs the UN’s Emergency Telecommunications Cluster.

## CONCLUSION

Nearly a decade of activities at Camp Roberts and related environments have contributed to DoD and inter-agency policies, helped refine requirements and operating concepts, built trust and encouraged information exchange among diverse participants. They suggest the value that these multi-institutional, semi-structured learning environments can offer. Going forward, these activities will have to continue meeting the needs of diverse sponsors in a fiscal environment that is likely to be increasingly austere. Even in this environment, the combination of several types of Camp Roberts and related activities can make valuable contributions at many levels. They allow the early screening and filtering of requirements, concepts and technologies, saving time and money and improving outcomes. Moreover, the unpredictable, complex and dangerous world we face also will demand leaders who can think and operate creatively. Camp Roberts activities can be combined with joint education and Service professional military education (PME) to support these goals.

1. In addition to Camp Roberts, related events sometimes were held in Monterey, CA, and planning sessions convened in the Washington, DC area. Other bases are available in Florida and the mid-west. “Related environments” refers to any place where the kind of events described in this paper were conducted. [↑](#footnote-ref-1)
2. Dr. Ray Buettner of NPS, who oversees the Camp Roberts activities uses the term MISSLE (multi-institutional, semi-structured, learning environment). He writes: “I believe the concept of multi-institutional (HHS, State, FEMA, DHS, USCG, CBP, DoE, DoJ and DoD joining with universities and dozens of companies), semi-structured (think "easily") collaborative learning around challenges shared by the community with enough structure to be safe, secure and legal to produce better decisions (policy, process and requirements) is an important way for the OSD to cost effectively explore whole of government solutions to some of its biggest challenges. [Senior U.S. leaders] have all emphasized the importance of working more closely across the whole of government and with our partners around the world.” Ray Beuttner e-mail 25 February 2013. [↑](#footnote-ref-2)
3. A summary is at: <http://www.nps.edu/Academics/Schools/GSOIS/Departments/IS/Research/FX/docs/QLR_RELIEF-09-02.pdf> [↑](#footnote-ref-3)
4. Summaries of all NPS-NDU collaboration events since 2009 are at <http://www.nps.edu/Academics/Schools/GSOIS/Departments/IS/Research/FX/RELIEF/PreviousEvents.html> [↑](#footnote-ref-4)
5. Linton Wells II, James Bosworth, John Crowley, Rebecca Linder Blachly, *Sharing to Succeed, Stovepiping to Fail: Successes and Shortfalls in Open Information-Sharing in Afghanistan,* (Washington: National Defense University, Center for Technology and National Security Policy, 2013), forthcoming. [↑](#footnote-ref-5)
6. The JIFX is expected to be held in August 2013. [↑](#footnote-ref-6)