

CEHC Support to COIN Operations

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The events of the past five years have underlined that the United States and its allies confront a very different operational environment from the relatively peaceful and calm environment that so many predicted in the aftermath of the Cold War. In such a brief period, our military has been challenged on multiple levels, throughout the total spectrum of war continuum, which has accelerated change within our military that previously would have taken decades to effect.

Within a single tour of duty, many Soldiers and units have experienced everything from the initiation of war and conventional combat operations, through the transition to asymmetrical warfare and counterinsurgency (COIN) operations, as well as nation building and peacekeeping efforts. These unprecedented demands have challenged previous doctrinal and operational concepts, stressed existing processes, and highlighted the need for the rapid insertion of technological and procedural applications.

These challenges are readily reflected in the development or revision of doctrinal field manuals, the creation of focused organizations to streamline change, the rapid fielding of unique technological systems and capabilities, plus continuously evolving tactics, techniques, and procedures (TTP). Some of the organizations specifically created to address these requirements are the Joint Improvised Explosive Device (IED) Defeat Organization (JIEDDO), the Asymmetrical Warfare Organization (AWO), the United States Army Training and Doctrine Command (TRADOC) IED Defeat Integrated Capabilities Development Team (ICDT), and the Counter Explosive Hazards Center (CEHC).

COIN Environment

What has become extremely evident is the multidimensional aspect of modern warfare, consisting of numerous independent actions simultaneously occurring within the operational environment, many of which have both local and strategic implications. In today's operational environment, asymmetrical warfare and COIN are as much a part of modern combat as mounted and dismounted maneuver. Plus, the objectives and methods of each are so intertwined that they can become indistinguishable and mutually supportive. Combat operations conducted against an aggressive and merciless enemy for its tactical benefit must also consider its impact on COIN objectives. It becomes a balancing act of measured force to accomplish the



A suicide bomber prepares to strike.

goals of the mission without creating an environment of greater public dissatisfaction that fertilizes sympathy for our enemy and loses support from the populace. This manifestation has even driven change and adaptation from the highest strategic and operational level down to the tactical level and the individual Soldier.

COIN is a complex fight and is more a war over people than a war over terrain. It involves a balancing act of creating incentives and cooperative support from the populace, while forcefully providing a stable and safe public environment. Victory is achieved when the populace consents to the government's legitimacy and stops actively and passively supporting the insurgency. To this end, security is a cornerstone for successful COIN operations and a principle target for the insurgent. The insurgent enemy will use terrorism, media, and propaganda to foster insecurity with the populace, to promote a lack of confidence in the governmental control, and to cause the populace to question our ability to be an effective and stabilizing combat force.



Insurgents hide nearby to watch, after an attack on a U.S. vehicle.

In COIN, information warfare (IW) is a critical component to the success of either side. Unfortunately, perception and truth are not always synonymous. Insurgents often have an advantage in shaping the information environment and use it as a principal weapon to influence the populace and sway public support. The enemy can make exorbitant promises and point out government shortcomings, many of which are caused or aggravated by the insurgent. They use the open media to learn of our deployments, measure popular opinion, discern equipment capabilities or TTP, and broadcast attacks on U.S. forces to intimidate the populace and boisterously project the impression of invulnerability. On the other hand, U.S. forces seeking to preserve legitimacy must exercise restraint and discipline, remain fair and truthful, and ensure that words are successfully backed by deeds.

Never before have our Soldiers been under such immediate scrutiny of their individual actions, the effectiveness of their operations or equipment, and the outcome of their performance. This is the by-product of the information age, which is as much a component of modern warfare as any weapon on the battlefield. Embedded media; the Internet; the international press; home videos; and satellite, cell, and conventional telephones are common IW tools that can affect the strategic landscape as much as the most eloquent combat operation.

As a result, the demands on today's Soldiers are higher than they have ever been. They must be technically proficient in the most sophisticated military equipment in the world, manage volumes of information, be capable of integrated and joint operations, plus be innovative and adaptable to unique situations or emerging trends. Our Soldiers must be surgically aggressive, massing controlled

fires against the enemy while protecting the innocent and minimizing collateral damage. They must be hardened against the violence of warfare, while maintaining compassion for helpless noncombatants. And they must be direct and decisive, while simultaneously remaining diplomatic in given situations.

Respond to the Threat

The dynamics of the contemporary battlefield have also dramatically challenged our Army and generated significant change in its response to the operational environment. Our military is being remolded to become more intelligence-centric; capable of rapid response, seamless integration, and unity of effort; in addition to being able to adjust organizational, conceptual, and tactical responses, while being more culturally aware.



Soldiers discover an arms cache during a search.



A prototype of an RG-31 with an arm investigates a suspicious object during testing.

Key to this effort are U.S. Army engineers. The Engineer Regiment is the most multifaceted branch within the U.S. Army and simultaneously supports the entire spectrum of military operations. While construction engineers support nation building by repairing infrastructures, providing public services, and improving living conditions, sappers provide safety, security, and protection by clearing routes of deadly IEDs, assuring mobility to combat forces, and clearing mines or explosive hazards in operational areas.

From the beginning of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF), the United States Army Engineer School's CEHC has been at the forefront of this transformation and has led many of the solutions currently in place at the Army and Department of Defense level. Some of those original initiatives included—

- Blast-resistant route clearance equipment (RCE) such as the Buffalo, Husky, and RG-31.
- Mine detection dogs to support area clearance combat operations.
- Specialized search dogs to support explosive detection and counterterrorist operations.
- Prediction of the timing, use, technology, migration, and evolution of enemy IEDs.
- Development of an explosive hazards tracking system to provide analysis and a common operational picture.
- Counter explosive awareness training packages.
- Mission-specific individual and unit contingency training for route clearance and other operations.
- Early fielding of the AN-PSS/14 Mine Detector.
- Development of the tenets of IED defeat for the IED Task Force from assured mobility concepts.
- Gap analysis and improved doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) integration of solution sets.

- Integration of the combat training centers in counter explosive collective training.
- Specialized military search techniques, training, equipment, and doctrine.

Since then, CEHC has continued to respond to needs from the field while proactively developing innovative explosive hazards countermeasures. As the Army's integrator for all countermeasures involving explosive hazards, CEHC has defined its critical tasks as follows:

- Identify the threat
- Determine vulnerabilities
- Identify and develop solutions through concepts, technology, and training
- Integrate DOTMLPF solutions
- Disseminate countermeasures
- Evaluate effectiveness
- Institutionalize solution sets

Know the Enemy

To stay ahead of the IED and explosive hazards threat, CEHC consistently monitors trends in threat activity and their tactics and technology and tracks the migration and relationships among enemy factions. CEHC performs analysis not executed elsewhere in the Army and has been called on by the Multinational Corps–Iraq (MNC–I), JIEDDO, and TRADOC for specific operational analysis. Between 2005 and 2006, CEHC has analyzed more than 188,000 incidents and records as part of its explosive hazards database. CEHC also coauthored a joint paper on scientific countermeasures to enemy IED technologies and initiation systems.

The explosive hazards tracking system developed by CEHC, and originally used in OEF and OIF, has recently been adopted by Combined Forces Command–Korea as a more efficient tool to track and disseminate minefields or explosive information before and during potential combat operations. This change supersedes the tracking system and methods that were used for decades prior.

Equip the Force

CEHC remains in continuous contact with the field to identify equipment needs or gaps in order to immediately provide combat engineers with better mission capabilities. Having identified a need, CEHC coordinates with program managers, combat developers, government laboratories, the rapid equipping force (REF), JIEDDO, and others to evaluate suitable materiel systems and candidates for potential integration and rapid fielding. Once a device or item is selected, CEHC assists in integrating the system and developing its operational concept and training

Counter Explosive Hazards Center Contingency-Based Courses	
Course Name	Course Description
Advanced Search Operations	(22 courses have been conducted, with 667 personnel trained, since October 2005) The course covers systematic search procedures to locate specific targets. The types of search operations that are taught are occupied/unoccupied building search, person search, vehicle search, route search, and area search. Additionally, in-depth training on the different components and uses of the Advanced Search Kit is conducted throughout the course. It is broken into two tracks: search advisers (sergeant first class through major); and search squad members (up to staff sergeant). Each course trains a total of 33 personnel and is conducted over a 3-week period at Fort Leonard Wood. CEHC is also working closely with the Joint Center of Excellence at Fort Irwin, California, in the development of complementary 1-week search awareness training for mission readiness exercises, plus refinement of the Advanced Search Kit.
Counterinsurgency (COIN) Fundamentals	(5 courses have been conducted, with 210 personnel trained, since August 2006) This is a new course that is taught as a stand-alone block of instruction to the Engineer Captains Career Course and others, or as a component of the IED Defeat Planning course. It is designed to provide junior leaders a better understanding of the COIN environment and how to integrate unit operations to affect strategic success.
IED Defeat Planning	(4 courses have been conducted, with 48 personnel trained, since December 2006) Although the new course has been added to the Engineer Captains Career Course, it can be provided as a stand-alone resident or mobile training team (MTT) course. The target audience is aimed at captains, majors, and senior noncommissioned officer (NCO) staff-level personnel and trains students how to plan and execute IED defeat operations at division level and below. The course is built around the understanding and employment of predictive analysis, search, and route clearance with and without RCE.
IED Defeat Train the Trainer (IEDD-T3) Course	(57 courses have been conducted, with 2,548 personnel trained, since January 2006) The course provides students with the individual/collective knowledge and skills required to provide training for their respective units on IED defeat TTP. It also informs Soldiers of current IED threats and countermeasures—such as Soldier awareness, IED search, patrol operations, convoy procedures, entry control points, vehicle-borne IEDs (VBIEDs), combat driving techniques, and electronic jamming—in a 2.5-day residential or MTT course.
Route Reconnaissance and Clearance Course (R2C2)	(23 courses have been conducted, with 1,031 personnel trained, since October 2005) This course teaches the systematic clearance of routes, using specialized mine-protected vehicles (MPVs). These vehicles are the Buffalo, Husky, and RG-31. Each course trains a total of 32 personnel, divided into four route clearance teams (RCTs) consisting of six operators and two leaders each. This is a 2-week residential course aimed at the individual operator and unit supervisors. A stand-alone Route Reconnaissance and Clearance Maintainers Course teaches the maintainer training for military occupational specialty (MOS) 63B (light-wheel vehicle mechanic) on each piece of RCE, as a 1-week residential course.
Area Clearance Course (ACC)	(13 courses have been conducted, with 230 personnel trained, since February 2005) The course begins with an introduction to area clearance principles, followed by area clearance operations methods using manual and mechanical clearance techniques and equipment. It is followed by student-led engineer training presentation and student-led clearance practical exercise. This 4-day residential course is primarily intended for U.S. units deploying to Afghanistan and includes the operation of the MV-4 flail system, plus familiarity with other clearance equipment and techniques.
Route Reconnaissance and Clearance Course-Sapper (R2C2-S)	(9 courses have been conducted, with 110 personnel trained, since April 2006) The course is primarily intended for BCT combat engineers and others who will not have the heavy, specialized RCE at their disposal. The aim of the course is to provide a basic knowledge of using robotic systems for stand-off detection, investigation, and neutralization to conduct route clearance operations without the use of specialized vehicles such as the Buffalo, Husky, and RG-31. This 2-week course has the same rank requirements as the R2C2 course.

support package. If necessary, CEHC will also accompany the system into theater during a final operational assessment.

CEHC coordinates very closely with explosive ordnance disposal (EOD) personnel and the United States Marine Corps engineer community to share IED solutions and equipment and brief JIEDDO to fund the evaluation and fielding of successful counter-IED systems. Basis of issue plans always include equipping forces in-theater, as well as the stateside training base for future rotations or mission readiness exercises. Through the efforts of CEHC, JIEDDO approved the following:

- Engineer robots equipped with a camera and gripper arm to investigate and visually confirm IEDs from a safe stand-off distance during route clearance operations.
- Gyrocam® Systems security cameras to support engineers and EOD technicians by providing stabilized, on-the-move visual detection of suspected IEDs with high resolution color, thermal imaging, and night vision capabilities with a laser range finder.
- An operational assessment of prototype IED detection systems, to include Joint Systems Integration Board (JSIB) approval for all RCTs and brigade combat teams (BCTs), pending a successful in-theater evaluation.

Recently, CEHC has been evaluating a prototype IED Reconnaissance Vehicle, based on a Cougar 6x6 chassis, and has conducted both system integration and development of the operational concept to employ it in Iraq. The IED Recce package will provide enhanced IED detection features and is intended for use by engineers and EOD personnel. JIEDDO will send it into theater for an operational assessment in 2007, accompanied by members of the CEHC team.

In response to a requirement from OEF, combat engineers need a smaller IED interrogation vehicle, with a lightweight arm to perform route clearance operations in the restrictive Afghanistan terrain. As a result, CEHC has provided a Husky and an RG-31 to the Project Manager-Close Combat Systems (PM-CCS) at Fort Belvoir, Virginia, to develop an articulated arm designed to physically investigate suspicious objects, coupled with a magnetometer to identify metallic objects. Even though the requirement originated in OEF, systems will be sent to both Afghanistan and Iraq in 2007. Although a smaller version of the Buffalo arm, this system will allow better movement through restrictive terrain and poor infrastructure, while still providing mobility and stand-off investigation of explosive hazards.

Finally, CEHC will participate in a follow-up evaluation of tools and skills provided to the 3rd Brigade, 2d Infantry Division Stryker Brigade Combat Team (3/2 SBCT) engineers prior to their deployment last year. This assessment will help to determine the effectiveness of counter-IED training and specialized tools provided them so they could assure mobility for their parent brigade in the absence of heavy RCE. Several innovative tools were identified to augment the reconnaissance, explosives, communications, and weapons

already embedded in this vital sapper unit. The Engineer School team also cross-walked the additional skills that unit leaders can obtain—either through existing courses (such as the Explosive Ordnance Clearance Agent [EOCA] Course, the Urban Mobility Breaching Course, and the Sapper Leader Course) or new training in areas like special infrastructure assessment—sewage, water, electricity, academics, and trash (SWEAT).

Train the Force

A key task for CEHC is training and updating the force in current counter explosive hazards techniques and employment of commercial off-the-shelf and contingency equipment. This instruction enables units to receive theater-specific training prior to deployment and allows them to focus on the mission during transition of authority. To ensure that the training is up to date and relevant, CEHC gathers the latest intelligence on explosive hazards TTP employed by the enemy, as well as TTP developed by deployed units, to counter that threat. Contingency training that will be permanently retained in the Engineer Regiment, such as operator training for RCE, will eventually be institutionalized and transferred to the official Engineer School curriculum.

CEHC has not only trained U.S. Soldiers, Marines, Airmen, and Sailors, but has also provided training and assistance to several allies and coalition partners. The table on page 19 lists the current contingency-based instruction offered through CEHC.

Conclusion

CEHHC has been at the tip of the spear, identifying gaps and developing solutions against IEDs and other explosive hazards since the Global War on Terrorism began. Working together, CEHC, the Engineer School, and the United States Army Maneuver Support Center (MANSCEN) are part of a joint, interagency, and multinational counter-IED effort that integrates intelligence, training, technology, and materiel solutions into a holistic program. It will continue to seek out the best countermeasures for our units and produce the best training available for Soldiers at war today, while ensuring that our forces are prepared to counter the explosive hazards found in future conflicts around the world.

For more information, call commercial (573) 563-8165 or DSN 676-8165. Or visit our websites at <<http://www.wood.army.mil/cehc/>> and on SIPRNET at <www.portal.inscom.army.smil.mil/cehc/>.



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