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CAPTURING COUNTER-IMPROVISED EXPLOSIVE DEVICE (C-IED) LESSONS LEARNED: THE CASE FOR MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES FOR COUNTERING IMPROVISED EXPLOSIVE DEVICES (IEDS)



USAF SSgt Brian Vosper, explosive ordnance disposal technician assigned to the 379th Expeditionary Civil Engineer Squadron, operates a compact metal detector to assess a potential threat during nighttime counter-improvised explosive device training at Al Udeid Air Base, Qatar, October 21, 2017. (Photo by SSgt Patrick Evenson, USAF)

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The existing body of joint and Service doctrine does not adequately address the tactical implications of IEDs or provide practical guidance for dealing with these weapons.

Although a great many detection means, ranging from intricate electronic devices to specially trained dogs, have been developed, experience has shown that an alert Marine, aware of what to look for and where to look, is the most effective detection device.

Source: Fleet Marine Force Reference Publication (FMFRP) 12-43, *Professional Knowledge Gained from Operational Experience in Vietnam, Mines and Boobytraps*

CURRENT LANDSCAPE OF C-IED DOCTRINE

The existing body of joint and Service doctrine does not adequately address the tactical implications of IEDs or provide practical guidance for dealing with these weapons. Most of the existing joint and Service C-IED doctrine describes how to organize C-IED activities—defining C-IED lines of operation, identifying C-IED enablers, explaining intelligence processes, and describing various C-IED staff functions—useful and appropriate information, but not tactical guidance. Throughout joint and Service doctrine, there is little to address how the enemy

employs IEDs tactically and what tactics US forces can use to counter them. A multi-Service tactics, techniques, and procedures publication for countering IEDs would complement existing joint C-IED doctrine with practical guidance for forces operating in IED-rich environments.

IEDs, mines, and booby traps trace their long history to the nonexplosive traps used by ancient armies to impede movement and attrite forces.¹ They have been such vexing problems that every modern conflict has generated its own body of publications to address them. However, most of these technical manuals, training circulars, handbooks, and identification guides were soon shelved after each conflict, leaving future generations to relearn the same lessons in subsequent wars. The 2007 version of Army techniques publication 3-21.8, *Infantry Platoon and Squad*, for example, dedicated an entire appendix to countering IEDs; the 2016 publication contains less than two pages. A C-IED MTTP would help to break this cycle by retaining tactical principles for countering IEDs in a single publication.

Current joint and Service publications provide the Service member little tactical-level guidance for countering IEDs. Joint C-IED guidance exists in Joint Publication 3-15.1, *Counter-Improved Explosive Device Operations*, related joint doctrine for site exploitation, joint explosive ordnance disposal (EOD) and combat engineer doctrine, and similar Service issuances. Joint doctrine, however, focuses on the theater-strategic and operational levels of war. Service doctrine focuses on operational-level employment of Service forces and organizing operational-level C-IED activities. The Army and Marine Corps have techniques publications specifically for countering IEDs, but they concentrate on command and control and three C-IED lines of operation—attack the network, defeat the device, and train the force.² They provide little advice on C-IED tactics. Even

the Army's C-IED training circular, TC 3-90.37, describes C-IED training but provides little practical guidance for countering IEDs. The Marine Corps retains the Vietnam-era FMFRP 12-43 and other historical Fleet Marine Force publications in its doctrine library, but they are tied to a specific time and place and are no longer considered authoritative.³ Much of the joint and Service C-IED doctrine guides special purpose forces, like EOD and engineers, or task-organized enablers, like expeditionary laboratories and site exploitation teams. Little of the current C-IED doctrine addresses the needs of the Soldiers, Sailors, Airmen, and Marines who face IEDs during regular combat operations. An exception, however, is the recently published *Tactical Convoy Operations*, which has a very good C-IED appendix.⁴

The joint community has yet to mine and distill the extensive body of lessons from recent and historical operations for use in tactical-level doctrine and tactics, techniques, and procedures (TTP). The Center for Army Lessons Learned (CALL) has an excellent collection of C-IED material, including IED bulletins, unit lessons learned reports, unit standard operating procedures, and various special studies; but, lessons learned and best practices do not carry the same authority as doctrine. Lessons learned leave users to decide which TTP are suitable, feasible, acceptable, and doctrinally sound. Even though the CALL bins its "C-IED Products" together, the user must still sort through a large body of material to find information relevant to the particular tactical problem. The Joint Improvised Threat Defeat Organization (JIDO) once maintained the Joint Knowledge and Information Fusion Exchange (JKnIFE) portal as a source of C-IED training, unit after-action reports, and lessons learned.⁵ The portal is no longer available; so, much of JKnIFE's C-IED information is no longer easily discoverable. Similarly, the C-IED joint task forces (JTF) in Iraq and Afghanistan, Troy and

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Paladin, produced mountains of data. Much of the information was relevant to detecting, defeating, and exploiting IEDs. With the deactivation of both JTFs, their digital portals went offline. While the information may still exist, it is not readily available, discoverable, or searchable. An MTTP publication could capture this information in a manner that is authoritative and comprehensive.

No existing doctrine or TTP publication addresses countering IEDs in the maritime environment. None of the current doctrine specifically addresses enemy IED tactics in the maritime environment or indicators of IED activities at sea. Recent Navy undersea mine countermeasures TTP describes improvised sea mines, and the most current edition of the JIDO and Defense Intelligence Agency-sponsored *IED Lexicon* (not doctrine but widely accepted) adds terminology for characterizing IEDs in the maritime environment. Like IEDs used on land to alter terrain, the enemy can seed IEDs in the littorals, inland waterways, narrows seas, archipelagic waters, and international straits to interdict military operations and disrupt commerce.

THE ENDURING THREAT

The effectiveness of IEDs, mines, and booby traps has ensured an enduring place for them in modern warfare. Though often associated with irregular warfare, these weapons are just as common in traditional operations. An 1862 article in *Harper's Weekly* describes Confederate improvised mines, "infernal machines," as pear-shaped, iron casks filled with "grape, canister, and four eight-pound shells, surrounded by about two bushels of coarse powder," which Union troops had to render safe.⁶ The 1917 Australian Army directive, *German Ruses*, warns troops of "traps" set by withdrawing German forces, including an admonition to beware of "attractively furnished dugouts" and "souvenirs, such as helmets, shells, badges,

and bayonets left in conspicuous positions".⁷ World War II saw similar explosive hazards, including this insidious ploy:

*In Italy, in 1943, British troops came upon a highly desirable billet abandoned by the retreating Germans, its front door invitingly half open. Entering cautiously through a window to avoid the likely booby trap, they approached the front door from inside and found attached to it the expected explosive charge, apparently designed to function when the door was moved. They left the house and attached a line to the doorknob of the front door. They retreated across the road to a conveniently sited slit trench and pulled the line. A second trap hidden in the trench and connected to the door exploded and killed them all.*⁸

In North Africa, German troops even crept into US minefields to booby trap US mines with anti-lift devices to slow the American advance as troops cleared their own defensive minefields.⁹ In the Pacific, it was common for the Japanese to booby trap their dead, especially officers whose bodies would likely be searched for material of intelligence value.¹⁰ During the Korean war, retreating North Koreans booby trapped timber knowing that United Nations forces would be scrounging for firewood to stay warm.¹¹ Regular forces have, historically, booby trapped areas as they withdrew to slow the enemy's advance, prevent him from using abandoned stores, or deter him from taking shelter in abandoned buildings and fighting positions, which leaves him exposed to the elements and enemy fires.¹²

IEDs, of course, are a staple of irregular warfare. A former Army technical manual describes their utility in unconventional warfare, which also captures their appeal to guerrillas, insurgents, and terrorists:

Manufactured, precision devices almost always will be more effective, more reliable, and easier to use than improvised ones, but shelf items will just not

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be available for certain operations for security of logistical reasons. Therefore, the operator will have to rely on materials he can buy in a drug or paint store, find in a junk pile, or scrounge from military stocks. Also, many of the ingredients and materials used in fabricating homemade items are so commonplace or innocuous they can be carried without arousing suspicion. The completed item itself often is more easily concealed or camouflaged. In addition, the field-expedient item can be tailored for the intended target, thereby providing an advantage over the standard item in flexibility and versatility.¹³

It is worth remembering that improvised does not necessarily mean crude or less effective. Well-funded terrorist organizations using modern manufacturing processes have mass-produced standardized ordnance items. The Provisional Irish Republican Army, for example, developed fifteen “marks” of hand grenades and sixteen versions of mortars.¹⁴ The Revolutionary Armed Forces of Colombia manufactured *Fantasma* landmines, and the Taliban mass-produced reproductions of Soviet PMN-1 antipersonnel land mines, using a variety of explosive fillers. Aum Shinrikyo’s production of Sarin nerve gas for its 1995 Tokyo subway attack, illustrates the potential manufacturing capability of a well-funded terror group. Even conventional militaries employ improvised devices, such as Syria’s use of barrel bombs against antiregime militias in 2014. Many countries manufacture standard firing devices for use in booby traps, such as the US M142 multipurpose firing device and M5 pressure-release firing device. Often IEDs incorporate conventional ordnance in improvised ways or use military munitions as the main charge.

Insurgents often mark their emplaced IEDs so they and their comrades—and sometimes locals—can avoid the devices. In the case of command-detonated devices, the markings often provide an aiming point for the triggerman. In Vietnam, for exam-

ple, the Viet Cong sometimes marked booby traps with sticks placed in an arrowhead pattern.¹⁵ In Iraq and Afghanistan, insurgents frequently used stacked rocks. Regardless of method, the enduring principle is that terrorists will mark IED locations, and a careful observer, who knows what to look for, can often spot these indicators. When the former Joint IED Defeat Organization (JIEDDO) director Army LTG Michael Barbero said, “a well-trained warfighter is our best C-IED weapon,” he was echoing a 50-year-old observation captured in the FMFRP 12-43 epigraph that an alert Marine is the best IED detector.

Most IEDs are still detected visually, so effective C-IED training remains essential. A 1973 study reached the same conclusion, stating that “as expected, a very high percentage of devices were detected by visual means. This would seem to indicate a need to emphasize additional training in visual detection to increase the potential of what is currently our most effective detection means.”¹⁶ Current Army infantry doctrine notes that “detection depends on two things: being aware of what might be trapped and why, and being able to recognize the evidence of setting.”¹⁷ Both depend on focused training which should be grounded in sound tactical doctrine.

Even when insurgents do their best to conceal an IED, ground sign, such as disturbed earth, often remains detectable. Burying an IED without leaving a trace is hard (especially at night, in a hurry, and without anyone noticing) and trying to erase signs often leaves a signature.¹⁸ Yet, very little information about ground sign awareness is available in current doctrine and Service TTP, though the subject is taught in various training courses.¹⁹ Even the Marine Corps’ excellent *Combat Hunter*, which focuses on the field craft of observation, tracking, and profiling, dedicates only a single sentence to booby trap, IED, and landmine indicators. A C-IED MTTP could insti-

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tutionalize guidance on interpreting ground sign.

Combat Hunter does a commendable job discussing *atmospherics*—“the environmental mood of an area (i.e., how a place looks, sounds, tastes, feels, and smells relative to a baseline). Changes in the atmosphere of a community or individual can indicate imminent hostile action, such as an IED attack. The most obvious indicators are the sudden absence of regular routines, patterns, and attitudes of the local populace or the presence of abnormal activity.”²⁰ Environmental *atmospherics*, taken with other indicators, can key troops to the presence of IEDs. Alertness to indicators of channelization, markers, ground sign, and environmental *atmospherics* can help ground forces avoid an IED ambush.

US forces have come up with several tactical C-IED principles to assist the warfighter in an IED-rich environment that a C-IED MTTP could capture. The 5Cs (check, confirm, clear, cordon, control) guide actions when encountering a suspected IED. Mounted patrols in IED-rich environments perform 5–25–200-meter checks during a halt. Route clearance guidance from a JIEDDO Smart Book - describes the role of route clearance in assured mobility. It describes the relationship between the route clearance package (RCP) and supporting EOD formations; and describes how to vary the RCP’s order of movement relative to the threat, terrain, and available resources.²¹ Various identification guides help troops recognize IEDs and components, including homemade explosive and chemical precursors.

One of the important lessons of Operation IRAQI FREEDOM was that unsecured munitions looted from captured depots delivered the IED material that fueled the insurgency.²² Operational planners should ensure adequate EOD and engineering capacity exists to secure and dispose of captured arms, ammunition, and explosives. Dud ordnance, explosive

remnants of war, retrograde ammunition, bulk explosives, and captured munitions are all useful for making improvised devices. In Vietnam, the Viet Cong stripped the explosives from dud aerial bombs and artillery projectiles to build IEDs.²³ In 1950s Cyprus, Cypriot separatists salvaged munitions from sunken warships to obtain explosives for IEDs.²⁴ Unexploded ordnance (UXO) should be cleared from the battlefield as units move forward. Captured munitions and ammunition supply points must be secured or destroyed.

Insurgents use carelessly discarded ordnance of all sizes as the explosive elements in IEDs. Even a single round, ejected to clear a stoppage, is useful for constructing a cartridge IED. Additionally, materials discarded as trash or improperly destroyed (such as rations, storage containers, batteries, cases, and waterproof packaging materials) provide the enemy a valuable source of supply for fabricating IEDs and booby traps.²⁵ The lesson to the force is the importance of destroying UXO to deny the enemy a source of supply and policing friendly positions before moving out of an area.

As the United States fields new IED countermeasures, interdicts the provision of IED components, or adopts new C-IED tactics, enemies field new IED technologies and tactics of their own. The cycle of measure and countermeasure is a hallmark of the IED fight. It is part of what makes countering IEDs so challenging and so resource intensive. Commanders should anticipate that, when they introduce a new countermeasure, the enemy will seek to defeat it. Good operational security and sound TTP can prolong the usefulness of a countermeasure; but, eventually, the enemy will find a way to thwart US technology and tactics. Insurgents in Iraq and Afghanistan, for example, did not need to understand electronic warfare to realize that something was defeating their radio-controlled IEDs and altered their tactics accordingly.²⁶ The shelf life of counter-

Good operational security and sound TTP can prolong the usefulness of a countermeasure ...

measures also means that having well-trained soldiers and sound C-IED tactics is ultimately more important than technological countermeasures.

Many other tactics are useful for preventing employing IEDs. Emplacement denial activities can prevent IED employment, but they are not covered in joint doctrine and Service TTP. Culvert denial systems, T-walls, entry controls, lighting, persistent surveillance, scout sniper teams, and aggressive patrolling are all effective tactics for deterring IED emplacement. Patrol and explosive detection dogs are efficient IED detectors. Honesty traces—using Global Positioning System to create a digital record of a patrol’s movement—can help units avoid setting patterns.

Counterinsurgency practices that engage the local population can encourage people to report emplaced IEDs and caches of IED material. A handwritten sign at a Marine combat outpost aptly illustrates this relationship, stating:

Best counter to IEDs = #1 the Afghan people, #2 ANSF [Afghan National Security Forces] partners and then metal detectors, dogs, GBOSS [ground based operational surveillance system], airplanes, etc. 80% of our IED finds have been the direct result of tips from local nationals because of the respect that you show to the people—and because they’ve watched you ruthlessly close with, and destroy the enemy.²⁷

Tip lines and rewards for information can further provide incentives for cooperation.²⁸ The local population is often better than coalition forces at spotting IED indicators; it is, after all, their terrain. During the Vietnam War, for example, Kit Carson Scouts (Viet Cong defectors who worked as intelligence scouts with Marine infantry units) were highly regarded for their ability to recognize ground sign and locate hidden devices, booby traps, and tunnels.²⁹

Suicide bombing—such as the 1982 attack on the Marine barracks

in Beirut and 2000 attack on the USS Cole—has proven highly effective for insurgent groups and difficult for the US to counter. Insurgents can conceal suicide IEDs in ways that make the devices difficult to detect, even during a manual search, especially when cultural sensitivities or biases limit the scope of the search. Searches of women, children, and the elderly are often less rigorous than searches of military-aged men. For example, a female Liberation Tigers of Tamil Eelam terrorist wearing a suicide vest was responsible for the 1991 assassination of former prime minister of India, Rajiv Gandhi. Hashmat Karzai, the cousin of the former Afghan prime minister, was assassinated by a suicide bomber who hid the device under his Pashtun turban. US doctrine should do more than merely identify the problem; it should provide guidance for solving it.

The enemy will use all manner of hoaxes, ruses, and come-ons to lure the unsuspecting into a trap. Insurgents often use secondary IEDs to increase the lethality and psychological effect of an IED incident by targeting first responders, media, and curious onlookers who have gathered in the aftermath of an explosion. Indeed, “this diabolical tactic of using one bomb to drive panicked crowds into the path of another, even more deadly bomb would be repeated in Belfast, Beirut, Baghdad, and Bali.”³⁰ Similarly, insurgents may set multiple IEDs to ambush a patrol so that troops rushing to aid the wounded also trigger explosions.³¹

With some noteworthy exceptions, such as the al-Qaeda attacks on the USS Cole and Iraqi offshore oil platforms in 2004, the US has not suffered many IED attacks at sea. A variety of reasons may account for this (such as the special skills needed to operate and navigate at sea and the remoteness of targets), but other armed groups, including Somali pirates, have overcome those challenges. The LTTE Sea Tigers developed a robust maritime capability, which included suicide

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bombers, and Viet Cong guerrillas had some success with limpet and IED attacks against naval forces in Vietnam. Routine peacetime presence and multi-lateral exercises place US forces within reach of adversaries who might employ IEDs. IEDs also give an enemy the means to disrupt the reception, staging, and onward integration (RSOI) of troops flowing into the theater. Some tentative guidance for countering IEDs at sea seems warranted.

COUNTERARGUMENTS

One may argue that the Services' home-station, C-IED sustainment training is sufficient for imparting C-IED TTP to the force. The argument suggests that sustainment training can eliminate the need for an MTTP publication while avoiding the administrative burden on the Services that comes with absorbing new doctrine. Some may suggest, "just in time training" or in-theater RSOI training will temper the need for authoritative service doctrine.

Recent experience suggests otherwise. In Iraq and Afghanistan, rapid equipping initiatives filled many urgent operational needs, but much of this equipment languished in storage because operators did not know how to operate it or integrate it into existing tactics. Asking a Soldier, Sailor, Airman, or Marine to wait until arriving in theater to digest tactical doctrine or learn to operate new equipment is a massive disservice to the member. There are just too many other demands on their time during RSOI to gain proficiency or integrate new capabilities into operations. Being able to turn on and field calibrate the latest mine detector is nearly worthless if operators do not know where they belong in a patrol formation under different conditions, how they work with a patrol dog and handler, and who is covering them while they stare at the ground. Moreover, the individual Service's pre-deployment and home-station sustainment training programs are not equal in scope.

Improving home station training is essential to saving lives in an IED-rich environment.³² A C-IED MTTP could distill lessons learned and best practices into the fundamental C-IED principles and TTP that would support tactical level, home-station training. It would prevent the loss of a perishable skillset and break the cycle the United States falls into after each conflict, in which previous lessons become distant memories until casualties painfully bring those experiences rushing back to the forefront.

CONCLUSION

The abundance of C-IED lessons US forces have learned and relearned over many decades drives the need for an MTTP publication on the subject. US doctrine must do more than merely define the problem; it must provide the means to solve the problem. At the tactical level of war, the enemy uses IEDs to constrain US freedom of action, counter US superiority of arms, and attrite US forces. The joint force should provide tactical guidance for meeting the enduring threat that IEDs and booby traps pose, especially in the counterterrorism and counterinsurgency operations in which the US is currently engaged. Irregular warfare theorist David Kilcullen notes, "...the IED has now entered the standard repertoire of irregular forces in urban areas across the planet, and there are no signs this threat is shrinking; on the contrary, it seems to be growing."³⁴ A tactically-focused C-IED MTTP publication would complement operationally-focused joint and Service doctrine and provide lasting guidance for Soldiers, Sailors, Airmen, and Marines facing a persistent, worldwide IED threat.

END NOTES

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³ Its forward notes it is "published to ensure the retention and dissemination of useful information which is not intended to

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become doctrine...”

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