Annual Report
Fiscal Year 2007

Joint Improvised Explosive Device Defeat Organization

Attack the Network

Defeat the Device

Train the Force


SLING AND
TIE-DOWN

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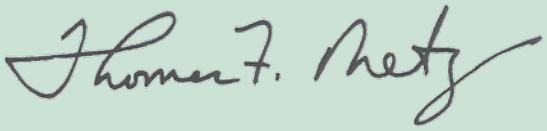
Forward

As the new Director of the Joint Improvised Explosive Device Defeat Organization (JIEDDO), I am pleased to issue this unclassified version of the JIEDDO 2007 Annual Report—a follow-on document to the classified report published in December of 2007.

Committed to finding and acquiring solutions to urgent counter-IED operational needs and capability gaps, JIEDDO's many accomplishments during its second year of operation are reflected throughout this report, which also serves as a valuable primer on the current nature of the global IED threat.

I would like to take this opportunity to thank General (Retired) Montgomery C. Meigs for his service to our nation over the past two years as JIEDDO's first director. His vision and leadership have created an enduring momentum to leverage national assets in a way that generates an unprecedented ability to rapidly develop capabilities and deliver them to warfighters.

Looking forward into 2008 and beyond, we will aggressively continue to develop new, innovative ways to rapidly find, develop, and deliver emerging capabilities to counter IEDs for the Long War. We will remain focused on the warfighter by providing the tools that enable the Services to deploy forces that are highly trained and superbly equipped for the counter IED fight. JIEDDO strives for an even greater impact on behalf of Soldiers, Marines, Airmen, and Sailors who are taking the fight to the enemy. For all our enemies who make up the IED networks, we will make tomorrow more risky than today. We will not stop until we have eliminated IEDs as weapons of strategic influence.



THOMAS F. METZ
LTG, U.S. Army
Director

Message from the Director

The Department of Defense (DoD) established the Joint IED Defeat Organization (JIEDDO) in February 2006 to lead DoD actions in support of combatant commanders in their efforts to counter improvised explosive devices (IED). In that first year, JIEDDO grew while making great strides to place new capabilities in the hands of warfighters.

Notable highlights from this year include:

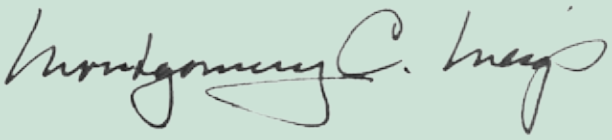
Counter-IED Operations Integration Center (COIC). Reaching full operational capability (FOC) in 2007, the COIC maintains a joint common operational and intelligence picture of the worldwide IED systems and provides commanders fast and accurate fused multi-source intelligence support, operational analysis, technical products, and training support, as well as Distributed Common Ground System (DCGS) capability and new analytical tools.

Joint IED Defeat Capability Approval and Acquisition Management Process (JCAAMP). JCAAMP developed and delivered several critical Counter-IED (C-IED) initiatives to warfighters, normally within 12 to 24 months. This unprecedented agility and responsiveness reflect JIEDDO's unique ability to leverage DoD's best business practices by making key investment decisions that rapidly exploit emerging technologies and innovative approaches in response to urgent warfighter needs and operational capability gaps.

The Strategic Plan for JIEDDO. In order to synchronize and integrate the ongoing substantial C-IED planning efforts within the combatant commands (COCOM) and the supporting DoD components, DoD published, "The Strategic Plan for JIEDDO," in the fall of this year. This plan provides the guidance necessary for a level of collaboration across the Department that will generate powerful operational and strategic-level synergy in 2008. JIEDDO also published an instruction to support execution of the plan across DoD.

At the end of 2007, we saw a number of encouraging developments, to include the recent decline in the number of IED incidents and associated casualties in Iraq. However, we continue to face an adversary that responds quickly to changing conditions through rapid cycles of innovation. As a result, no one in JIEDDO is satisfied with the results. While units in the field continue to make progress, we need an even greater capability to seize the initiative from the enemy in order to reinforce our recent successes.

As we move forward in 2008, we remain committed to innovation to support the warfighter. We will continue to guide every action to put the right capabilities in the hands of Soldiers, Sailors, Airmen, and Marines, wherever and whenever they are deployed.



Montgomery C. Meigs
General, U.S. Army (Retired)
Director

Background

U.S. forces face adaptive enemies who seek to achieve strategic results by inflicting significant casualties through the systematic employment of IEDs. Ready access to low cost, commercially available materials, enabling technologies, and easy access to information through the Internet sustain the threat.

In the hands of the enemy, IEDs threaten the security and long-term strategic interests of the United States and our allies. We must continue to improve our ability to anticipate and innovate faster than this thinking and resourceful enemy by targeting his networks and locating and destroying IEDs, denying him the initiative.

Trends

In recognition of its primary role as the catalyst for synergy across the full range of efforts necessary to defeat the IED threat, JIEDDO has developed and maintained a set of metrics to track trends in IED usage and effectiveness. These Tier 1 metrics, shown below, gauge the level of intensity of the IED fight and provide insights about the impact of C-IED initiatives.

- **Number of IED incidents decreases**
- **Ratio of found and cleared IEDs to IED explosions increases**
- **Casualties per IED explosion decrease**
- **Number of platforms destroyed by IEDs decreases**
- **Ratio of IED incidents to coalition force casualties increases**
- **Measured support of the populace to IED employment decreases**
- **Number of disruptions to the IED event chain increases**

During FY07, the trend in IED incidents in Iraq against coalition forces dropped dramatically (Figure 1). For the first time since the initial IED attack in June 2003, the annual increase in IED incidents has stopped. For the first half of FY07, the average monthly number of IED incidents remained constant. During the second half of the year, the number of incidents started to decline. The number of IED incidents during the month of September was the lowest number in over 18 months.

It is difficult, if not impossible, to isolate the contribution of any one factor to this trend. But clearly, those factors include:

The decision of many local factions to support coalition force efforts. The creation of the Al Anbar Salvation Council in Ramadi is, perhaps, the most dramatic example. Under the influence of local tribal leaders, the use of IEDs in the Ramadi region has dropped significantly.

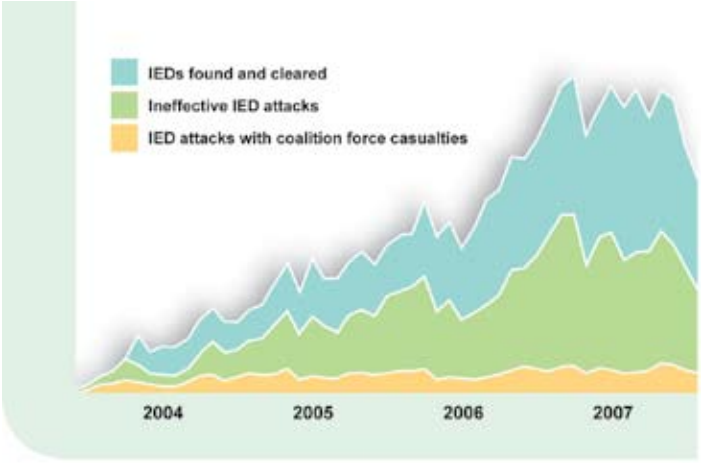


Figure-1 IED Incidents in Iraq

The sustained presence of coalition forces throughout the Baghdad security zones that have greatly reduced the monthly number of IED incidents in Baghdad. The number of tips submitted by the populace, which reached an all-time high in Iraq during 2007, indicates greater confidence in our forces. More important, as one division reported, the majority of the recently received tips resulted in unexploded ordnance or IED equipment captures or attack preventions.

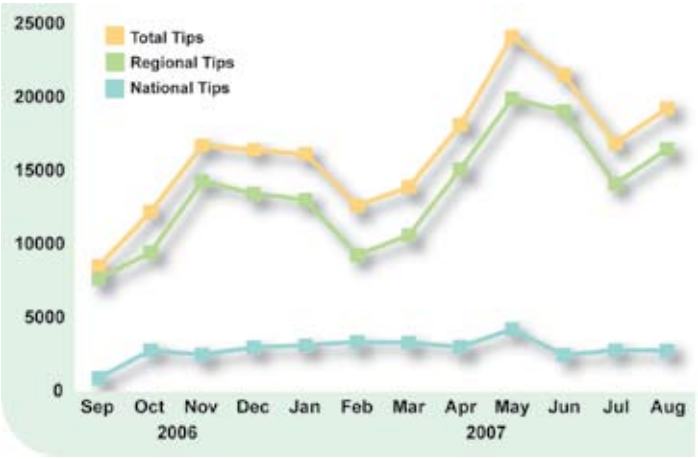


Figure-2 Number of tips submitted by the populace

The success of numerous locally focused brigade and regimental-level operations against networks. One of those operations, in particular, basically stopped the use of IEDs in the region south of Baghdad after May 2007.

Relentless efforts to disrupt the event chain which enables IED activities. In the first ten months of 2007, there were more than twice as many caches found and cleared as in all of 2006.

While the trend in IED incidents in Iraq decreased, the opposite trend has been observed in Afghanistan (Figure 3). In that theater, an emboldened, increasingly aggressive enemy has increased the use of IEDs. The number of IEDs employed against U.S. forces in FY07 reached an all-time high, more than doubling over the last half of the fiscal year.

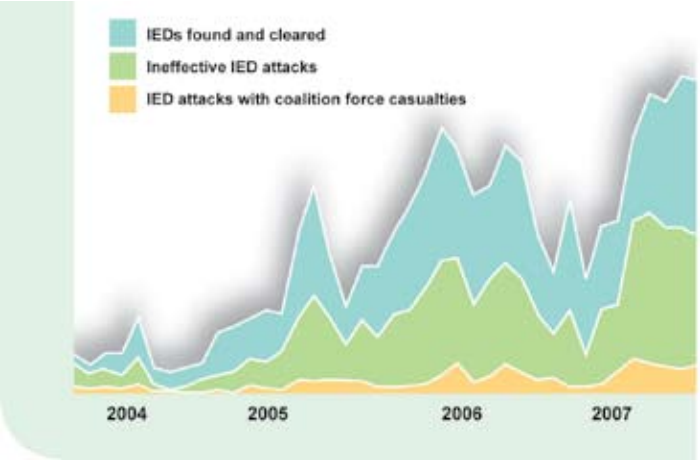


Figure-3 IED Incidents in Afghanistan

Coalition forces continue to employ capabilities that are designed to detect, disrupt, neutralize, or mitigate IEDs. The ability of the force to find and clear IEDs before they explode continues to improve. In FY07, coalition forces routinely found more than 50 percent of the IEDs encountered. Training enhancements, soldier proficiency, and the continued employment of protective capabilities sustained a very high return-to-duty rate, a surrogate metric for the severity of IED attacks. The combined effect of these capabilities causes the enemy to work harder to achieve his desired results. In FY07, the enemy had to employ almost six IEDs to produce one coalition force casualty.

While the increased presence of coalition forces may have discouraged the hasty emplacement of less sophisticated IEDs, it may have resulted in the emplacement of higher quality and potentially more lethal IEDs. As a result, while the number of IEDs in Baghdad declined in FY07, the casualty rate increased. In response to deployed coalition force capabilities, the threat has adopted tactics that are, in fact, proving more lethal. The average number of underbelly IEDs and explosively formed penetrator (EFP) IEDs per month both increased between FY06 and FY07. These two types of IEDs, while still representing a very small percentage of the overall number of IEDs, generated a disproportionate percentage of the coalition forces killed in action (KIA) due to IEDs in FY07.

Casualty rates in Afghanistan followed a similar trend as those observed in Iraq. For both theaters, the average number of wounded in action (WIA) and KIA per IED attack remained steady. The return-to-duty rate in Afghanistan tended to be slightly higher in FY07. There also were several months in Afghanistan when an IED incident generated multiple casualties, creating significant variation in the "incidents per coalition forces casualty" rate.

Finally, polling results of the general public within Iraq released at the end of the FY07 indicate that the confidence level in the government's ability to protect them from violence continues to grow. These responses serve as strong indicators of waning support among the populace for acts of violence and the use of IEDs. The emergence of this attitude will continue to result in more tips, more cache finds, and fewer effective IED emplacements.

The Threat

IEDs are the enemy's fires system – their artillery. In Iraq and Afghanistan, the enemy delivers these fires through networks that for centuries have formed the sinews of commerce for tribes and factions. With easy access to commercially available technology that results from an annual industry investment of more than three trillion dollars, IED attacks provide the enemy with a cheap, stand-off, precision targeting system that often provides attackers with complete anonymity.

Figure-4 IED cache found in Baghdad

Despite our substantial disruption of many IED networks, the continued prevalence of IED attacks reflects the enemy's ability to rapidly adapt and reconstitute his networks. Readily available materials and the linkages through tribes and families provide the enemy with a robust regeneration capability. Successful attacks by coalition forces against many IED network nodes produce only a temporary leveling of IED attacks. Home-made explosives (HME) and existing military ordnance are readily available to the enemy. The consistent application of commercially available materials that can be used as triggering devices makes the resources available for IEDs nearly limitless. These factors ensure that the IED threat will be with us for a long time.

In both Iraq and Afghanistan, the enemy's ability to use multiple triggering methods and to adjust his tactics, techniques, and procedures (TTPs) in response to coalition countermeasures demonstrates his ability to learn and adapt quickly. During FY07, command wire was the preferred IED-initiation system in Iraq, while radio-controlled IEDs prevailed in Afghanistan.

Figure-5 A house search finds an electronic triggering device

IEDs will continue to threaten coalition forces in Iraq and Afghanistan as devices become even more sophisticated as a result of rapid global access to information via the Internet. The enemy will continue to use IEDs as a terror weapon to discredit coalition forces and the Iraqi and Afghan governments, and as a means to control terrain and population.

JIEDDO Mission

JIEDDO's mission is to focus (lead, advocate, coordinate) all DoD actions in support of the combatant commanders and their respective Joint Task Forces' (JTF) efforts to defeat IEDs as weapons of strategic influence.

Lines of Operation

Attack the Network: This effort includes actions and activities against networks designed to reduce their effects and to interrupt the enemy's chain of IED activities by identifying and exploiting vulnerabilities and enabling offensive operations. The offense disrupts the enemy's innovation cycle and buys time to create additional IED countermeasures. This effort is accomplished through intelligence, surveillance, reconnaissance, information operations, counter-bomber targeting, device technical and forensic exploitation, disposal of unexploded and captured ordnance, and persistent surveillance directed toward defeat of the enemy's capabilities. Operations to kill or capture network members provide the final, critical step in the process.

Defeat the Device: In order to enhance commanders' freedom of action for safe operations, these actions and activities reduce the effects of IED detonation at the point of attack. They include rapid identification, development, acquisition, and delivery of capabilities for route clearance, device neutralization, explosive detection, military explosive ordnance disposal, and vehicle and personnel protection.

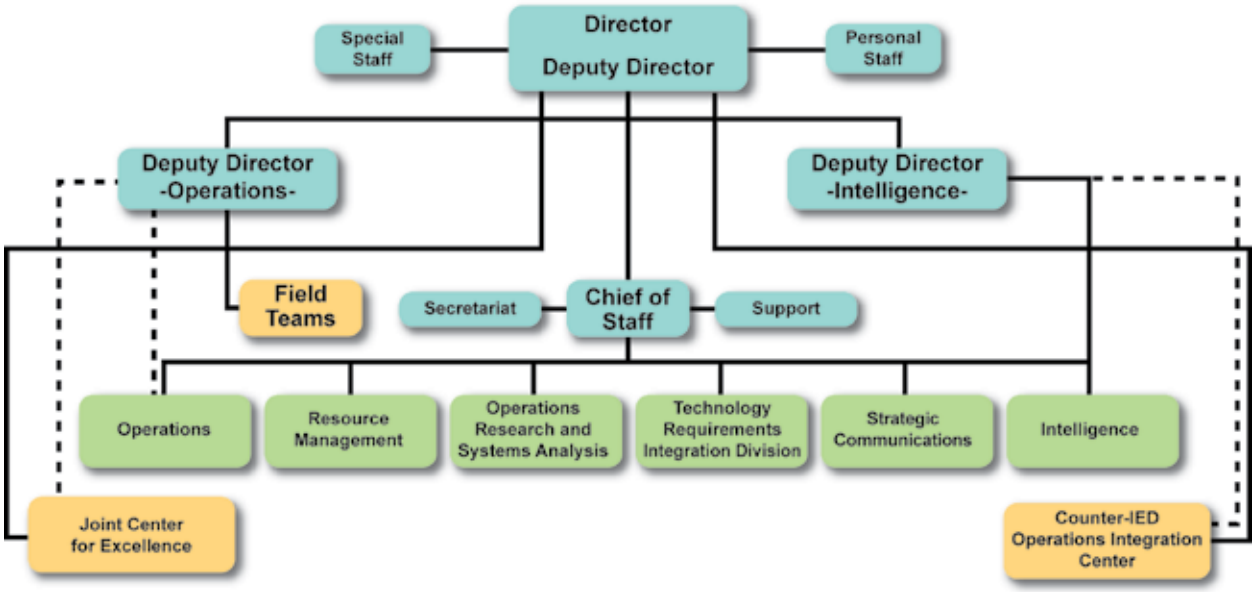


Figure-6 JIEDDO's Organizational Structure

Train the Force: Mitigating the effects of enemy IED employment through comprehensive training of our forces puts troops in the field who are situationally aware and who know their gear. This includes, but is not limited to, multi-echelon and multi-component training, training on new gear, information management and dissemination, strategic communications, doctrinal and institutional training changes, and unit mission rehearsals at Service combat training centers.

Organizational Structure

JIEDDO's organizational structure includes staff functions (shown in blue and green) and three service provider organizations (yellow). This structure facilitates collaboration and mission execution across DoD.

In 2007, we refined the organization to more effectively balance the distribution of government and contractor personnel to increase management oversight and fiduciary control of the programs we develop. A lean organization, JIEDDO outsources many critical functions to leverage the capabilities of existing Service program managers (PM) and contracting agencies. By contracting these critical functions, JIEDDO minimizes overhead, which is among the lowest in DoD for organizations that perform similar missions.

Joint IED Capability Approval and Acquisition Management Process (JCAAMP)

Published in 2007, JCAAMP is JIEDDO's rapid acquisition process to identify C-IED urgent needs and operational capability gaps; to aggressively seek, acquire, and assess potential solutions to these gaps through extensive finding networks; and to place approved initiatives in the hands of warfighters for operational assessment and deployment. JCAAMP provides a smooth transition to one or more of the Services or agencies for those initiatives ultimately determined to possess an enduring C-IED capability.

The JCAAMP process begins by leveraging extensive finding networks comprised of industry, academia, Service and DoD laboratories, and other government agencies to develop potential C-IED solutions to urgent needs and operational capability gaps. In 2007, our outreach efforts generated both formal and informal relationships with nearly 300 corporations, 24 universities and research centers, and 37 government labs.

The development strategy for JIEDDO, reflected in JCAAMP, is that of an investment bank. Off-the-shelf, relatively inexpensive solutions are brought to bear immediately, while high-potential and near-ready technologies are developed and fielded quickly to forces on the ground. To balance out this portfolio, JIEDDO takes measured risks with nascent technologies or those that will need a great deal of refinement and iterative testing. With a balanced mix of risk and expediency, JCAAMP helps create a steady pipeline of tools and initiatives needed for a proactive fight against IEDs.

Potential C-IED initiatives enter JCAAMP through a variety of methods where they are developed and validated for funding. Once funded, initiatives are tested, deployed, and operationally assessed. Initiatives ultimately transition or transfer to the Services, normally after a sustainment period of up to two fiscal years that commences after an approved operational assessment. Initiatives that do not transition to Service programs of record are terminated.

JCAAMP dramatically shortens, from years to months, the time between recognition of a developing IED threat and the placement of a C-IED initiative in the hands of warfighters. JIEDDO's goal is to find and develop an initiative within 4 to 12 months and to deploy and assess that initiative within 12 to 24 months.

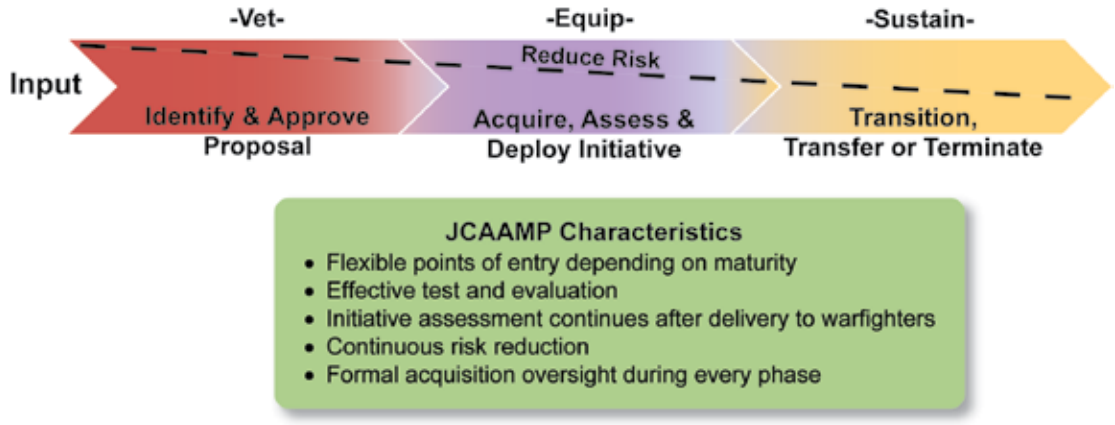


Figure-7 JIEDDO's JCAAMP Processs

Major Accomplishments during FY07

Highlights

Counter-IED Operations Integration Center (COIC). The COIC became fully operational this year and directly serves warfighter efforts to focus attacks on enemy networks employing IEDs. The COIC's unique ability to fuse multi-source intelligence in support of tactical unit targeting, especially for conventional forces at the battalion and brigade level, provides an unprecedented real-time network attack capability for our warfighters. The COIC also serves as a source for new technologies in the intelligence community.

JCAAMP Formalization. JCAAMP matured in 2007 and is a major development in JIEDDO's growth. This rapid acquisition process supports all of JIEDDO's lines of operations with rapid approval and assessment of C-IED initiatives. It places those initiatives in the hands of warfighters for operational assessment and deployment. At the appropriate time, JCAAMP provides a smooth transition to one or more of the Services or agencies for those initiatives ultimately determined to possess an enduring C-IED capability. JCAAMP also defines and implements the associated financial management controls and oversight required to successfully execute our rapid acquisition mission.

Transitions, Transfers, and Terminations. In 2007, JIEDDO worked closely with the Services to determine the final disposition of several C-IED initiatives following their successful operational assessment. For the first time, JIEDDO is transitioning eight C-IED initiatives to the Services in FY08. These initiatives will become long-term Service programs of record to provide an enduring C-IED capability for the warfighter.

Mine Resistant Ambush Protected (MRAP) program support. JIEDDO works with the Service laboratories and research and development (R&D) centers to explore technologies to defeat EFPs and large underbelly IEDs and recommend armoring solutions for the MRAP program.

The Strategic Plan for JIEDDO. In September 2007, the DoD published the Strategic Plan for JIEDDO which clearly identifies the Department's C-IED goals, priorities, and roles to support warfighters and enable attacks against the IED networks. JIEDDO led this seven-month effort by working with representatives from OSD, Joint Staff, COCOMs, the Services, and other DoD agencies. As a direct result of this Strategic Plan, the Deputy Secretary of Defense has instructed all COCOMs to develop C-IED plans with performance measures, and to coordinate with JIEDDO to ensure unity across DoD.

More detailed explanations of JIEDDO's capabilities and accomplishments are provided in the following sections.

Attack the Network

In order to succeed in C-IED operations, unrelenting pressure must be applied to IED networks. In 2007, JIEDDO focused on initiatives that disrupt IED activity to include the movement among and between financiers, IED makers, trainers, and their supporting infrastructure. Initiatives funded under the Attack the Network line of operation represent enabling capabilities for COCOMs to conduct offensive operations against IED networks. Major JIEDDO-funded accomplishments include:

Counter-IED Operations Integration Center (COIC).

The COIC was established in August 2006 and directly serves warfighters' efforts to focus attacks on enemy networks employing IEDs. A vital Attack the Network initiative, the COIC is a disruptive change agent to energize the warfighter's ability to gain access to seemingly disparate information and data sources to create vital, common operating pictures. The COIC also provides an avenue for strategic reachback to collaborative, fused, multi-source analysis and innovation across critical DoD, government, industry, and academic organizations and agencies.

The COIC's customer feedback program is designed to further improve its overall performance. Customer evaluations rate COIC products for quality, timeliness, and their ability to enhance the customer's previous intelligence and information. On average, customers rated COIC products 4.8 on a 5 point scale.

The COIC leverages existing information and provides strategic capabilities in support of offensive operations against IED networks. Through COIC's fused intelligence products, formerly highly classified intelligence is now available at the secret level, making it accessible to warfighters at the tactical level.

Senior Intelligence Leader Advisory Board. JIEDDO continues to host this meeting at the principal and deputy (General Officer and Senior Executive Service) level of the IC as a venue to focus, coordinate, and deconflict C-IED issues. This forum fosters timely discussion and key decisions in support of warfighters.

Intelligence, Surveillance, and Reconnaissance (ISR). The following programs have provided warfighters in Iraq and Afghanistan unprecedented ISR capabilities.

Constant Hawk. Jointly funded by JIEDDO and the Army, this aircraft-mounted ISR capability provides persistent wide field-of-view ISR allowing warfighters to have an improved operating picture of the battle space and situational awareness on objectives in an urban environment.

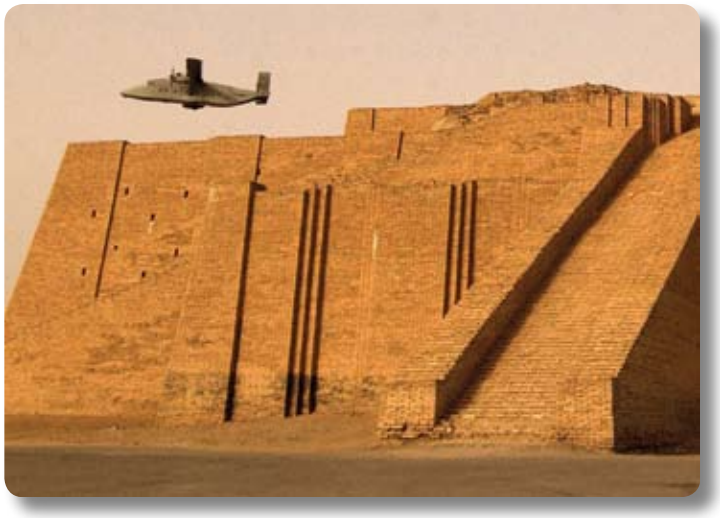


Figure-8 An Army C-23 on reconnaissance in Iraq

Warrior Alpha. JIEDDO continues to fund this unmanned airborne system (UAS) that provides a persistent tactical ISR capability that gathers full-motion video to provide division commanders with immediate actionable intelligence.

Figure-9 Warrior Alpha goes on patrol from Balad Air Base

The following JIEDDO programs have provided warfighters in Iraq and Afghanistan, as well as other C-IED supporting agencies, with increased situational awareness and targeting capabilities:

Weapons Technical Intelligence (WTI). Weapons Intelligence Teams (WIT) at the tactical level, the Combined Explosive Exploitation Cell (CEXC) at the operational level, and the JIEDDO-funded FBI Terrorist Explosive Device Analytical Center (TEDAC) at the strategic level are the key organizations that conduct WTI. These assets work in concert to collect, analyze, and exploit technical IED intelligence to enhance C-IED TTPs and to target and prosecute those involved in IED activities.

Counter-IED Targeting Program (CITP). JIEDDO provided almost $70 million to the National Ground Intelligence Center for the CITP to enhance a split-based analytical capability in the U.S., Iraq, and Afghanistan that provided reach-back intelligence support to deployed forces on bomb-maker network targeting, IED forensics, IED technical characteristics and associated TTPs.

Law Enforcement Professionals (LEP). After noting strong similarities between American organized crime and IED networks, JIEDDO created the Law Enforcement Professionals (LEP) program to leverage the knowledge and skill of former law enforcement experts in its attack of IED network activities. The LEP program provides commanders in Iraq and Afghanistan with retired agents from the Federal Bureau of Investigation (FBI), the Drug Enforcement Agency (DEA), the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), and several major metropolitan police departments to assist in identifying, monitoring, penetrating, and suppressing IED networks. Their insights into the techniques and patterns of gangs and organized crime have significantly improved commanders' efforts to target IED networks. As cited by CJTF-82 in Afghanistan, LEP personnel have sparked several law enforcement initiatives, such as village watch programs, which have enhanced the ability of supported units to effectively engage community elders and local indigenous police. Because of LEP's success, plans for program expansion occurred in 2007 that will provide teams down to battalion level in FY08. This program is expected to transition to Army control in FY08.

Defeat the Device

During 2007, JIEDDO continued to fund, develop, and deliver both materiel and non-materiel capabilities dedicated to finding and clearing emplaced IEDs and mitigating their explosive effects. Major JIEDDO-funded Defeat the Device accomplishments include:

Counter Radio-Controlled Electronic Warfare (CREW). A family of vehicle-mounted, man-portable, and fixed-site C-IED jamming systems, CREW prevents radio-control IEDs (RCIED) from detonating. Continued fielding and enhancements of CREW systems during FY07 influenced the enemy to employ other initiation methods, resulting in a reduction in RCIED mechanisms used from approximately 80 to 20 percent of the identified triggers. An ongoing R&D effort continues to ensure we stay ahead of the enemy's countermeasure innovation cycle in this area. In FY07, JIEDDO funded over 14,000 jammers for Army and Marine Corps units, bringing the total number of IED jammers purchased to over 37,000 for theater requirements. The current generation of jammers includes:

Duke. This vehicle-mounted counter-RCIED system provides countermeasures to protect against a wide range of threats. The latest upgrade increases the original system's performance and capabilities.

Chameleon. This vehicle-mounted counter-RCIED system provides countermeasures to a wide range of current RC-initiated threats. This program was put in place to accelerate the production and fielding of jamming capabilities to the Marines. JIEDDO funded the addition of a component to the Chameleon which will improve interoperability with other systems and blue force communications and increase its overall capability.

Guardian. This man-portable active jamming system, initially fielded in 2006, saw increased numbers in FY07. Guardian is an example of JIEDDO's uncertainty-tolerant procurement process, going from the initial request for information to system delivery in three months.

Figure-10 Man-portable Guardian jamming systems

Spiral Development. Mounted and dismounted spiral improvements are in development to enhance current CREW systems. Two new systems have been developed and selected – Combined Vehicle Radio Jammer (CVRJ) and Mobile Multi-band Jammer 2.1. Ongoing development initiatives will increase coverage of the radio frequency spectrum. Fielding of Spiral 2.1 will begin in November 2007, with CVRJ being the preferred system for the MRAP vehicle. Forthcoming versions include the next man-portable system (Spiral 3.1), vehicle system (Spiral 3.2), and family of systems (Spiral 3.3).

Engineer Reconnaissance (RECCE) vehicle. JIEDDO funded the Engineer RECCE vehicle as a proof-of-concept that combines detection and neutralization on a single-vehicle platform. Capabilities include a signals detection system.

Figure-11 Engineer RECCE Vehicle in Iraq

Route Clearance Teams (RCT). RCTs are used to thwart ambushes, clear natural or man-made obstacles, and detect IEDs. RCTs are comprised of engineers, EOD personnel, mechanical devices, and specialized robotics to increase standoff from the IED threat. JIEDDO has helped evaluate and field a number of devices designed to detect and defeat IEDs and ultimately enhance the effectiveness of RCTs, vehicle patrols, and convoys.

Route Clearance Blowers. Route clearance blowers are powerful air blowers mounted on the front of military vehicles and used to remove debris and enhance the identification of camouflaged IEDs. JIEDDO provided funding to the Army's Rapid Equipping Force (REF) to procure 115 commercial off-the-shelf (COTS) route clearance blowers. The REF initially executed the procurement, and acquisition responsibility has since been transferred to PM IED-Defeat.

Interrogation Arms (IA). IAs provide a standoff capability and are used to probe for suspected IEDs. The mechanical

Figure-12 IA for RG-31 Nyala Mine Protected Vehicle – Afghanistan

Figure-13 RDISS being positioned in Baghdad

arm provides a standoff of 25 feet and is equipped with a claw for digging and a metal detector and camera to identify IEDs. In FY07, ten IAs were mounted on RG-31s in Afghanistan and six were fielded for use on Huskies in Iraq.

Victim Operated IED (VOIED) Roller Systems. The VOIED Roller System is a mechanical device designed to defeat pressure-detonated IEDs. This year JIEDDO funded the procurement of several hundred VOIED roller systems called the self protective adaptive roller kit systems (SPARKS) for the Army. Rollers have significantly reduced effectiveness of individual IED attacks.

Driver's Vision Enhancer Plus (DVE+). DVE+ is an infrared imaging driver's device designed to enhance force effectiveness, particularly battlefield mobility, by assessing trafficability for combat and tactical wheeled vehicles during daylight, darkness, and in degraded battlefield conditions. This year JIEDDO funded the procurement of 1,000 DVE+ devices.

Rapid Deployable Integrated Surveillance System (RDISS). RDISS is a fixed-site persistent surveillance system used to enhance situational awareness and perimeter security of joint security sites and forward operating bases. In FY07, JIEDDO funded the procurement of 138 RDISS systems.

Vehicle Optics Sensor System (VOSS). VOSS is a vehicle-mounted stabilized day-and-night camera mounted on a 25-foot mast designed to enhance situational awareness in combat environments. JIEDDO funded the procurement of 70 VOSS systems in FY07. VOSS is a COTS system.

Rapid Aerostat Initial Deployment (RAID). RAID systems provide base security personnel with a unique 360 degree, high-resolution, day and night overhead surveillance capability for enhanced target recognition and situational awareness. JIEDDO funded the procurement of 16 RAID systems in FY07.

Eagle Eye (EE). The RAID EE version incorporates a ground-based radar (MSTAR, AN/PPS-5C) with a long-range day and night surveillance camera (StarSafire III) and Persistent Surveillance Dissemination System of Systems/ PM Robotic and Unmanned Sensors for remote monitoring of system control. The fixed-site EE utilizes four towers which feed into a base defense operations center. The mobile EE consists of a tower and a command and control trailer.

Ground-Based Optical Surveillance System (G-BOSS). The G-BOSS provides persistent day and night surveillance and overwatch capability for forward operating bases, heavily trafficked main supply routes, and alternate supply routes by detecting emplaced IEDs, IED emplacers,

Figure-14 G-BOSS provides day and night surveillance

snipers and other suspicious activities. This year JIEDDO funded the procurement of 41 G-BOSS systems.

Technology Challenges

While JIEDDO has been successful in rapidly fielding numerous C-IED initiatives, there are several problems that are proving harder to solve than initially anticipated. For example:

Wire Detection. Finding solutions to detect IED command-detonation wires has been a challenge. A number of technologies are under review, including radar, lasers, electro-optical/infrared (EO/IR) imagers, resonance detection and hyperspectral sensors. The number and complexity of the sensors together with the requirement to establish test configurations and procedures have led to a relatively long duration program.

Deep-Buried IEDs. Deep-buried IEDs have been difficult to detect. Commercial ground-penetrating radars are used to find underground pipes. Variants of this type of radar have been investigated for use in the detection of IEDs. The engineering aspects required to distinguish IEDs from other deep-buried objects have proved to be a significant challenge.

Initiative Terminations

In 2007 some initiatives were assessed ineffective and were subsequently terminated:

Alexis and Electra-C. Alexis and Electra-C are fixed-site and vehicle-mounted C-IED systems which emit wave forms leading to potential pre-detonation of IEDs. These systems failed to overcome interoperability issues with CREW jamming devices and consequently were terminated.

Forerunner. This remotely-operated unmanned HMMWV outfitted with C-IED systems was rejected by the warfighter during its operational assessment because it induced operator vertigo and vehicle control became a significant problem.

Warlock Dragon (BlowTorch). This vehicle-mounted passive infrared (PIR) defeat measure was designed to use high-power microwaves to defeat PIR- initiated IEDs. Stateside testing yielded positive results, but operational assessment proved to be inconclusive. JIEDDO later discovered that the enemy was shielding PIR devices, a countermeasure that ultimately rendered Warlock Dragon ineffective.

Merlin III. This aircraft-mounted surveillance system was designed to provide full-motion video in Afghanistan. This initiative was intended to be an interim measure until the Warrior Alpha system was fielded. Merlin III was terminated when it did not achieve its performance requirements during pre-deployment testing and could not be ready prior to the fielding of Warrior Alpha.

Train the Force

Joint Center of Excellence (JCOE) Training Support.

Operating as JIEDDO's core training component, the JCOE works to ensure that deploying service members have the opportunity to train with the counter-IED tactics and equipment currently found in-theater and in conditions that mirror those found in Iraq and Afghanistan.

Headquartered at Fort Irwin since 2006, the JCOE offers IED-specific direction, guidance, coordination and resources to large training venues like the Army's National Training Center (NTC). The goal of the JCOE is to support the Services in providing training units a realistic experience in all facets of IED defeat, including identification of IEDs and their components, attacking the networks that bring the devices into the battlefield, and properly employing the tools available to defend against these weapons.

In FY07, JIEDDO invested approximately $150 million in the JCOE. Drawing from insights gained from the COIC and JIEDDO forward-deployed teams, the JCOE inserts tactical realism into pre-deployment training. This investment ensures that warfighters deploying into harm's way are trained on the enemy's most recent TTPs and our associated countermeasures. The JCOE, headquartered at Fort Irwin, CA, consists of service-specific Centers of Excellence (COE) located at Fort Irwin (Army), Twentynine Palms, CA (Marine Corps), Indian Head, MD (Navy) and Lackland AFB, TX (Air Force).

Recent additions to JCOE training include:

In a span of 90 days, in concert with the NTC, JCOE produced a "search" training capability that included construction of a small Iraqi village complex with search houses, formal training of instructors, and the inclusion of a UK sergeant major to assist in the development of proper search techniques. Direct assistance from the JIEDDO Operations and Training Division has expanded this capability to five other locations supporting Army and Marine Corps forces.

In concert with the Army's Program Executive Office-Simulations, Training and Instrumentation, a second

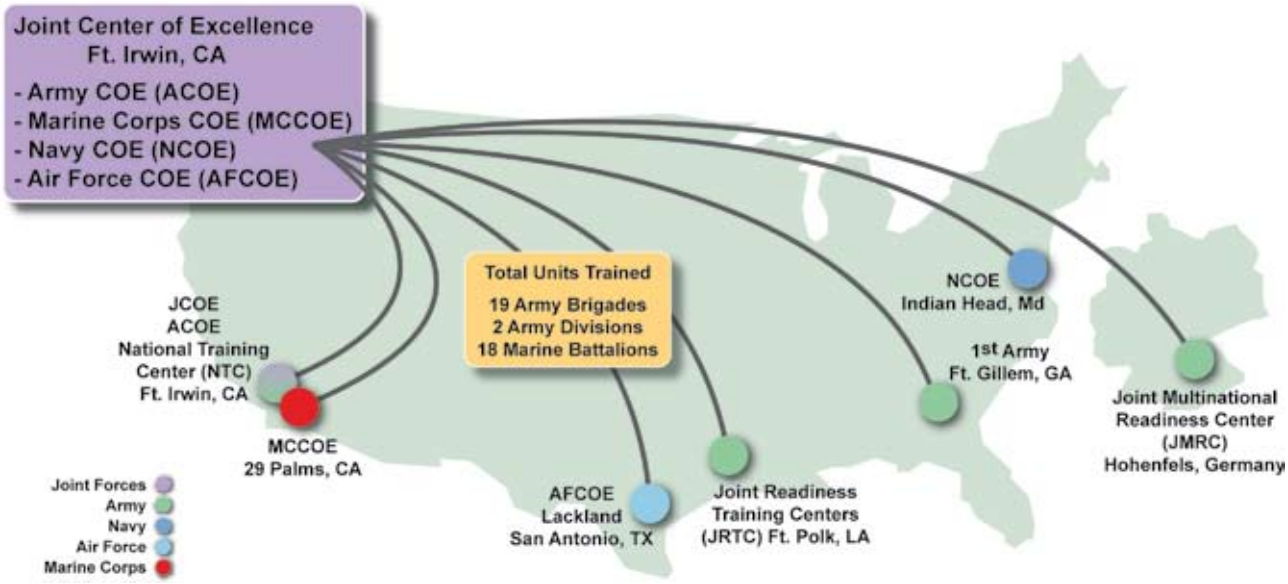


Figure-15 JIEDDO's Joint Center of Excellence Training Support

Figure-16 NTC Search Facility at Ft. Irwin

JCOE-led program delivered the Duke surrogate to NTC and Twentynine Palms. The Duke surrogate enables full-scale training on near-identical equipment prior to deployment. JIEDDO resourced 1,155 of these systems for distribution to all major training locations.

Pivotal in the decrease of radio-triggered IEDs in Iraq and Afghanistan, the sophisticated set of CREW devices used by deployed service members require a core training capability offered by the JCOE sub-component, the Army Center of Excellence (ACOE). Established by JIEDDO as a service-specific branch of its JCOE training element, ACOE leverages the Army's substantial experience with CREW devices to provide in-depth training to deploying service members at the NTC. Working in conjunction with NTC's Operations Group, ACOE aims to train every service member deploying to Iraq or Afghanistan in this area. Units in rotation are exposed to six types of CREW devices at the NTC, with an emphasis on the vehicle-mounted Duke and the man-portable QRD/ Guardian systems. Those systems are the most current and widespread devices available in theater. They all operate in a similar manner, by blocking or intercepting a trigger signal before it reaches a radio-detonated IED.

The JCOE initiated and executed the Joint Asymmetric Threat Awareness C-IED training support initiative. This initiative provides instruction on basic and advanced IED awareness, battle staff C-IED capabilities coordination, friendly IED search TTPs, post-blast activities, forensics, and advanced EOD training.

Ensuring that service members are able to operate unmanned robots to the fullest of their capabilities, the ACOE offers an intensive, two-day robotics training course to familiarize deploying troops with the equipment before they arrive in-theater. The ACOE maintains a large, ten lane robotics course for training as many as 40 robotics teams per training rotation. Funded by JIEDDO, the ACOE keeps over 60 robots at their disposal for the program.

The robotics training course, separated into ten distinct lanes, places trainees behind a wooden wall with their radio-operated controller and the respective robots on the other side. Running the robots through the 60 meter rubble-lined lanes, the teams encounter simulated IEDs, unexploded ordinance, and booby-trapped wooden sheds and automobiles along the way.

The opposing force (OPFOR) bomb fusion capability replicates enemy IED network activities at the NTC during force-on-force stability reconstruction operations. This credible and detectable enemy IED network replication initiative includes financiers, bomb makers, smugglers,

Figure-17 Robot Training Course

and emplacers. All IEDs are made during the actual training events to accurately reflect enemy TTPs. Units then conduct post-blast analysis to determine and exploit the enemy's established patterns.

Biometric data has quickly become a vital tool in the fight against IEDs. In Iraq and Afghanistan, fingerprints pulled from captured or found IED components are routinely matched to a centralized, networked biometric database, leading to the identification of bomb makers and handlers. Identifying data is also used in Iraqi court proceedings, where the quality of the data is paramount to convicting lawbreakers and insurgents. While this capability – along with facial and iris recognition - has the potential to disrupt an entire IED network, it requires deployed service members to properly collect and share these biometrics.

To ensure that the skills needed to use this tool are adequately disseminated, JIEDDO and the ACOE have established a biometrics training program at Fort Irwin's National Training Center. The training uses equipment and procedures found in-theater to prepare service members in data gathering and handling.

Training Initiatives

Electronic Warfare (EW) Training. JIEDDO's efforts became the catalyst for enhanced spectrum management by leveraging expertise across the Services and instituting various levels of training for deploying forces. The electromagnetic spectrum has become a battlespace for the ground force, and JIEDDO's recent EW training initiatives include:

Supporting the deployment of Electronic Warfare Officers (EWO) to brigade and battalion level to support EW operations in theater.
Funding three EW training courses that prepare CREW operators. Over 900 personnel attended these courses in FY07. Additionally, JIEDDO initiated the funding for the production of the JCREW Handbook, a pocket-sized quick reference manual for use by ground forces.

In FY07, JIEDDO developed and continues to sponsor a one-day general officer-level EW course to educate senior leaders on the dimensions of the C-IED EW operations. This course is available to general officers from any deploying unit.

Senior Mentor Program. JIEDDO provides retired, senior general officers to mentor trainers and units in C-IED operations prior to their deployment. This mentor training generally occurs prior to a unit's predeployment combat training center (CTC) rotation during the preparatory leadership training program phase. Senior mentor involvement in C-IED training fosters critical and creative thinking and ensures that training materials are relevant and consistent with ongoing lessons learned.

Home Station Training Support. JIEDDO undertook a major initiative this year to assist the Services in enhancing home station C-IED training. Increased individual C-IED training at home station allows greater force-on-force collective training at CTCs and Service COEs.

Figure-18 ACOE Training

Figure-19 Warfighters training in realistic environments

Tactical Training Support. The 14-member Joint Expeditionary Team (JET) advises and mentors units from platoon to division-level on various aspects of the C-IED fight. Team members engage with units prior to deployment and often serve in theater for discrete periods to support operational requirements. The teams advise commanders on how best to organize to attack IED networks, provide C-IED battle staff training, and support the development of tactical-level C-IED training. The recently established Marine Corps Training Advisory Team within JET provides full-spectrum C-IED training, advice, and mentoring to Marine Corps units from platoon to regiment level. The combined efforts of JET and the Army's Asymmetric Warfare Group (AWG) Tactical Advisory Teams (TAT) have provided Army and Marine Corps units with up-to-date, threat-focused pre-deployment C-IED training.

Figure-20 Tactical level C-IED training

International and Interagency Engagement. JIEDDO coordinates cooperative efforts with multi-national partners, the Joint Staff, and COCOM Staffs. During FY07, JIEDDO coordinated the development of three international agreements (U.S. - UK Force Protection Memorandum of Understanding [MOU], U.S. - UK Personnel Assignment MOU, U.S. - Canada Personnel Assignment MOU) and facilitated the assignment of two additional foreign officers to JIEDDO. Other accomplishments include ongoing support to technology transfer initiatives with Israel; tracking the development, deployment, production, and loan or sale of C-IED systems to coalition and partner nations supporting operations in Iraq and Afghanistan; and coordination with the UK, Canada, Australia, and New Zealand for C-IED systems interoperability testing.

Coalition and Partner Training. JIEDDO funded $32 million in equipment to support C-IED training at U.S. training centers in Europe. During FY07, a total of 18 nations received IED defeat training in Europe and in theater prior to serving in U.S.-led coalitions.

Figure-21 Coalition and partner training

JIEDDO Field Teams

JIEDDO field teams are permanently deployed to Iraq and Afghanistan to provide advanced warning on future C-IED requirements specific to each theater, to facilitate the implementation and ongoing management of JIEDDO initiatives, and to report on IED and C-IED TTPs and lessons learned.

During 2007, the field teams supported the development and fielding of a number of technology-based C-IED programs, such as: mine rollers, CREW, pre-detonation systems, and route clearance equipment. Field teams also supported the integration of LEP and the Corps, Division and MEF C-IED Support Teams; the C-IED Targeting Program; and the establishment of an in-theater COIC capability. They are involved in the full spectrum of C-IED activity, including WTI, the planning and execution of training and operations, and the facilitation of technology and non-materiel initiatives. In addition, the JIEDDO Field Team Afghanistan Commander also serves as the JTF- Paladin Commander and the ISAF C-IED Branch Chief.

In 2008, the field teams will increase their communications with the JCOE to further enable timely and accurate updates to friendly and enemy TTPs.

Science and Technology

In 2007, JIEDDO completed its C-IED Science and Technology Master Plan. The plan serves as a classified complement to JIEDDO's Science and Technology (S&T) Strategy published in 2006. The Master Plan delineates the C-IED technology gaps, which are derived from the organization's operational capability gaps. These gaps are currently addressed by 104 individual S&T programs conducted with the cooperation of numerous industry partners and government organizations, including:

The sensor fusion program seeks to develop fusion engines for IED detection that will produce higher detection probabilities and lower false-alarm rates than are currently achievable with individual sensors exploiting weak signatures in a complex clutter and noise environment. This program is in the first year of a multi-year effort and will proceed to developmental testing in the fourth quarter of FY08.

Figure-22 Ground penetrating radar

The persistent operational surface surveillance and exploitation program is focused on integrating, fusing, and exploiting ground and airborne-based sensors to detect and track abnormal civilian behavior and alert operators of potential IED-network activity.

A standoff explosives detection program proceeds along several parallel lines, including an Army Research Office-managed Broad Agency Announcement (BAA) that has funded basic research into three candidate technologies for optical detection of explosives at standoff ranges; a JIEDDO BAA to evaluate existing optical, infrared, or other sensor technologies for suicide vest detection; and continuation of explosives signature development work through the Army Research Laboratory and other DoD labs.

Figure-23 Detection of pressure plates at standoof ranges

A program to defeat blasting caps includes candidate technical solutions proposed by the Air Force Research Laboratory, the Naval Surface Warfare Center, and industrial partners. This effort also includes phenomenology work to characterize enemy blasting caps.

Figure-24 Blasting caps

Work continues in Attack the Network efforts through aggressive development of predictive tools, data-handling systems, and enhancement of the analytical tools available to exploit intelligence.

Resources

Funding

In FY07, Congress established an appropriation called the Joint Improvised Explosive Device Defeat Fund (JIEDDF) to provide a unique funding mechanism for JIEDDO to execute its responsibility to support C-IED efforts across the DoD. The JIEDDF appropriation has a three-year life span and is not tied to traditional appropriations such as Operation & Maintenance (O&M), Procurement, or research, development, test, and evaluation (RDT&E). This funding structure gives JIEDDO maximum execution flexibility. Through the supplemental funding process in FY07, Congress appropriated $4,393 million in this fund for JIEDDO to rapidly respond to IED threats. Figure 25 illustrates JIEDDO's FY07 budget distribution.

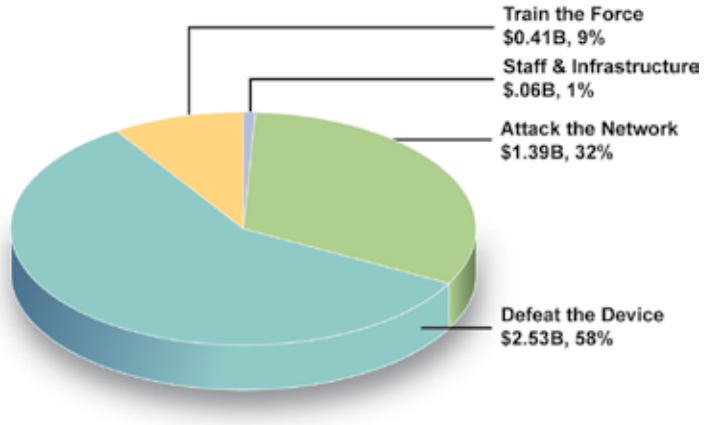


Figure-25 JIEDDO's funding requirements

Supplemental Funding Challenges. Due to the unique nature of JIEDDO funding processes and the need to rapidly respond to IED threats, we faced a few execution challenges in FY07. The first challenge involved our reliance on supplemental funding and the uncertain timing in the receipt of those funds. JIEDDO is also challenged by rapidly changing requirements downrange that often require Congressional reprogramming between JIEDDO's lines of operation.

Funds Execution. To cover operating costs during the first quarter of FY07, the Army, JIEDDO's executive agent for funding management, loaned JIEDDO $80 million in O&M Army funds. In January 2007, JIEDDO received its first JIEDDF apportionment of $1.92 billion under the Title IX bridge supplemental portion of the FY07 Defense Appropriation Act. This late start in funding execution created obligation rate lag times throughout the remainder of the fiscal year. In late May, JIEDDO received $2,433 million from the FY07 Supplemental. In September 2007, JIEDDO received a final $39 million as part of an omnibus reprogramming request. Total JIEDDF funding availability for execution in FY07 was $4,393 million.

Figure 26 illustrates JIEDDO's FY07 budget execution. The commitments line shows the erratic nature of JIEDDO's funding receipt. By year end, 92 percent of the FY07 JIEDDF funding had been committed. The chart also shows JIEDDO's obligation rate. Despite a slow beginning resulting from funding delays, JIEDDO was still able to obligate 73 percent of its funds by the end of the fiscal year.

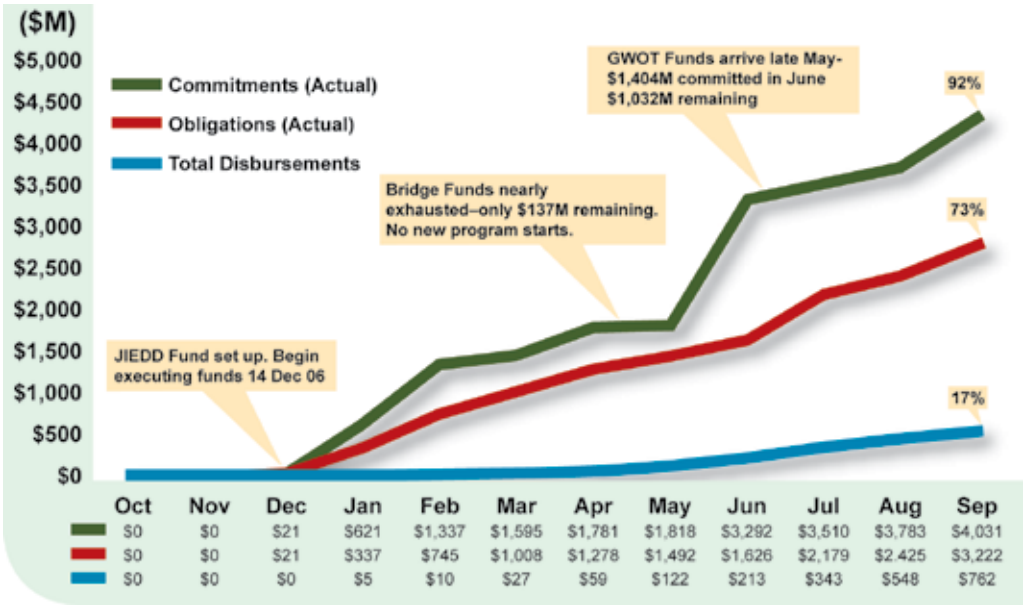


Figure-26 JIEDDO's funding execution

Personnel

Figure 27 depicts the minimal overall growth in officer, government civilian, and contracted-man-year-equivalent (CME) contractor support during FY07. As executive agent for civilian personnel support of JIEDDO, the Army approved an increase of 29 new, permanent government civilian billets and the integration of 25 term government civilian billets. These increases were required to ensure essential governmental oversight and the execution of legal and fiduciary responsibilities. To ensure adequate expertise to support the technical nature of JIEDDO-supported programs, the organization has relied heavily on service contracts to provide the necessary man-years of support to accelerate the development, institutionalization, and deployment of C-IED programs. These resources are intended to be temporary and are targeted to the specific critical C-IED programs they support.

In FY07, JIEDDO filled 78 percent of its Joint Manning Document (JMD) authorizations. The majority of remaining shortfalls occurred in government civilian positions. The JMD personnel authorizations are listed in Figure 28.

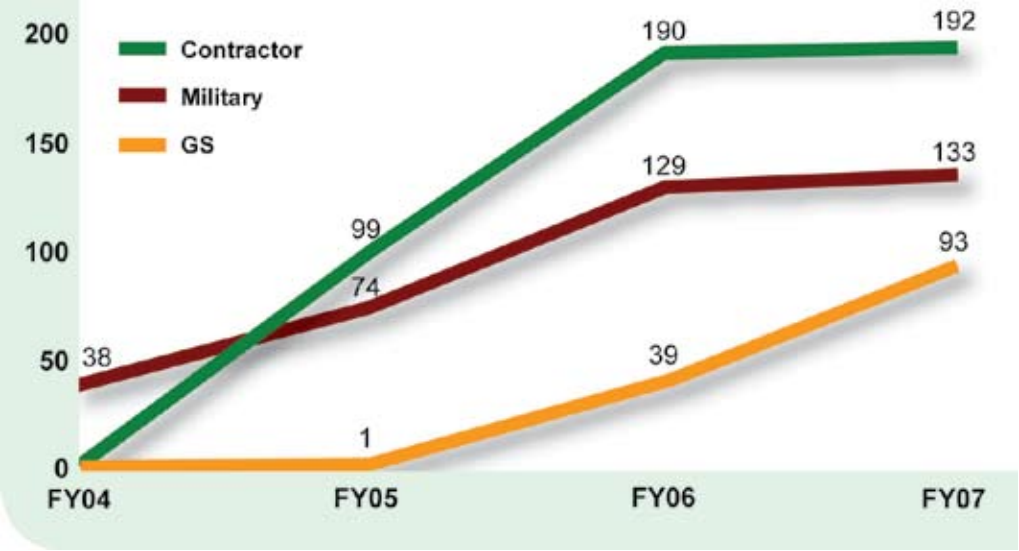


Figure-27 JIEDDO's personnel growth

As of 1 October 2007		JMD Personnel Authorized			
JIEDDO Element	Location	Military	GS	CME Contractor	JMD Total
JIEDDO Headquarters	Northern Virginia	45	71	146	262
JCOE and Army COE	Ft. Irwin, CA	15	8	29	52
Air Force COE	Lackland AFB, TX	6	0	4	10
Marine Corps COE	29 Palms, CA	4	0	6	10
Navy COE	Indian Head, MD	10	0	0	10
Counter-IED Operations Integration Center (COIC)	Northern Virginia	11	14	3	28
Afghanistan Field Team	Afghanistan	19	0	2	21
Iraqi Field Team	Iraq	23	0	2	25
Totals		133	93	192	418

Figure-28 JIEDDO's current personnel authorizations

Way Ahead

JIEDDO Institutionalization. The Director, Office of the Secretary of Defense Program Analysis and Evaluation is leading an ongoing study to develop alternatives for institutionalizing JIEDDO's unique capabilities within DoD. JIEDDO is aggressively supporting OSD's efforts, with recommendations scheduled to go to the Deputy Secretary of Defense not later than 30 April 2008.

Funding Strategy. JIEDDO enters FY08 with a continued sense of urgency to shape and influence IED networks, disrupt their operations, and undermine their financiers and supply chains. The goal for FY08 is to continue to ensure that the very best C-IED capabilities go to warfighters down range. The chart below shows JIEDDO's $4.769 billion execution plan for FY08 and provides a comparison to FY07:

	FY 2007		FY 2008	
LOO	$ B	Percent	$ B	Percent
Attack the Network	$1.39	32%	$1.38	29%
Defeat the Device	$2.53	58%	$2.57	54%
Train the Force	$0.41	9%	$0.71	15%
Staff & Infrastructure	$0.06	1%	$0.11	2%
Total	**$4.39**		**$4.77**	

Figure-29 JIEDDO's $4.77 billion execution plan for FY08

FY08 marks the first year in which funds have been programmed into the DoD base budget. Of the initial request for $500 million, only $120 million was approved for FY08. Program Objective Memorandum 2010 will have a significant impact on the future of JIEDDO as a permanent DoD organization. If the type of disruptive innovation JIEDDO's efforts represent are to continue, its funding must be sourced in the base DoD program and budget.

Initiative Transitions. The Deputy Secretary of Defense Joint Programming Guidance IV, dated April 14, 2006, identified the following JIEDDO-funded initiatives for transition to the Services in 2008. JIEDDO compiled and distributed the transition packets for these initiatives to the receiving Services in 2007:

- Combined Explosive Exploitation Cell Support
- Convoy Planning Tool
- CREW - Chameleon and Hunter
- CREW - Mobile Multi-Band Jammer
- CREW 2 - Warlock Duke
- Global Anti-Terrorism and Operational Readiness Course
- Robotics Systems
- Specialized Search Dogs

The JIEDDO Director provided a list to the Deputy Secretary of Defense of recommended C-IED initiatives for transition to the Services and USSOCOM in FY09. The Deputy Secretary endorsed these recommendations and forwarded them to the Services and USSOCOM for their action. JIEDDO continues to work with the DoD components on the identification of additional C-IED initiatives to transition and transfer in future fiscal years.

Organization. The Acquisition Oversight Division (AOD) will stand up early in FY08 to provide executive program management oversight of C-IED initiatives, to develop and implement acquisition life-cycle management processes, and to ensure effective transition and transfer of proven initiatives to the Services for sustainment and further integration. Staffing of the AOD will be by an internal realignment of JIEDDO personnel.

Concept for 2008. Looking ahead, institutionalizing JIEDDO and expanding the synergies that exist today within the organization remain our greatest challenges. In 2008, the strategic-level C-IED planning efforts will result in a more integrated, DoD-wide approach to C-IED support efforts. Working through the fiscal challenges associated with the Defense Budget and Supplemental Appropriations in 2008, we will remain a flexible and agile organization, capable of accomplishing our mission. In addition, JIEDDO continues to uncover technological innovations. Combining radio communications and jammers in one system and completing the build out of the DCGS backbone by FY09 instead of FY10 are two important opportunities.

Summary

In the hands of the enemy, IEDs critically threaten the safety and long-term strategic interests of the United States and our allies. Units in the field are making progress against our enemies, but the IED threat will not be eliminated. These IED networks will endure and adapt as our enemies continue to impose an extended battlespace and harm our forces. We cannot underestimate this enemy's ambition, creativity, and ability to regenerate in response to our best efforts.

Our sense of urgency must guide every action to put the right capabilities in the hands of our armed forces and seize the initiative from the enemy. We must remain vigilant and focused in our efforts to defeat IEDs as weapons of strategic influence, wherever and whenever they may be employed.

(U) Acronyms

ATF	Bureau of Alcohol, Tobacco, Firearms and Explosives
CENTCOM	Central Command
CEXC	Combined Exploitation Cell
C-IED	Counter-IED
CITP	Counter-IED Targeting Program
CJTF	Combined Joint Task Force
COCOM	Combatant Command
COIC	Counter-IED Operations Integration Center
COTS	Commericasl off-the-shelf
CREW	Counter Radio-Controlled Electronic Warfare
CST	Corps Support Team
DCGS	Distributed Common Ground System
DEA	Drug Enforcement Agency
DIB	DCGS Integration Backbone
DoD	Department of Defense
EFP	Explosively Formed Penetrator
EOD	Explosives Ordnance Disposal
EW	Electronic Warfare
FY	Fiscal Year
HMMWV	High Mobility Multipurpose Wheeled Vehicle
IC	Intelligence Community
IED	Improvised Explosive Device
ISR	Intelligence, Surveillance, and Reconnaissance
JCAAMP	Joint IED Defeat Capability Approval and Acquisition Management Process
JCOE	Joint Center of Excellence
JET	Joint Expeditionary Team
JIEDDF	Joint IED Defeat Fund
JIEDDO	Joint Improvised Explosive Device Defeat Organization
JRTC	Joint Readiness Training Center
JSTARS	Joint Surveillance Target Attack Radar System
JTF	Joint Task Force
MEF	Marine Expeditionary Force
MRAP	Mine Resistant Ambush Protected
MST	MEF Support Team
NTC	National Training Center
LEP	Law Enforcement Professionals
MNC-I	Multinational Corps – Iraq
ODIN	Observe, Detect, Identify, Neutralize
PACOM	Pacific Command
PIR	Passive Infrared
RAID	Rapid Aerostat Initial Deployment
RCIED	Radio Controlled IED
RECCE	Reconnaissance
REF	Rapid Equipping Force
SIGINT	Signals Intelligence
SOCOM	Special Operations Command
STG	SIGINT Terminal Guidance
TEDAC	Terrorist Explosive Device Analytical Center
TTPs	Tactics, Techniques, and Procedures
UAS	Unmanned Aerial System
VBIED	Vehicle-Borne Improvised Explosive Device
WIT	Weapons Intelligence Teams
WTI	Weapons Technical Intelligence

Joint Improvised Explosive Device Defeat Organization
(JIEDDO)

(877) 251-3337
iedtaskforce@jieddo.dod.mil
www.jieddo.dod.mil