DEFEAT THE DEVICE

JIEDDO saves lives by working to improve survivability of those exposed to IEDs

The Defeat the Device line of operation enhances freedom of maneuver and safe operations for coalition forces, focusing on providing defensive technologies to detect IEDs, neutralize them before they can be detonated or mitigate the effects of detonations.

Husky is a unique landmine detection vehicle that is blast survivable and field repairable (Photo by JIEDDO)

Mitigate systems seek to minimize the effects of IED blasts on personnel, equipment and facilities by pre-detonation and standoff. This is accomplished through JIEDDO funded counter-IED initiatives including mine rollers, culvert denial and objective armor protection.

Innovative solutions to combat the IED challenge

In 2010, JIEDDO dedicated $1.3 billion in funding to develop Defeat the Device enablers and initiatives to support the warfighter. This included 24 rapid technology initiatives, including counter-IED electronic warfare assets, to support Operation Enduring Freedom. Counter-radio-controlled IED electronic warfare jammers were developed and more than 1,500 delivered to soldiers in theater. They have saved countless lives and continue to be used in both Afghanistan and Iraq today.

JIEDDO also provided support for 75 route clearance teams in Afghanistan to clear areas of IEDs and build relationships with the Afghan people, who in turn, support the coalition forces' efforts to rid the area of insurgents.

Efforts to mitigate blasts to vehicles have been successful and effective IED attacks against coalition forces vehicles dropped by 17 percent in 2011. As effective IED attacks against coalition forces' vehicles have dropped, JIEDDO has focused its efforts toward the dismounted threat.

Rapid — "We respond quickly."

JIEDDO develops and delivers counter-IED capabilities within three-to-24 months — a third of the time of normal development programs. Responding to a U.S. Central Command joint urgent operating requirement, the JIEDDO Tandem Husky was developed and delivered within eight months to the Afghanistan theater in June 2010. The lead vehicle in route clearance patrols, the two-seated Husky vehicle is equipped with a helmet-mounted display system, drivers visual enhancement and single-channel ground and airborne radio system.

To move quickly JIEDDO mitigates risk by pursuing multiple capabilities at the same time.

Rollers mitigate the effects of victim-operated IEDs by standoff pre-detonation, reducing casualties and vehicle damage.

During a convoy, a mine-resistant, ambush-protected, all-terrain vehicle with Security Company, Combat Logistic Regiment 15 (CLR-15), 1st Marine Logistic Group (1st MLG) drives through Helmand province, Afghanistan. U.S. Marines provided security for the convoy of local Afghans as they delivered fertilizer and seeds to farmers throughout Helmand province in support of the International Security Assistance Force. (U.S. Marine Corps photo by Sgt. Brian A. Lautenslager)

Under direction, JIEDDO funded an additional 110 Panama City rollers, a U.S. Marine Corps program of record, as an Afghanistan surge requirement.

Detect ground systems seek to detect person-borne, vehicle-borne and buried IEDs, as well as suspicious activity associated with IED emplacement. These included persistent threat detection systems, persistent group surveillance systems, handheld ground penetrating radar and personnel-borne and vehicle-borne IED detection systems.

The single and dual-configurable Persistent Ground Surveillance System is a suite of sensors, mounted on a tethered aerostat capable of operating at 4,000 to 6,000 feet. More than 65 aerostats have deployed to Afghanistan to meet the urgent need for persistent surveillance.

Detachment crews prepared a moored Aerostat balloon for launch at Multi National Base Tarin Kot, Afghanistan. The Aerostat balloon is equipped with surveillance and communication equipment and will be used to help stop insurgents from planting IEDs in the Uruzgan province. (U.S. Army photo by Spc. Jennifer Spradlin, 16th Mobile Public Affairs Detachment)

At the Joint Center of Excellence in Fort Irwin, Calif., soldiers and Marines are trained on various ISR systems, characteristics and how to synchronize and integrate ISR platforms.

Flexible — "We adapt to changes."

Neutralize systems seek to deny IED actuation at a time and place of the enemy's choosing. Examples include the Devil Pup Mini Robot, Jackal / an electromagnetic pulse system designed to trigger passive infrared detectors and Gray Fox, a backscatter X-ray imaging systems, mounted on a Talon robot.

Devil Pup Mini Robot is a man-packable, highly agile, miniature robot designed for use by dismounted explosive ordnance disposal operators. Devil Pup provides the capability to remotely disarm IEDs during long-range foot patrols. Approximately 300 Devil Pups were delivered to theater at a cost of $35 million.

The Mini-EOD is specifically designed to locate, identify and disarm explosive and combustible mechanisms to neutralize roadside bombs, car bombs and other improvised explosive devices. Using rechargeable batteries, the Mini-EOD can travel for 45 minutes at a top speed of six mph. It is more than two feet in length and stands less than a foot tall. The Mini-EOD can navigate over various types of terrain, including rocky, sandy and uneven surfaces, and its low-light capabilities enable it to perform during both day and night settings.

Devli Pup an EOD miniature robot used for dismounted operations (Photo by JIEDDO)

U.S. Air Force Airman Gevoyd Little, a member of the 447th Explosive Ordnance Disposal, operates his remote explosive detection robot during Operation Falcon Sweep in the Village of Shakaria, Iraq. (U.S. Army photo by Staff Sgt. Kevin L. Moses Sr.)

Countering the dismounted threat

The fight in Afghanistan is a tough dismounted fight. Dismounted troops in Afghanistan represent a vulnerable target with limited protection from insurgent IED attacks. Dismounted operations have taken the fight to the enemy enabling more early detections and more cache finds.

Dismounts have led to an increase in early detections of IEDs

From May to July 2011, when compared to the same period in 2010:

- The effective IED attack rate against Coalition Forces has decreased 3.1 percent
- The number of IEDs found/cleared during dismounted operations increased 127 percent
- Total cache finds increased 145 percent
- Total IED events increased 25 percent
- Effective attacks against dismounts remained the same as 2010
- Effective IED attacks against Coalition Forces vehicles dropped 10 percent
- Coalition Forces IED casualties increased 2 percent with a 3 percent increase in overall IED events
- Total cache finds increased 218 percent during 2010
- HME – more than 80 percent of IEDs in Afghanistan are HME

CREW used for dismounted operations (Photo by JIEDDO)

Reducing the effects of dismounted attacks remains a top priority for JIEDDO. JIEDDO has delivered and is still developing significant capabilities to the warfighter to counter homemade explosives and victim-operated IEDs to include hyper-spectral imagery sensors, IED detection dogs and handheld detectors.

Effective — "We help save lives."

Found-and-cleared rates are up because of equipment like Wolfhound and Minehound. Wolfhound is a handheld, tactical cordless radio intercept and signal line of bearing/homing system to find, fix and finish related command and control nodes. JIEDDO

Lance Cpl. Zonell Westfield, a combat engineer with 2nd Battalion, 3rd Marine Regiment, Co. F, 1st Platoon conducts sweeps with his mine detector during a dismounted patrol through the rugged terrain of Golestan district, Farah province, Afghanistan, in search of a reported improvised explosive device June 23, 2011. The Marines work together with the Afghan national police on a daily basis to provide security for the Afghan civilians in the area. (U.S. Marine Corps photo by 1st Lt Kurt Stahl)

funded 69 systems for Operation Enduring Freedom.

Minehound is a lightweight, man-portable, handheld device with ground penetrating radar for detecting buried munitions/IEDs with low/no metal signatures during dismounted patrols. More than 825 systems

Spc. Jordan Manwill, a combat engineer with the 391st Eng. Co., places plastic bottle caps on the ground to show how the handheld mine detector can be used to detect things other than mines at National Training Center on Aug. 4, 2010. (U.S. Army photo by Spc. Cody Campana)

have been delivered to theater. Beachcomber is a lightweight, man-portable, handheld device for detecting buried munitions during dismounted patrols. In rapid response to urgent needs, JIEDDO

A U.S. Army Soldier of Charlie Company 1st Squadron, 38th Cavalry Regiment, 525 battlefield surveillance brigade uses a metal detector to search the grounds for IEDs near Nawa Valley, Afghanistan. (U.S. Army photo by Pfc Alicia Brand)

delivered more than 3,700 Beachcomber systems to theater.

Goldie is a standoff, lightweight, man-portable, handheld device use for vapor detection of explosives during dismounted patrols. JIEDDO delivered more than 650 systems to theater.

Eighty percent of the explosive devices in Afghanistan are made using homemade explosives from fertilizers and chemicals, making metal detectors less effective. JIEDDO is funding more than $12 million for new and existing IED detection dog training programs. Distinct from the DoD military working dog programs, the detection canine can pick up the odors produced by the explosives in the form of invisible vapors or signatures and detect surface laid, buried and hidden IEDs. Units from the Army and Marine Corps Special Operations Commands are participating.

American K-9 Detection Services dog handler Ambar Limbu, a Panchkhal, Nepal, native and his explosive detector dog, Tinus, lead a partnered dismounted patrol through a Panjwai'i District in Kandahar with the Afghan National Army and Canadian forces. The use of explosive detection dogs have increased due to the use of explosives used against both civilian and military personnel. EOD teams patrol military installations, assist in vehicle checkpoints and help find buried explosive devices. (U.S. Army photo by Sgt. Richard Andrade)