

IED Defeat

The Improvised Explosive Device (IED) has emerged as a key element of the enemy's order of battle in Iraq and Afghanistan, and in Western countries designated as targets. The intent is to maximize military and civilian casualties for propaganda effect. The goal is first to compel coalition nations to withdraw their forces from Moslem countries and then to topple the local governments and impose their own brand of sharia law. A straight fight with coalition forces or even reasonably well-trained and equipped local forces being out of the question, the enemy has increasingly resorted to IED attacks.

IEDs may be classified according to the base material used. In Afghanistan, they are frequently fashioned from mines left behind by retreating Soviet forces in the 1980s. In Iraq, they commonly employ ordnance (mines, artillery shells) which were stockpiled in vast quantities by the Saddam Hussein regime and which exist in caches and dumps throughout the country. In addition, materials such as plastic explosive and special triggering devices are being supplied by hostile powers such as Syria and Iran. Almost any explosive can be employed in an IED, including commercial dynamite, black powder, and ammonium nitrate. All of these have been encountered in the field.

Another way to classify IEDs is by the triggering method used. "Victim-operated" IEDs, or boobytraps, are set off by contact or pressure switches, trip-wires, photo-detectors and the like. Pressure switches, designed to be planted in a roadbed and set off by heavy military vehicles but not ordinary passenger cars, have been used extensively in Iraq. Radio-controlled IEDs use commonly available transmitter/receiver combinations, such as cell phones, walkie-talkies, automobile key fobs, etc. There is usually a triggerman, observing from a safe stand-off distance, who sets off the IED by remote control at an opportune moment. Wired control, as opposed to radio, is also used but less effectively. Suicide IEDs are set off by an attacker wearing an explosive vest or driving a car loaded with explosives.

Mastering the IED threat requires appropriate tactics and training of forces, such as avoiding predictability of movements, being alert to landscape changes indicating enemy activity, looking out for the triggerman (or the cameraman – the insurgents use video footage of successful attacks for propaganda and recruiting), and so on. Defeating the IED infrastructure requires cultivation of human intelligence and its timely exploitation. In the technical realm, efforts to counter IEDs concentrate on detection and neutralization. They include:

- automation/robotics, examining & neutralizing a suspected device without exposing personnel to hazard
- long-term imaging and visionics, identifying changes indicating planted IEDs
- ongoing surveillance of key areas, including quick-reaction strike at threats (UAV/Viper Strike)
- radio jamming of commonly-used triggering devices (e.g. Warlock)
- chemical and spectral detection of explosives
- optimization of ground-penetrating radar (GPR) to detect IEDs
- up-armorings, layered/composite armor

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