US Army photo by SGT Rob Frazier

Technological Realities of Route Clearance in AFGHANISTAN

During an interview in early September, 2009, Ashton Carter, Defense Undersecretary for Acquisition, Technology, and Logistics, candidly discussed the realities of the current Department of Defense Budget. The implications of his interview could greatly affect the future of operations in Afghanistan and Iraq as certain technologies and programs are increased or further developed, while others are scrapped. When asked what the most pressing needs for the wars are, Carter said, "fielding Mine–Resistant–Ambush–Protected vehicles, protecting Forward Operating Bases and route clearance."

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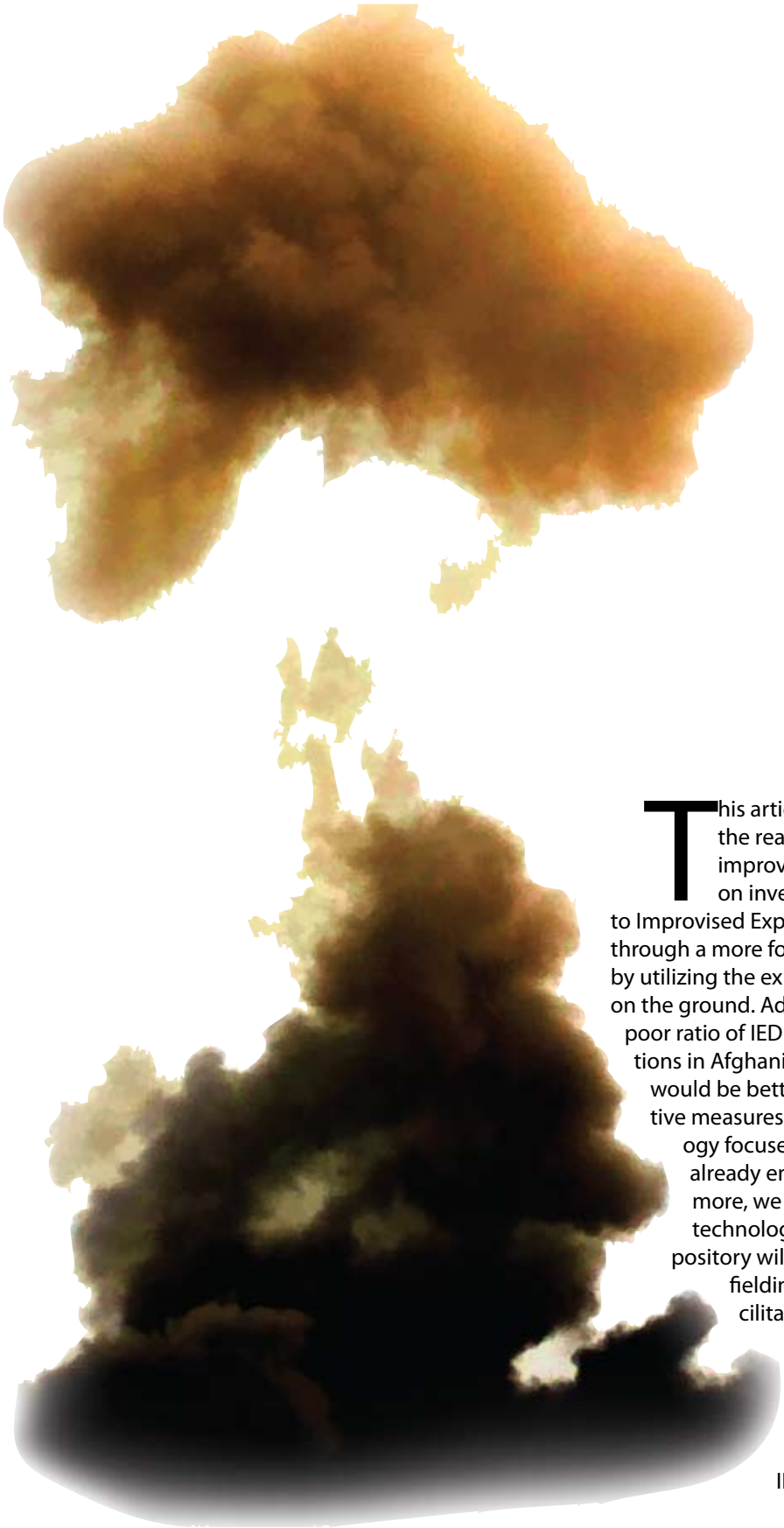
Route clearance technologies and MRAPs have been an important focus for Department of Defense spending for the past several years. Secretary of Defense, Robert M. Gates, made fielding MRAPs a priority and their implementation has saved countless lives. Route clearance equipment has likewise been emphasized with significant research and development dollars as well as fielding expenses, continually improving the quality and quantity of the technology available to Soldiers who perform route clearance.

Eventually we will reach a point of diminishing returns whereby further spending will result in minimal gains. Moreover, the current method of fielding equipment has significant flaws. Certain units have excess unusable equipment while other units lack much needed technologies. Using Eastern Afghanistan as a frame of reference, it becomes clear that due to the sophistication of enemy Tactics, Techniques, and Procedures and the quickness of the enemy adaptation cycle when compared to the American military's, that technological research and development as well as end item fielding must be adjusted in order to best defeat the enemy.



This article will attempt to show the reader that the Army can improve technology's return on investment with regard to Improvised Explosive Device-Defeat through a more focused fielding plan and by utilizing the expertise of the Soldiers on the ground. Additionally, due to the poor ratio of IED finds to IED detonations in Afghanistan, funding for IED–D would be better spent on preventative measures rather than on technology focused on neutralizing an already emplaced device. Furthermore, we believe that a central technology and information repository will enable a more efficient fielding process as well as facilitate information sharing. These changes would enable the Army to save time and money, while also increasing the effectiveness of IED–D operations.

Route clearance equipment typical of that used in Afghanistan. (US Army photo)

Improvised Explosive Device Defeat has many aspects to it. At the Route Clearance Platoon (RCP) level these aspects include detecting, interrogating and neutralizing IEDs. Under **Task Force Pirate**, the general support route clearance battalion in Regional Command East in 2009, each company received a standard set of equipment. For the most part, each RCP was outfitted with Huskys (detection), Buffalos (interrogation), MRAPs (security and additional accoutrements), Explosive Ordnance Disposal vehicles (neutralization) and Wreckers (recovery). In addition, the RCPs were outfitted with Ground Penetrating Radar (GPR), mine-rollers, Talon Robots, and the Vehicle Optics Sensor System and Cyclops camera systems. Additional assets were always being considered and expected to be fielded such as the Raven Drone for increased battlefield awareness.

While each of these technologies brings a unique and sometimes powerful asset to the fight, Anti–Afghan Forces (AAF), including the Taliban and Haqqani Network, are continually getting better at defeating these devices and causing coali-

tion force casualties. IEDs are getting bigger, more accurate and better placed, and the number of deaths they cause is increasing. After local support, the AAF's main advantage is their incredibly efficient adaptation cycle. Not having to deal with the bureaucratic road blocks that plague the Army, the AAF can make near immediate adjustments to our technologies and our TTPs.

For example, when the GPR was fielded in one province, on its first mission it detected a heretofore undetected IED that had been emplaced for quite some time but had not been connected to an initiator. Their device defeated, the AAF realized the new capability represented by the GPR and immediately adjusted. On the very next mission, the AAF emplaced a relatively easy to find IED connected to a command wire. The GPR stopped over top of it successfully detecting the IED, but the IED was instantaneously detonated and the GPR destroyed. At the cost of losing one IED to detection, the AAF destroyed a million dollar piece of equipment, with years of man hours spent on developing and testing the most current, top of the line technology available.

Other examples include the Counter Pressure Plate IED and Radio Control IED technologies. While the mine–roller defeated several pressure plate devices, recently AAF have been shifting the position of the main charge in order to hit the body of the vehicle. While the RCIED threat in RC East was minimal, the AAF understands our convoys have jamming capabilities and are moving toward counter–measures.

Contrast the AAF's adaptability with the Army's, and it becomes obvious that the AAF have a marked advantage. The Army's bureaucratic labyrinth from problem identification to solution implementation is too costly and time consuming to be effective. Either the Army must follow Secretary Gates' guidance of a 75% solution now is better than a 100% solution down the road, or we must focus our spending in other areas.

As previous examples demonstrated, each technology that we develop can in some, usually the easy way, be defeated. While it is still useful to try to improve the technology we have, it is naïve to think the solution to the IED problem will be purely technological. As with most other aspects of Counter Insurgency, the best weapon in IED–D is the astute Soldier with a keen eye. Consequently, future Counter-IED funds should increasingly focus on preventive measures. Looking at the ratio of IED finds to IED detonations in Afghanistan further supports this idea. During the **541st Engineer Company's** deployment to Afghanistan, a 1:1 ratio was considered pretty good for all of the RCPs operating country wide. So if the IED makes it to the emplacement stage, then we only have a 50 percent chance of defeating it. Some good examples of successful preventative measures include but are not limited to route improvement, a constant physical presence, a cash–for–information program and culvert denial systems.

The first potentially better use of funds is route improvement, which is simply paving the main routes that coalition forces travel. This responsibility currently falls under the umbrella of Provincial Reconstruction Teams, but it should also receive funding and support from the C–IED units. In one province, route improvement is significant and the IED threat has been drastically reduced. Contrastingly, in another province there are multiple stretches of Main Supply and Alternate Supply Routes that are unpaved. Along several of these routes, on stretches sometimes as short as 100 meters, coalition forces have been successfully attacked by IEDs multiple times. By paving these stretches of roads, we will significantly reduce the ability of AAF to emplace IEDs, not to mention improve the overall traffic ability of the route.

Second, a constant, or near constant, physical presence in the most kinetic areas will also help prevent AAF from emplacing IEDs. Too often, certain stretches of road have little to no over–watch. Once a convoy moves through the area, the AAF are free to do whatever they would like. Whether it be using additional Combat Outposts or simply paying Afghan National Police or Afghan National Army units to watch these areas, having a constant presence will reduce the AAF's freedom of movement and ability to harm Coalition Forces. Should these solutions prove to be impractical, at the very least C–IED forces need to utilize the Unattended Ground Sensor System or other remote devices that can detect tampering with the ground or provide constant video coverage of any dangerous areas.

Third, a cash–for–information program would be a cheap way to encourage locals to report emplaced IEDs or the individuals who are emplacing them. This program proved extremely successful in Iraq and as of the time of this writing it has inexplicably not been made available to the RCPs in RC East, Afghanistan.

Finally, the Army needs to significantly increase the use of culvert denial technology. Little culvert denial is currently being used in Afghanistan and in several areas culverts are the locale of choice for IED emplacement by the insurgents. Checking each culvert is not practical given the long routes in the region and the multitude of culverts that exist. By denying the enemy the ability to emplace IEDs in culverts the need to develop the technology to detect them there will no longer be needed.

Whatever future IED-D technologies are created or denial systems implemented, the extremely localized fight in Afghanistan necessitates that these technologies be distributed in a manner that meets each regional threat. For example, in one province, trip wire IEDs are the prominent threat, in another it is command-wire, and in yet another it is pressure plate. Under the current system of supply each route clearance company receives the same set of technologies with no mind paid to terrain limitations or enemy tactics. Unfortunately, this meant that once some platoons lost their mine rollers to an IED detonation, they simply no longer had that asset. At the same time, other platoons had two working mine-rollers while they faced an almost non-existent pressure plate threat.

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In order to mitigate this poor supply situation, a central repository of technology should exist from which a platoon can request parts or end items. This way, a platoon or company can identify their primary threats and acquire the technology they need to best defeat their particular threat within the limits of the terrain in their area of operations. In other words, Afghanistan should have a bottom up supply request system as opposed to a top-down mass distribution. This is even more important when you consider the amount of time a unit will take away from its tried and true, low tech route clearance operations to field and train on new equipment.

A central technology repository can also facilitate better information sharing regarding useful friendly TTPs, maintenance issues, and the new equipment being fielded. Additionally, it enables those at the top of the supply request system to understand the issues facing each of those at the bottom. The ability to defeat any of our new technologies could most likely be discovered by those at the top simply by presenting the idea to the Soldiers on the ground. Furthermore, problems that fall into these areas can become amplified for RCPs that are organic to a Brigade Combat Team or do not have an engineer or route clearance battalion in their higher chain of command. For example, a BCT's organic RCP has maintenance personnel that have many different vehicles to work on but only a few route clearance specific vehicles. If they are in need of a part then their only option is to work through the contractors at their location or make friends with the general support teams. A general support battalion has the ability to shift parts around the battlefield from one of their many RCPs.

The central repository idea can take the place of the general support battalion in this type of scenario, working with the different RCPs throughout the theater to locate mission essential parts. Again, this also works with idea sharing where BCT organic RCPs can have more communication with other RCPs in theater. Successful implementation would require strong command and control on the part of the repository. If the new technologies that come in to theater are handled completely by the repository, then it will become the "go to" place for route clearance personnel. If equipment or the contractors that install the equipment work outside the repository, then the ability to synchronize assets and provide answers will become diminished. Once this happens, leaders and Soldiers will see the repository as a generic organization without the specific knowledge and intelligence gathering ability that the RCPs need. This will cause a snowball effect as those RCPs choose not to participate in the sharing process that could help other RCPs.

This makes it vital that the organization get the right people for the job, but not necessarily at a higher cost. For example, ManTech's lead will have one organization to work with for its RCP equipment contract. This keeps them from having to work through issues with general support units as well as all of the BCTs in theater. The RCP gets the advantage of having a one stop shop and organizations such as Rapid Equipment Fielding (REF) can find out the demand for new products quickly. It also enables the smaller contractors to have a way to reach back when traveling to remote locations as units in those locations already have the relationship with the repository. During the 541st Engineer Company's recent deployment to Afghanistan, contractors arriving to install or fix equipment would often use the 276th Engineer Battalion's (541st's higher headquarters) weekly breeze sessions to prioritize, coordinate, and plan their next move. With a constantly changing environment and the slow movement of personnel across the battlefield, this became an easy way to stay on top of equipment issues.

As the Department of Defense's pocket–book tightens and the insurgency grows, we must become more efficient in our decisions on route clearance equipment. Not only should greater diligence be paid to what devices the Army develops and implements, but also in how it fields these technologies.

At some point, due to diminishing returns and the AAF's adaptability, serious consideration must be given to denial systems. Finally, information sharing and communication is vital to IED-D, and leaders must take into account the opinions of our bright and experienced Soldiers.

Ultimately the enemy will always have a say, but by changing our approach we can better serve our Soldiers in the counter IED fight. **AE**

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