

MASTER AND COMMANDER:

Engineer Leaders Seeking the Skills and Tools to Close the Gaps

By Lieutenant Colonel Anthony C. Funkhouser

Many of you did not have the opportunity to participate in the recent Army Engineer Association (AEA) Engineer Regimental Conference in Orlando, Florida. The conference was unique this year, with three tracks that allowed focused working groups in assured mobility, United States Army Corps of Engineers/Assistant Chief of Staff for Information Management/Information Management Agency (USACE/ACSIM/IMA), and AEA industry. It was a privilege to listen to different perspectives of the challenges we face in enabling mobility in concert with maneuver in urban and complex terrain. This article provides some feedback to the field on what the United States Army Engineer School Commandant, Major General (MG) Randal R. Castro, discussed and what the Engineer School is doing to close these gaps. The working group model allowed us to focus on current shortfalls and to use the Regiment's resident expertise to address these challenges and recommend solutions.

The conference began with a briefing from MG Castro, who broke down the problem using a common reference for all present: the military decision-making process. He laid out the facts and the specified and implied tasks and restated the problem of how best to enable mobility in concert with maneuver in urban and complex terrain. He laid out the doctrinal terms so everyone was on the same sheet of music. He explained that there is a difference in the old term of military



Engineer Soldiers conduct MOUT training with smoke.

operations in urban terrain (MOUT) and the new term of urban operations (UO). MOUT focused on a conventional force-on-force fight—fought on urban terrain—while UO is much more complex with our conventional forces fighting an unconventional force. In UO, there is a dynamic interaction with the population, the infrastructure, and the threat. We will have to use our ability to repair the infrastructure to influence the



Engineers use the "stack" technique during MOUT training.

population, thus denying the threat freedom of movement. MG Castro posed the question that maybe we should anticipate the future war to increase in complexity as a combination of MOUT and UO.

He also clarified the definitions of the three types of terrain. Most importantly, he laid out the difference in urban and complex terrain.

- *Urban terrain* includes airspace, supersurface, intra-surface, surface and ground, and subterranean corridor, infrastructure (including toxic industrial chemical storage and/or release), and human dimensions.
- *Complex terrain* is characterized by steep and heavily dissected terrain containing steep slopes with sudden elevation changes, circuitous gaps, and passes with a large number of severe slope variations. This includes arid and jungle environments.
- *Open and rolling terrain* primarily includes the topographic characteristics of flat desert and vegetated plains.

Once everyone understood the terms, he refocused on the problem statement: *How do we best enable mobility in concert with maneuver in urban and complex terrain?* This assured mobility challenge became our focus during the breakout groups. The Engineer School has focused on capability gaps in our recognized engineer formations. MG Castro explained that there is no “silver bullet” to remedy the problem. He refers to a “silver path” with a holistic set of solutions that incorporate doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF). The gaps that our silver path will focus on include the following:

- Movement/route clearance (countering improvised explosive devices [IEDs], vehicle-borne improvised explosive devices [VBIEDs], mines, and booby traps)
- Engineer reconnaissance/infrastructure assessment
- Urban engineer scout operations (brigade combat team [BCT] sappers)
- Masters of urban terrain
- Restoration and reconstruction
- Aging engineer equipment
- Engineer staff skills

MG Castro explained how the Engineer School is focused on closing these gaps by identifying the skills and tools that are needed in the Regiment. He succinctly laid out his vision of where the Regiment is headed and the progress made. This became his theme throughout the remainder of the brief. As we close these gaps, “The Regiment you see today...is not the Regiment of tomorrow.” Our efforts to close the requirement gaps today will bring us closer to the capability requirements of the Future Engineer Force.



Soldiers use a mine detector to search for IEDs in Iraq.

A couple of years ago, the Engineer School led the way on doctrine and tactics, techniques, and procedures (TTP), while the combat training centers concentrated on training the collective force. However, only a couple of years later, the units in theater are developing new TTP daily from firsthand experience, and the role of the school has been to quickly capture the lessons learned, get them into our instruction, and redistribute them back to the field at large. The Engineer School has become a primary source of reachback knowledge on technical questions from the field as well. Full-spectrum operations have broadened our requirements for technical skills. Based on this paradigm, field units are the center of gravity for our current doctrinal TTP, which are really the current “best practices.” The Engineer School will integrate these TTP into instruction, but simultaneously must be the architects of the Future Engineer Regiment. The Engineer School must look forward and understand that we will not fight the same war in the future. Therefore, the school must be a future-focused organization and shape the Regiment while continuing to enable the Current Force.

The Engineer School has had great success in closing a number of gaps. The school is working with the Ordnance School to better integrate engineers and explosive ordnance disposal (EOD) personnel at the BCT and task force levels. We are successfully expanding the role of engineers with IEDs, unexploded ordnance (UXO), and captured enemy ammunition (CEA). We have worked closely with EOD personnel to publish Field Manual Interim (FMI) 3-34.119, *Improvised Explosive Device Defeat*, and established protocols for commanders to use in theater. This has increased our sapper capabilities. The Explosive Ordnance Clearance Agent (EOCA) Course is training more engineers each month and awarding an additional skill identifier (ASI).

The mine detection and search dog programs are also growing since there is a great demand in theater for search dogs. The Engineer School will continue to grow its mine dog detachments and anticipate a continual increase in the number of dogs available for the field.

MG Castro has placed a great deal of emphasis on providing BCT sapper companies with the ability (skills and tools) to enable mobility in concert with maneuver in urban and complex terrain. He wants to use the integrated concept development team (ICDT) to make the engineer force mobility enablers as opposed to being used as infantry. What are the unique skills and tools we bring to the fight as engineers? The Counter Explosive Hazards Center (CEHC) identified the core tasks our Echo Companies in the BCTs are performing and cross-walked the skills and tools required. From there, they looked at commercial off-the-shelf options and prioritized them by cost. These capabilities will be made available to units that train in the CEHC programs. We still need assistance from the field, so if you have recommendations, please let us know. Additionally, CEHC is teaching the skills for engineers to operate the interim vehicle-mounted mine detector (IVMMD), the Buffalo mine-protected clearance vehicle, and the RG-31 medium mine-protected vehicle.

MG Castro continued with all the geospatial advances we have made with respect to the transformation. There are now geospatial organizations at every level of operational command. This has created the need to expand our military occupational specialty (MOS) 215D terrain warrant officer population. We have also improved the Digital Topographic Support System (DTSS) training for our geospatial personnel. For the remainder, we have continued to increase geospatial training in all our courses. What many of us knew as Maneuver Control System-Engineer (MCS-Eng) is now completely embedded into the MCS software and gives our engineers in the field a software package that allows the user to add attachments to graphic objects for more detailed information. This includes project files created in Microsoft® Project to track current construction projects.

Lastly, he explained where the Regiment stands on modernizing the fleet. Priority of effort is going to route clearance. The initial fielding of the IVMMD, the Buffalo, and the RG-31 to theater will be complete in the second quarter of



RG-31 Medium Mine-Protected Vehicle

fiscal year 2006. Construction equipment dollars continue to flow for the high-mobility engineer excavator (HMEE) Type III and for the uparmoring of the deployable universal combat earthmover (DEUCE) and HMEEs. With respect to bridging assets, there are several hundred million dollars allocated to equip the multirole bridge companies (MRBCs) with dry support and ribbon bridges. Since the Wolverine bridge program is complete, we will work on procuring the expeditionary assault bridge to replace the armored vehicle-launched bridge (AVLB) for the heavy force.

MG Castro closed by stating, “We are a nation at war, and our No. 1 mission is to prepare Soldiers for war. We are too close to the problem at the school, so we need to solicit your help for solutions. There is a paradox of complex warfare in that we can’t keep up with the complexities. We must have a reachback capability to tap into a knowledge base that addresses all aspects of engineer operations in full-spectrum operations. One solution set is for the Engineer School to provide mobile training teams like the Sidewinders at the National Training Center to reach out to our engineer units and train them on functional skills. The school must find the voids in our units and fill them with functional courses to provide the skills and tools. We must also be adaptive, especially as we deal with this complex warfare. We can guess that future war will be a combination of UO and the traditional MOUT—a combination of conventional and unconventional fighting in urban and complex terrain. The Future Engineer Force is where we are going, so don’t wring your hands about it. We will work through the issues. We will protect what we have and continue to give the Army options. That is our commitment to you. I understand that the hazy part of our future is *maneuver support*, but you will eventually be a proud part of what develops from this.”



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Interim Vehicle-Mounted Mine Detection System