Join the Campaign: Engineer Leader Technical Competency

By Colonel Jerry C. Meyer and Brigadier General Gregg F. Martin

Great vision without great people is irrelevant.

–Good to Great, Jim Collins

The Chief of Engineers has received several indicators recently that engineer leader technical competency has declined. Some of these indicators are—

- Criticism of the United States Army Corps of Engineers (USACE) in the aftermath of Hurricane Katrina.
- Comments from senior military leaders concerning engineer support to the War on Terrorism.
- Known decreases in military engineering developmental assignments in USACE and in installation directorates of public works (DPWs).
- A decades-long shift away from the more balanced and full-spectrum approach that characterized our Regiment for most of its history, toward a preominately sapper (mobility and countermobility) mentality in the Engineer Regiment.

All of these factors indicate that this decline may cross multiple levels of both civilian and military leadership.

Make no mistake—combat engineering, tactical warfighting expertise, and our Sapper-Warrior spirit are still paramount, and the hallmark of our Regiment. But today's operational environment of persistent conflict requires a more balanced engineer capability that can more effectively deliver combat, general, and geospatial engineer effects in order to expertly support full-spectrum operations.

Another factor spotlighting the need for—and perhaps magnifying the decline of—competency is Department of Defense Directive 3000.05, *Military Support for Stability, Security, Transition, and Reconstruction (SSTR) Operations*, which places stability operations as a major priority on par with combat operations. Recently released Army Field Manual 3-0, *Operations*, echoes this theme and further emphasizes the Joint Publication 3-0, *Joint Operations*, definition of *stability operations* to include "infrastructure reconstruction." For the Engineer Regiment, this has placed increased emphasis on construction engineering skills and interagency operations.

Engineer Technical Competency

What is engineer technical competency? The phrase "engineer technical" refers to those skills unique to Army officers (commissioned, warrant, and noncommissioned [NCO]), enlisted Soldiers, and civilians that differentiate engineer abilities from those found in most other Army branches, military occupational specialties, and civilian career programs. "Competency" is the occupation-based knowledge, skills, and abilities required for successful and acceptable job performance. Though initially associated with construction and general engineering tasks under current stability operations, engineer technical competency also encompasses a myriad of broader Army engineer capabilities such as geospatial, firefighter, underwater diving, and utilities competencies.

USACE began its investigation into issues, problems, and factors related to technical competencies and mission execution in 2005. Among the findings of a 2006 Logistics Management Institute study were:

- There is no corporate agreement and understanding of the USACE competencies needed to successfully deliver a wide range of engineer products and services.

- There are multiple noninegrated, competency-related initiatives underway within USACE.
- There is no corporate champion for competency development.
- There is no integrated sense of urgency regarding competency.
- The USACE culture does not readily accept the integration and changing nature of delivering its services.

Subsequent actions established a USACE National Technical Competency Strategy and a team to develop integrated, sustainable ways to effectively and efficiently implement that strategy. Concepts from Jim Collins's book *Good to Great* are being used to further study and mitigation.

Lieutenants assist in a Habitat for Humanity project as part of their training and education in the general engineering module during the Engineer Basic Officer Leader Course.

In light of the perceived decline and increased capability requirements, the Chief of Engineers, Lieutenant General Robert Van Antwerp, enlisted the Commandant of the United States Army Engineer School to lead further investigation and resolution of the decline. Using the model and lessons learned by USACE, the Commandant has championed and widened the efforts across the Engineer Regiment.

The Flywheel Effect

It takes great effort to get a flywheel to move from a standstill and inch forward. With continued pushing, the flywheel eventually will begin to move faster until it rotates. As it makes more turns—moving faster and faster—the momentum of the heavy wheel comes into play and its own weight helps keep it going. Now there is no need to push harder and the flywheel accelerates, building momentum and increasing speed.[1]

The Commandant of the Engineer School has partnered within and outside the Department of Defense to investigate and implement solutions to reverse the decline of engineer leader technical competency. Army participants include—but are not limited to—the Engineer School, USACE, United States Military Academy at West Point, various organizations within Accessions Command, Human Resources Command, Office of the Chief of Engineers–Pentagon, Office of

Students from the Engineer Basic Officer Leader Course take bridge measurements as part of their route reconnaissance training.

Photo by SPC Robert Woodward

Soldiers of the 299th Engineer Company span the gap in the bridge over the Kazer River, created during the war by Iraqi forces.

Economic and Manpower Analysis (OEMA), Reserve Component, Training and Doctrine Command's Capabilities Development and Integrations Directorate, and the Maneuver Support Center's Directorate of Training. Participants outside the Army include engineering-related organizations from sister Services and joint engineers, allied countries, academia, private organizations, and industry.

Sustainable Strategy

The intent is to develop and implement an integrated, sustainable National Engineer Leader Technical Competency Strategy that accesses, develops, employs, and retains world-class engineer leaders who are technically and tactically capable and competent to deliver full-spectrum engineering in the 21st century. To date, there has been incremental but tangible progress that fits into an overall working concept.

Six work groups have been organized to investigate deficiencies and recommend and implement initiatives:

- Future Engineer Missions, Roles, Methods of Delivery
- Accessions
- Training and Education (post-accession)
- Employment
- Retention
- Communications

Work group responsibilities include assessment of near- and long-term engineer leader capability and competency concerns; recommendation of "quick wins" to improve engineer technical competency; collaboration and sharing of information on future missions, roles, and methods of delivery; standardized definitions of competencies; definition of metrics to measure desired competencies; determination of how to anticipate and shape future work force trends; partnership and communication with other work groups concerning trends, objectives, needs, solutions, and progress.

Initial data collected on Active Army engineer officers (one of the smaller leader groups for which quantifiable data are available) corroborates the perceived decline. There has been a significant decline in the share of Engineer Branch officer accessions with a degree in engineering—from 54 percent in 1998 to 31 percent in 2007. The share of engineer officers with engineering degrees from top-tier schools has declined in recent years—from 30 percent in 1999 to 14 percent in 2007. Engineer technical developmental assignments for officers have declined—installation DPWs have lost military positions, and there are fewer military assignments to USACE. The share of engineer field grade officers with engineering credentials, such as a professional engineering license, has fallen by about a third—from 19 percent in 2002 to 12 percent in 2007.[2] Allied nations and sister Services invest more time educating their officers in technical skills and developmental assignments that enhance technical skills. For example, the Canadian Army equivalent to the U.S. Army's Engineer Basic Officer Leader Course is 24 weeks versus 13 weeks. U.S. Air Force and Navy engineers are held to more stringent standards that mandate engineer technical proficiency.

The current U.S. Army engineer force structure does not facilitate senior engineer mentoring of junior engineer officers and NCOs. For example, there is typically no resident engineer battalion commander/staff to mentor brigade combat team engineer company captains and lieutenants. Additionally, the

contemporary operational environment has raised concerns over a decline in officer tactical competency in high-intensity conflict engineer operations. (Much unit-level and predeployment training focuses on fighting counterinsurgencies rather than more conventional enemy forces.) Some investigation has revealed that this challenge is not confined to engineers and is even more pronounced in armor and field artillery.

A Soldier operates a compact roller to smooth out dirt for roads and parking surfaces.

In addition to the research in defining the challenge, announcing initial Engineer Leader Technical Competency findings and actions have been part of early "flywheel" efforts. This includes visits by the Commandant to engineer students in the Intermediate Leaders Education Course at Fort Leavenworth, Kansas, and to cadets, faculty, and senior leaders at West Point, which have uncovered vigorous offers of assistance. The Commandant has also addressed the issue of engineer leader technical competence at venues such as the Society of American Military Engineers' Joint Engineer NCO Symposium, Engieerneer Precommand Courses, Engineer Captains Career Course, 1st Engineer Brigade, and Joint Engineer Operations Course.

The Engineer School has also initiated actions that include examining the curricula of the Basic Officer Leader Course and Captains Career Course, the addition of contracting officer representative instruction, and selection processes for instructors. In the Engineer Captains Career Course—Reserve Component, a pilot program restructuring and enhancing project management instruction can result in nationally recognized project management certification. The Engineer School partnership with the Missouri University of Science & Technology has also been enhanced by including Reserve Component students. The flywheel is beginning to turn.

Way Ahead

Engineer Leader Technical Competency is an issue that is broad and deep, since it addresses a capability of the military and the nation. Contributions from all levels of military and civilian engineer leaders are both welcome and needed. A series of briefings, in-progress video teleconferences, and presentations at applicable forums are planned. Obtaining and sharing additional information can be accomplished via Army Knowledge Online (AKO). E-mail Major Mark Conrad at <*mark.aaron.conrad@us.army.mil*> to be added to the access list. Then enter <*https://www.us.army.mil/suite/submitdraft.do?$c=0&$p=504789*> to find a specific working group's point of contact to contribute to this effort. As with many efforts, this is not the primary mission of any individual, but contributions from across the Engineer Regiment in numerous areas of expertise can make a difference and move the flywheel.

Engineer Leader Technical Competency will be a major focus for discussion and breakout groups during the annual ENFORCE conference to be held in St. Louis and Fort Leonard Wood from 4–9 May 2008. The conference theme is "Building Great Engineers" for full-spectrum operations. The book *Good to Great* by Jim Collins will be the theoretical construct. We hope you will engage, write papers, and join us at ENFORCE!

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Endnotes

[1] Paraphrase from Jim Collins, *Good to Great*, Harper-Business, New York, 2001.

[2] Statistical data from OEMA.