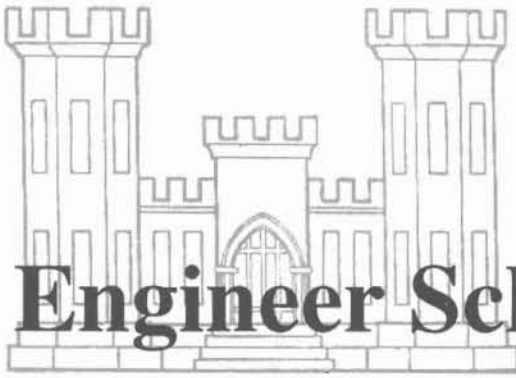


The Engineer School:
Providing Lessons Learned to the Force

By Major David Brinkley

The U.S. Army Engineer School established a Lessons Learned Branch in the Department of Training and Doctrine in May 1995 to gather engineer lessons from ongoing operations and disseminate them to the field. The Lessons Learned Branch replaces a function formerly filled by the Directorate of Evaluation and Standardization, which was disbanded in 1995. This article highlights the critical mission of the Lessons Learned Branch within the engineer community by examining a few significant lessons gathered to date from Operation Joint Endeavor in Bosnia. The branch is tasked by MG Gill, Commandant, to gather information in three key areas: countermine operations, bridging, and sustainment engineering.

Countermine Operations

The Engineer School's involvement with countermine operations focuses on mine-awareness training and the collection of countermine lessons learned. Early in Operation Joint Endeavor, school personnel became heavily involved with mine-awareness training for units deploying to Bosnia. The Doctrine Development Division and the Department of Tactics, Leadership and Engineering jointly developed a comprehensive training program designed to "train the trainer." First we examined the existing doctrine, which was found to be sound.

"Operation Joint Endeavor is a veritable gold mine of engineer lessons learned."

Then we used FM 20-32, *Mine Countermine Operations;* FM 90-13-1, *Combined Arms Breaching*; and *The Engineer Contingency Handbook* to develop tactics, techniques, and procedures for the training program.

LESSON LEARNED: The doctrine used for high-intensity conflicts is sound and flexible enough to be useful in contingency operations. However, special publications, such as the Engineer Contingency Handbook, *are required for some areas of operations.*

The comprehensive training program was developed for the 16th Engineer Battalion, 130th Engineer Brigade. The training is based on doctrine for high-intensity conflicts and modified based on the situation in Bosnia. This training is intended for all soldiers. It focuses on the avoidance of minefields and unexploded ordnance (UXO) and extraction from minefields. The training is required for all civilian and military personnel deploying to Bosnia.

When the 16th Engineer Battalion was called to participate in Operation Joint Endeavor, the Engineer School assisted in training units deploying from the continental United States and the Southern European Task Force. A mobile training team from the school used the program to train deploying forces at Fort Bragg, North Carolina; Fort Riley, Kansas; and Vincenzia, Italy. Their efforts reduced the backlog of units requiring predeployment training in USAREUR. The newly formed Countermine Training Support Center at the Engineer School continues to provide this type of service to the Army.

LESSON LEARNED: *Maintain jointly prepared countermine training plans as an "off-the-shelf" resource to facilitate the rapid development of mobile training teams. Regardless of the source, the Engineer School should collect and store these plans for use in future contingency operations.*

The Lessons Learned Branch is aggressively collecting data from the 1st Armored Division. Direct links with the division's Mine Action Center, the Center for Army Lessons Learned, and the combined arms assessment teams allow us to acquire emerging doctrinal trends and critical information. In return, we serve as adjunct staff for the 1st Armored Division Engineer Brigade to assist with research, data collection, and analysis. School personnel also work extensively with private industry

and Army laboratories to develop new countermine systems.

LESSON LEARNED: *Both Engineer School personnel and deployed engineer soldiers benefit from close communications before, during, and after a deployment.*

Bridging

The world watched in awe as U.S. Army engineers bridged the Sava River under dismal conditions last winter. Their heroic efforts established one of the longest float bridges ever built—and it's still crossing Implementation Force (IFOR) traffic today.

In Operation Joint Endeavor, engineers successfully executed the largest military bridging mission since Vietnam. To date, U.S. engineers in Bosnia have built nonstandard fixed bridges, assault float bridges, a medium girder bridge, Bailey bridges, and a commercially available British Compact 200 bridge. To quote Colonel Steve Hawkins, Commander of the 1st Armored Division Engineer Brigade, "U.S. engineers built a British bridge to support a Russian brigade." This diverse capability characterizes much of the bridging expertise in Bosnia today. Engineer soldiers also have laid more than 20 AVLBs in support of the 1st Armored Division and, using techniques seldom required in today's Army, are repairing a railroad and a railroad bridge.

The Engineer School routinely provides experts to assist in bridge construction and has reaped benefits from this tremendous bridging effort. School personnel have collected lessons from bridging operations in Bosnia and are incorporating them in the latest version of FM 90-13, *River Crossing Operations*.

LESSON LEARNED. *School and field personnel should work together to update and revise doctrine. Experience gained in Bosnia has provided key lessons we are using to revise FM 90-13-1 and FM 20-32.*

Sustainment Engineering

Due to Bosnia's war-torn infrastructure, engineers in the 1st Armored Division are performing numerous construction missions to support the force. They continue to clear and repair mined and damaged roads. Housing, utilities, and water facilities are nonexistent or severely damaged almost everywhere and must be provided. All of this construction is accomplished through a combination of military troop construction, the Logistics Civil Augmentation Program (LOGCAP), and joint engineering.

Both Operation Joint Endeavor and Operation Uphold Democracy, in Haiti, have identified a serious deficiency—the lack of doctrine for joint engineer operations and combat heavy engineer operations. To meet this requirement, Engineer School personnel, in conjunction with the Army National Guard, will use the numerous lessons on infrastructure requirements, force protection, and joint engineering from these operations to write a capstone combat heavy engineer operations field manual. The school will also write a joint engineer capstone publication.

One concept that has emerged from Operation Joint Endeavor is *Force Provider*, a containerized base camp that allows rapid construction of long-term facilities. The Army organized Force Provider Companies in the Quartermaster Corps—Quartermaster personnel deliver a base camp as a commodity, and engineers assemble it. The camp sites require substantial preparation by engineers for site preparation, utility connections, and force protection. After a camp is assembled, the Quartermaster Company operates it and the associated facilities.

LOGCAP, another sustainment concept, is a tremendous force multiplier in Bosnia. It originated during Operation Desert Shield, when contractors were hired to perform most sustainment engineering and facilities services for the Army. LOGCAP was formalized in Haiti and has come to maturity in Bosnia. Both LOGCAP and Force Provider are examples of emerging concepts that the Engineer School has "captured" for use in contingency operations.

LESSON LEARNED: *Joint and civilian engineers will be part of most, if not all, future military engineer operations. We must become knowledgeable about the construction capabilities and limitations of other services and civilian contractors and fully integrate them in future operations.*

Operation Joint Endeavor is a veritable gold mine of engineer lessons learned. We are using the opportunity Bosnia provides to test the ability of the Lesson's Learned Branch to collect, analyze, and disseminate lessons to the field in a timely manner. For example, recently we received a lesson concerning the AVLB from the 2nd Infantry Division Engineer Brigade, in Korea, and immediately passed it to engineers in Bosnia. Our wish is to continue to provide that kind of service to the Engineer Regiment.

We invite you to share information with us. Send your good ideas or lessons to Mr. Bill Blackwell, at blackwew@wood-vines.army.mil. We also encourage you to browse through the latest lessons learned and doctrine on the Fort Leonard Wood Internet Home Page, at http:///www.wood.

LESSON LEARNED: *More than 25,000 people have used the Engineer Home Page service to date. Let us assist in your next training exercise or operation.*



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