

## Introduction

Since its establishment, the U.S. Army Materiel Command-Field Assistance in Science and Technology (AMC-FAST) Activity has conducted more than 1,100 projects. These projects range from providing a cover for the Apache helicopter's load jettison switch to the introduction of a side-loading container as a shelter for machine shops and repair stations. The projects varied not only in size, but also in complexity. Some of the most successful projects included the adoption or modification of an off-the-shelf item. Other projects required applied research. In all cases, however, AMC-FAST projects were initiated to respond to soldier needs. Although science advisors initiate and supervise development of projects, it is the AMC research, development and engineering (RD&E) community that actually designs and produces the prototypes that are demonstrated and, on many occasions, fielded to the Army.

In general, AMC-FAST projects address one or more of the following: increased capability, increased security, improved training, and cost avoidance. This article highlights the work of AMC-FAST in support of training.

## Training Support

The success of a combat unit rests heavily on the training that its soldiers receive. For this reason, AMC-FAST has given high priority to supporting the Army's training centers. There are currently science advisors located at the 7th Army Training Command (7th ATC), Grafenwoehr, Germany, and at the Joint Readiness Training Center (JRTC), Fort Polk, LA. Science advisors also provide support to the National Training Center (NTC) at Fort Irwin, CA. In addition, science advisors often accompany their command's units when they go to training areas. This is particularly true of our Southern European Task Force Science Advisor and the I Corps Science Advisor.

## National Training Center

Highlights of AMC-FAST training center support include the development of items to simulate use of hand

# AMC-FAST PROJECTS IN SUPPORT OF TRAINING

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grenades and other small explosive devices. This project, which resulted in the development of the required simulators, was initiated after the NTC commander expressed a need. The simulator prototypes, which were produced by the Army Research Laboratory, permit training observers to determine the effectiveness of these weapons that are vital to the infantryman. Other AMC-FAST work at NTC includes development of targets, battery conservation efforts, and support of the opposing force (OPFOR) in training scenarios.

One of the current projects at NTC, "Smoke Eater," deserves special mention. Budd Croley, U.S. Army Communications-Electronics Command's (CECOM) Night Vision and Electronic Sensors Directorate (NVESD), provides science advisor support for the effort to the NTC. With any installation such as NTC, the capability to fight fires is extremely important. In examining the firefighting capability at Fort Irwin, Croley identified a potential solution to a firefighting problem that exists throughout the world: Smoke not only creates a problem for firefighters in seeing how to fight a fire, it becomes a critical factor in finding personnel within the fire (either personnel trapped within the structure or fallen firemen).

Because of Croley's experience with sensors used to see the enemy, he was well aware of the capabilities of thermal imagers. In fact, he believes that a thermal imager would allow a fireman to see through an entire room from a doorway or from several points inside. The current procedure requires fire-

fighters to enter the burning room on their knees and conduct a search while crawling. To confirm the potential value of thermal imagers, the Smoke Eater Project was initiated. The plan is to purchase a thermal imaging sensor and evaluate it at Fort Irwin. The prospects of success are high, and the potential value added is great. Not only can firefighters in the Services benefit from this device, its use can reduce dangers to all firefighters while increasing their effectiveness.

## Joint Readiness Training Center

Despite worldwide discussions on prohibiting mine warfare, mines remain a formidable obstacle to U.S. forces. These forces must anticipate mines wherever they operate. Recent experiences in Bosnia, Kosovo, and Afghanistan have emphasized the need to be proficient in the detection and neutralization of mines.

The Engineer School at Fort Leonard Wood, MO, recently developed new techniques and procedures (T&Ps) for using the PSS-12 mine detector. To investigate the advantages of the new T&Ps in a realistic environment containing varying types of soil, vegetation, terrain, and metallic clutter, demonstrations and training research studies were conducted. AMC-FAST's JRTC Science Advisor supported this work. Using the new procedures, soldiers greatly increased their detection rates. In fact, the demonstration was so successful that European observers requested training in Europe. Thus, AMC-FAST's 7th ATC Science Advisor is now working to have the demonstration

conducted at his station. Additionally, a video is being produced for use in training the trainer. The PSS-12 demonstration is an excellent example of AMC-FAST's capability to connect the RD&E community with soldiers in the field and to ensure that improvements are known throughout the Army.

### **Seventh Army Training Command**

As stated earlier, the 7th ATC is located at Grafenwoehr. Prior to becoming a U.S. installation, Grafenwoehr had a long and distinguished history as a training site for the German Army. During the Cold War, the 7th ATC played a vital role in training U.S. soldiers. The 7th ATC has continued making valuable contributions to Army training, even as the operational environment has changed. While adjusting to meet the operational requirements of U.S. forces in Europe, including specific operations in Bosnia and Kosovo, the 7th ATC has undergone major changes in the conduct of training and the facilities provided to trainees. Scott Kohnke, the 7th ATC Science Advisor, and personnel from CECOM's NVESD have been principal players in assisting the 7th ATC in providing more effective training facilities.

Unlike fairly recent training that was heavily dependent on known ranges and stationary targets, current training emphasizes movement. One of the important training changes is the emphasis on force movement and targets that suddenly appear. These changes provide a more realistic situation; however, they also present problems in determining how well tested units perform.

Key to evaluating training and learning from test experience is the after action report (AAR). After consulting with the 7th ATC personnel, a determination was made that the Grafenwoehr training facilities were inadequate to provide reliable AARs. With this as the starting point, Kohnke and NVESD personnel took a survey of the existing range evaluation system and how the different elements of the system could be improved. This work evolved into a series of projects that

have progressively addressed requirements as they became known.

### **Range Evaluation System**

The first project was the Range Evaluation System Project 974. This project addressed three primary areas: the Tower Forward Looking Infrared (FLIR) System, a vehicle recording system, and the production of a high-fidelity digital recording for the AAR. The solution to producing a deployable AAR system required the development of a portable thermal recording system. This system includes a thermal camera with electronically controlled pan and tilt, control and recording box, and AAR playback monitor. By the time this article goes to press, it is anticipated that the prototype system will be undergoing evaluation.

Another project in support of the 7th ATC is the Improved Viper Battle Coverage, designed to film day and night infantry maneuver training. This system will provide the capability to film all aspects of attack, patrol, and counterreconnaissance missions. Other 7th ATC projects include: Thermal Visual Modification kits for the M113s used by the OPFOR equipped with the Combat Camera Hand-held Thermal Imager, Helicopter Landing Pad Marker, Moving Target for Artillery, and Threat Countermeasures.

### **Conclusion**

The capability of AMC-FAST to influence the improvement of training through the introduction of new technology has proved to be a valuable service with far-reaching effects. Equipment produced for one area often has applicability in other areas and, although the projects described above focused on improving training, there were often collateral benefits in cost avoidance, improved safety, and improved operational capability.

For more information concerning AMC-FAST, contact AMC-FAST at (703) 704-1486, DSN 654-1486, or [fasthq@nosc.mil](mailto:fasthq@nosc.mil).



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