

MARCH–APRIL 2012

ARMY SUSTAINMENT

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COMMANDING AN ARMY FIELD SUPPORT BATTALION

**QLLEX: Real-World Training in Fuel and Water Supply
ARCENT–Theater Common Operating Picture
Training Movement Control Teams**



PAGE 36

Cover: As the Army Materiel Command's operational arm, the Army field support brigade (AFSB) provides Soldiers with acquisition, logistics, and technology support on the battlefield. When required, an AFSB can employ an Army field support battalion (AFSBn) to provide constant support for multiple operations. An AFSBn normally manages Army pre-positioned stocks in peacetime, but it can be assigned additional functions in contingency deployment situations and has tailored capabilities for specific missions. It synchronizes and integrates the activities and capabilities of program managers, life cycle management commands, and sustainment support organizations. The article beginning on page 34 describes one officer's experience commanding an AFSBn in Kuwait. On the cover, a Soldier inventories basic-issue items before signing for a high-mobility multipurpose wheeled vehicle from the 2d Battalion, 401st Army Field Support Brigade, during Exercise Friendship II at Camp Arifjan, Kuwait. (Photo by Galen Putnam, 402d Army Field Support Brigade Public Affairs)



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Doctrine 2015: The Future of Sustainment Doctrine

BY MAJOR GENERAL JAMES L. HODGE

We have an exciting opportunity over the next several years not only to revitalize our sustainment doctrine but also to make it more accessible to our Soldiers. Throughout our recent history, Army field manuals have provided doctrinal guidance on how we operate as an Army, discussing everything from fundamental principles to detailed tactics, techniques, and procedures. However, in today's dynamic operational environment, there has emerged a new demand to constantly reexamine and update how we conduct, and support, operations.

Our collective doctrine products must reflect how we operate and how we intend to keep all of our Soldiers, leaders, and formations well grounded in our basic operating principles and aware of the most important tactics, techniques, and procedures. Our answer to this requirement is a holistic effort to revitalize our doctrine as part of the Army Training and Doctrine Command's (TRADOC's) Doctrine 2015 initiative.

Along with other TRADOC proponents, we at the Army Combined Arms Support Command (CASCOM) will completely redevelop and publish our doctrine library by the end of 2015. Over the next 4 years, we will examine each of our manuals in detail to determine the best format for the information. During the conversion process, many of the current documents will be consolidated, resulting in one or two manuals per basic functional area, such as maintenance, fuel, and intermodal operations. When completed, we expect to reduce our library by nearly half, to around 80 manuals.

More importantly, we will categorize our doctrine to distinguish between those publications that describe founding principles of operations and those that present more transient information. These new manuals will divide our current literature into four categories: Army doctrine publications, Army doctrine reference publications, field manuals, and Army techniques publications.

A New Hierarchy of Manuals

Army doctrine publications (ADPs) will summarize the fundamental principles of how we operate as an Army. There will be approximately 15 ADPs, each gen-



erally limited to 10 pages. Collectively, these manuals will provide a broad understanding of how we operate across the force. By their very nature, they will contain information that is enduring in nature and thus will require less frequent updating.

Army doctrine reference publications (ADRP) will provide more detailed presentations of the fundamentals discussed in the ADPs. Most ADPs, but not all, will have a supporting ADRP with less than 100 pages of content.

Field manuals (FMs) will continue to provide the tactics and procedures of how we operate within a major sustainment proponent area or echeloned organization. We will develop one FM for each major proponent (human resources, financial management, ordnance, quartermaster, transportation, medical, judge advocate, and chaplain) plus one FM describing logistics operations. These manuals may be up to 200 pages in length, excluding appendices.

Army techniques publications (ATPs) will describe the techniques for a specific unit or functional area. The bulk of our sustainment literature will fall into this category. Techniques differ from other types of doctrine in that they require judgment in their application. ATPs will likely change more frequently than the other categories of doctrine, so you can expect to see multiple changes posted over the life of an ATP.

One of new developments I am the most excited about and that will allow us to better maintain the relevance of these ATPs is the use of the Army Knowledge Online (AKO) MilWiki portal. Once approved, a "perpetual draft" of the ATP will be posted to the MilWiki portal. This will allow anyone in the Army with relevant experience to share the latest thoughts and practices from the field for others to immediately use as appropriate. MilWiki contributions—your contributions—will also be used by our doctrine developers as a primary source for the next version of each ATP.

The Foundation Sustainment ADP and ADRP

My top priorities for development are our ADPs and FMs. ADP 4-0 and ADRP 4-0, both titled "Sustainment" and now in development, are scheduled for publication this August. I also anticipate that our first ATP and the first published in this category, ATP 4-91, Army Field Support Brigade, will be published this year as well.

ADP 4-0 and ADRP 4-0 will be the Army's keystone sustainment doctrine, supporting and adding to ADP 3-0, Unified Land Operations. Although it has its roots in the current version of FM 4-0, ADP 4-0 is being written at a fundamentally different level in order to synchronize with the new ADRP 3-0, which was published in October 2011.

ADP 4-0 will summarize our basic sustainment concepts. An appreciation of these concepts is needed to understand how sustainment provides commanders with operational reach, freedom of action, and prolonged endurance as the Army conducts its core competencies of combined arms maneuver and wide area security, all as part of joint unified operations. As you would expect, it will show how the three elements of sustainment—logistics, personnel services, and health services support—contribute to operational success.

While they are still in draft, our basic outline for ADP 4-0 and ADRP 4-0 is shaping up as follows.

Chapter 1: Fundamentals of Sustainment describes the foundation of sustainment and the sustainment warfighting function. It defines the principles of sustainment and illustrates the capabilities of the major elements of sustainment: logistics, personnel services, health service support, and joint interdependence.

Chapter 2: Sustainment of Unified Land Operations builds a bridge between strategic-level sustainment and the operational and tactical levels. It explains

the role of the strategic base in leveraging national capabilities and establishing theater capabilities. This chapter also defines the roles of sustainment headquarters in synchronizing strategic and operational support through mission command in order to cognitively link strategic capabilities to tactical success.

Chapter 3: Sustainment of Decisive Action describes how sustainment operations support the Army's core competencies of combined arms maneuver and wide area security. The chapter is divided into three sections that describe how sustainment operations provide the Army with operational reach, freedom of action, and endurance. It explains the role of sustainment mission command, both in finding the right mix of each of these three factors to ensure tactical success and in keeping the operational commander informed, in order to give him confidence to take the initiative and conduct decisive action.

The concepts presented in ADP 4-0 will be expanded upon in ADRP 4-0 and within other key sustainment doctrinal literature published over the next 4 years as part of our Doctrine 2015 efforts.

I encourage each of you to take an active role in helping us to develop our collective sustainment doctrine. Only with recent and relevant input from the field can we ensure that our sustainment doctrine not only nests with the operational doctrine in development but is also applicable to the way operations are conducted today and will be conducted into the future.

To learn more about sustainment doctrine and get involved in the process, visit our "Sustainment Unit One Stop" portal at <http://www.cascom.army.mil/unit.aspx>. Within the doctrine portion of each unit-oriented page, you will find links to current doctrine on AKO, to selected drafts of new manuals in development, and to the MilWiki portal, where you can add your thoughts and knowledge to new ATPs. Remember, your involvement in this process is essential if we are to get the most out of the Doctrine 2015 initiative.

MAJOR GENERAL JAMES L. HODGE IS THE COMMANDING GENERAL OF THE ARMY COMBINED ARMS SUPPORT COMMAND AND SUSTAINMENT CENTER OF EXCELLENCE AT FORT LEE, VIRGINIA.

QLLEX: Real-World Training in Fuel and Water Supply

BY COLONEL PHILIP C. FOSTER, USAR

The great bulk of the Army's petroleum and water units are in the Army Reserve. QLLEX is an exercise that allows Reserve units to train at the tactical, operational, and strategic levels across the United States.

Delivering bulk petroleum and purifying water may not compare in excitement to jumping out of airplanes or shooting weapons, but over 2,200 Army Reserve logistics Soldiers would disagree. Those Soldiers had the opportunity to demonstrate their skills and provide real-world fuel and water support during the 2011 Quartermaster Liquid Logistics Exercise (QLLEX).

Quartermaster battalions and companies conducted echelons-above-corps bulk petroleum distribution, water purification and distribution, and field services (laundry and shower) support during the first 2 weeks of June 2011. A total of 64 units at 8 locations across the continental United States (CONUS) delivered 3.25 million gallons of petroleum and produced 479,000 gallons of water with the assistance and support of Defense Logistics Agency (DLA) Energy, the Army Quartermaster Center and School, and the Army Forces Command (FORSCOM).

Multifunctional Training

QLLEX started 31 years ago as the Petroleum Oil and Lubricant Exercise (POLEX) and developed into QLLEX in 2004. Although the initial focus was on petroleum, oils, and lubricants (POL), the exercise has evolved to have a much broader focus. QLLEX has become a multiechelon, multicomponent, multifunctional, and multiservice exercise. No other CONUS-based exercise provides such a broad suite of real-world training opportunities for Soldiers.

The 316th Expeditionary Sustainment Command (ESC) sponsored the exercise, and the 475th Quartermaster Group, under the leadership of Colonel Philip Foster and Command Sergeant Major Mark Standing, served as the exercise headquarters. The 475th Quartermaster Group is headquartered in Farrell, Pennsylvania, and is one of three quartermaster groups in the Army Reserve. When the 49th Quartermaster Group, the Army's only active-duty quartermaster group, is inactivated on 1 October 2012, more than 90 percent of the Army's liquid logistics assets will reside in the Army Reserve.

For QLLEX, the 475th Quartermaster Group located its exercise headquarters at Fort A.P. Hill, Virginia. The other sites involved in the exercise were Fort Dix, New Jersey; Fort Eustis, Virginia; Fort Lee, Virginia; Fort Pickett, Virginia; Fort Bragg, North Carolina; Fort Huachuca, Arizona; and San Pedro, California.

Brigadier General Peter Lennon, the commander of the 316th Expeditionary Support Command, observes the operation of the expeditionary water packaging system during QLLEX 2011. (Photo by SFC Jo Hoots, 214th Mobile Public Affairs Detachment)

Soldiers take an in-line fuel sample during QLLEX 2011.

Brigadier General Peter Lennon, the commander of the 316th ESC, observed:

QLLEX is an important exercise, not only to the 316th but to the Army Reserve and the Army overall. This is the major exercise in which we train at the tactical, operational, and strategic levels, from connecting the pumps and the hoses all the way up [to] coordinating with our strategic partner agencies. It's the only Reserve exercise that demands this level of wholesale distribution; our support to customers with real-world missions dictates that we choreograph the delivery of hundreds of thousands of gallons of fuel and water transiting the exercise area of operation. It is not just a POL truck company operating from point A to point B. While that's an important component, it's only a piece of QLLEX. What the customer may not see is the strategic coordination necessary for efficient and effective battlefield support.

How do we coordinate with our national partners and international partners to get fuel into an austere environment, perhaps a less than benign environment at the outset of a contingency operation? We've got to be proficient and ready as more of the responsibility for fuel and water is likely to fall on the Reserve components, primarily the Army Reserve. The AC structure for fuel and water distribution and production is significantly reducing as a result of force structure adjustments. We must have Soldiers who are trained and ready to respond very quickly.

DLA Support

DLA Energy Americas provided bulk petroleum and coordinated delivery to customers at the 8 exercise locations across CONUS. DLA Energy Americas conducted pre-inspections on fuel tankers and certified the vehicles to deliver fuel. Without the support of DLA Energy Americas, the exercise would not have been possible. DLA Energy Americas absorbed the risks and turned over "real-world" delivery of fuel to QLLEX units.

"[QLLEX] gives us alternative means to deliver fuel to the warfighter in lieu of using commercial assets," noted Colonel William Keyes, commander of DLA



Energy Americas. "QLLEX is moving fuel that will be in aircraft tonight flying to places around the world. As the Army changes force structure and has moved more assets into the Army Reserves, QLLEX has become more important."

Real-World Training

It is the real-world environment rather than an exercise environment that sets QLLEX apart from many other training events. Units participating in QLLEX completed 88 real-world missions, drove more than 212,000 line-haul miles, and used 1,021 vehicles. Before units can deliver fuel, petroleum labs must test samples. The Army Petroleum Center at Fort Belvoir certified every lab used in QLLEX before allowing testing of fuel. Army preventive medicine specialists had to certify water as potable before allowing it to be used for drinking or cooking.

"Success is being able to deliver the product," Brigadier General Lennon said. "What a lot of people don't realize is that QLLEX is a real-life mission. It is providing real-life fuel in a real-life environment to real-life customers. If we don't deliver the fuel, then that installation ceases to have fuel to execute their missions. Mission failure here is not exercise mission failure. It is real-life mission failure. We have not missed a beat."

The Petroleum and Water Department of the Army Quartermaster Center and School also played a key role in QLLEX. The school's Petroleum Training Facility (PTF) served as a Defense fuel supply point during the



Soldiers participating in QLLEX 2011 prepare tanks to deliver fuel. (Photo by SFC Jo Hoots, 214th Mobile Public Affairs Detachment)

exercise. Calvin Cropper, the PTF manager, said that the facility issued 100,000 gallons of fuel and received 450,000 gallons.

Jose Hernandez, the PTF officer in charge, said that QLLEX offers an opportunity to train on the inland petroleum distribution mission. "The Army has a responsibility to move fuel forward in any theater of operations," Hernandez said. "The 475th [Quartermaster Group] is replicating that mission."

In addition to normal fuel and water purification operations, the Department of the Army G-4 arranged for demonstration of an expeditionary water packaging system (EWPS). With Soldier support, bulk water drawn from ponds located at the training sites was purified and transported to the EWPS for final testing, processing, and packaging into 28,550 personal bottles.

Units at each location provided their own life support, including cooking, laundry and bath, personnel, and maintenance support. Many non-QLLEX participants also made use of the QLLEX-provided laundry and shower services.

"This is the training platform for full-spectrum operations, all the way from a small humanitarian operation to a [Hurricane] Katrina to a Haiti [earthquake relief mission] all the way up to a major theater of operations," Brigadier General Lennon said. "We are practicing Soldier skills at all levels, whether they are an E-2

or an E-3 producing water, testing water in the lab, or driving water or fuel around the battlefield, all the way up to the majors and lieutenant colonels doing coordination with our agency partners such as DLA."

Major General Raymond Mason, the FORSCOM Deputy Chief of Staff, G-4, at the time (and now Lieutenant General Mason, the Deputy Chief of Staff, G-4, Department of the Army), had the opportunity to observe QLLEX for the first time. He liked what he saw:

Well, I am very impressed. I will tell you that right off the bat. When I saw the map of the units all over the United States, frankly not only was I surprised, I was very impressed. I had no idea it was that expansive, with

units from the west coast to the east coast of the United States. With those type of distances, for the 475th POL Group, a magnificent unit, to be able to command and control that, I think it is outstanding training for the brigade commander himself, the battle staff, and all those battalions that are out there.

"It is a one-of-a-kind exercise," said Lieutenant Colonel Pamela Glotfelty, the support operations officer for the 475th Quartermaster Group. "There is no other exercise out there that gives [these Soldiers] the opportunity to do as much as we do at QLLEX."

COLONEL PHILIP C. FOSTER, USAR, COMMANDS THE 475TH QUARTERMASTER GROUP, HEADQUARTERED IN FARRRELL, PENNSYLVANIA. HE HAS A B.A. DEGREE IN JOURNALISM FROM HENDERSON STATE UNIVERSITY AND AN M.A. DEGREE IN STRATEGIC STUDIES FROM THE ARMY WAR COLLEGE. HE IS A GRADUATE OF THE FIELD ARTILLERY OFFICER BASIC AND ADVANCED COURSES, QUARTERMASTER OFFICER ADVANCED COURSE, PETROLEUM OFFICERS COURSE, MULTIFUNCTIONAL COMBAT SERVICE SUPPORT OFFICERS COURSE, ARMY COMMAND AND GENERAL STAFF COLLEGE, AND ARMY WAR COLLEGE.

The S-4 in a Provincial Reconstruction Team

BY CAPTAIN MICHAEL CASIANO

An officer assigned to serve as the S-4 of a provincial reconstruction team (PRT) must be able to operate in a joint environment, run full-spectrum logistics operations, train and develop an S-4 staff section during the 3-month train-up to deployment, and lead that staff in austere conditions. He must be a first lieutenant or captain, and he needs experience in two of the following duty positions: platoon leader in a forward support company (FSC) or executive officer, movement control officer, or assistant staff officer in a brigade support battalion. He must be adaptable and highly motivated, and he must possess great organizational skills.

However, no handbook or field manual is currently available to assist the junior logisticians who are chosen for this assignment. This article will attempt to partially fill this gap by discussing what a PRT is, its mission, organization, and training, and the various roles played by the PRT S-4.

PRT Mission

A PRT is an interim civil-military organization designed to operate in semipermissive environments, usually following open hostilities. The PRT is intended to improve stability in a given area by helping to build the host-nation government's legitimacy and its effectiveness in providing security and essential services for its citizens.

PRTs are a key component of the "build" portion of the clear-hold-build model of counterinsurgency that the Army is currently employing. In Afghanistan, PRTs are typically responsible for one province within a regional command. According to the International Security Assistance Force PRT mission statement, PRTs "will assist The Islamic Republic of Afghanistan to extend its authority, in order to facilitate the development of a stable and secure environment in the identified area of operations, and enable Security Sector Reform (SSR) and reconstruction efforts." Currently, 27 PRTs are operated by various nations in Afghanistan.

Joint operations are essential to the success of each PRT operated by the United States, as demonstrated by the evolution of the PRT from an autonomous Army

civil affairs mission to the robust joint operation of today. PRTs have pulled together the combined resources of the Army, Navy, Air Force, U.S. Agency for International Development, Department of State, and Department of Agriculture to make the PRT the most flexible and capable civil-military operation in the fight.

Before the PRT, these U.S. Government agencies were susceptible to inadvertently duplicating each other's efforts. The new PRT model has created synergy across this spectrum of agencies and allowed each to maximize its strengths and more effectively support civil-military operations.

PRT Composition

Approximately 80 military and 2 or 3 civilian personnel are assigned to each U.S. PRT. The command team is led by either an Air Force lieutenant colonel or a Navy commander; the PRT commander's branch of service will coincide with the branch of the enlisted personnel in the S-1, S-4, S-6, and information operations staff sections. This allows the PRT commander a working foundation from which to build his staff's standard operating procedures (SOPs). It also allows bottom-up refinement by staff members, who can filter information and present it to the PRT commander in a format that is most suitable for him.

To ensure seamless communication between the battlespace owner and the PRT command team, the S-3, S-4, and first sergeant positions are active-duty Army personnel. Both the S-3 and the first sergeant come from a combat arms background. Their understanding of stability operations in a full-spectrum environment facilitates a smooth insertion of PRT operations into the battlespace owner's operations matrix. The S-3 and the first sergeant also bring a wealth of knowledge and experience to the train-up process.

Before their PRT deployment, very few of the Air Force or Navy personnel assigned to a PRT mission have conducted ground maneuvers in a combat environment. Their predeployment training is largely guided by the PRT training teams at Camp Atterbury, Indiana. However, tactics, techniques, and procedures are the individual PRT's responsibility, and the S-3 and

the first sergeant are the spearhead of this important aspect of a successful train-up and, more importantly, the overall deployment. The S-4 should use his understanding of the Army logistics system to tie the PRT into the logistics flow of the support system within the PRT's area of operations.

Each PRT is assigned a force-protection infantry platoon that is provided by the National Guard. This allows the PRT freedom of maneuver when it arrives in an area of operations, without having to task the battlespace owner to provide security from his manpower. A three-man team of Air Force engineers is also assigned to each PRT and is pivotal to the reconstruction efforts within the province. Civil affairs teams are attached to each PRT to facilitate communication among the local spheres of influence and the host-nation government and the PRT in order to shape "the way forward" with an Afghan perspective.

Finally, the PRT is assigned three civilian personnel from the Department of State, the Agency for International Development, and the Department of Agriculture. These civilians bring many resources with them, in particular training and experience in country development with an international focus. They also offer a fresh perspective on the mission and help tailor the mission to ensure that all measures and resources are used to maximize the scope and effectiveness of each project within the province.

PRT Logistics

As with all organizations, the PRT logistics section is responsible for procuring, maintaining, and transporting materiel and personnel to ensure that the PRT accomplishes its mission. Although it encompasses those aspects of military operations that deal with design and development, acquisition, storage, movement, distribution, maintenance, evacuation, disposition of materiel, feeding, clothing, facilities management, and health service support, the PRT S-4's execution differs from the conventional S-4's execution of the same functions in notable ways. The key differences are the staff assigned to the PRT logistics section and the level of involvement in each support area required by the PRT S-4.

The PRT S-4 is assigned three sections: support, supply, and maintenance. The support section is authorized one E-7 services noncommissioned officer (NCO) and three junior enlisted Soldiers. The supply section is authorized one E-6 supply sergeant and one junior enlisted Soldier. The maintenance section is authorized one E-6, one E-5, and one junior enlisted Soldier. Although this makeup may appear comparable to a conventional S-4 section, it is important to note that the PRT S-4 staff is composed of either Air Force or Navy personnel who have not previously operated within the Army logistics system.

PRT Train-Up

Although training is conducted for the S-4 staff during predeployment training to familiarize the various S-4 personnel with Army logistics systems, it is not sufficient. The PRT train-up focuses on ensuring that all personnel can shoot, move, and communicate. It is imperative that the PRT S-4 create an environment that is conducive to training each section on the systems and regulations that they will use to accomplish the logistics mission. SOPs must be developed immediately to ensure adherence to Army logistics regulations.

Investing time in developing each section from the start is the key to a successful deployment. Before arriving at Camp Atterbury, each PRT S-4 should contact his counterpart operating in the area of operations to which he will deploy. This will allow the incoming S-4 to gain a better understanding of the operating environment in which he and his staff will function. More importantly, by gathering information on lessons learned from his counterpart in the theater, the incoming S-4 can develop an initial task organization and key tasks for the logistics sections.

For example, the PRT liaison officer from the logistics section will conduct PRT Property Book Unit Supply Enhanced (PBUSE) and supply support activity operations from the supporting airbase. The individual chosen for this assignment will work separately from the PRT and with limited supervision. Through correspondence with his in-theater PRT S-4 counterpart, the incoming PRT S-4 can gather and analyze this information, allowing him to properly select and prepare the liaison officer for his upcoming mission.

Overall, the various components of the military have many similarities in how they conduct logistics. Across the Armed Forces, the supply section acquires, manages, receives, stores, and issues all classes of supply required to equip and sustain the force. Included in those duties are determining requirements for the unit and forwarding requests up through channels to the appropriate issuing authority. However, the systems used to manage these tasks are very different. By working with the PRT S-3, the PRT S-4 can schedule blocks of instruction on the training calendar and resource facilities to conduct additional PBUSE training for the supply section.

While at Camp Atterbury, multiple equipment and supply issues, from weapons to clothing and equipment, will surface. Each of these issues should be used as a training exercise for the supply section and taken as an opportunity to refine or develop supply SOPs. These hands-on training opportunities will allow the PRT S-4 to develop his personnel and instill in them the Army command supply discipline approach to equipment management.

Accountability of supplies and equipment under the Army command supply discipline program is typically

more rigorous and unforgiving than the other services. It is imperative that not only the supply section but all PRT members understand this and the consequences of not adhering to the standard. Bringing the first sergeant in to assist in the training and implementation of supply procedures developed by the S-4 will greatly increase the effectiveness of the supply program within the PRT.

PRT Logistics in the Field

Transportation requirements within the PRT include the movement of personnel, equipment, and supplies to support the concept of operations. Other transportation duties include resourcing additional military, commercial, and multinational capabilities (including motor, rail, air, and water modes) available to the PRT and understanding the process of requesting those transportation assets. The PRT does not have a designated transportation section, so the S-4 manages transportation.

If the PRT is collocated with an FSC, the S-4 can coordinate with the FSC commander to conduct joint logistics convoys. PRTs do not have palletized load system vehicles and are incapable of conducting robust logistics convoys. Since the PRT does not have a transportation platoon leader, the S-4 is responsible for leading logistics convoys for the PRT.

Maintainers in all branches of the military are charged with keeping vehicles and equipment in a serviceable, operational condition, returning them to service, and updating and upgrading their capabilities. The main focus during train-up for the maintenance section should therefore be on using the Standard Army Maintenance System-Enhanced (SAMS-E). Use of SAMS-E is crucial to the success of the maintenance section, allowing the section to generate and read key reports, such as the not-mission-capable report (better known as the 026 report).

When collocated with an FSC, the PRT S-4 should coordinate with the FSC commander to have the PRT's equipment information entered and managed by an FSC clerk. This will greatly increase maintenance productivity within the PRT since the PRT has only three mechanics. In addition to training personnel on PBUSE and SAMS-E, the train-up process should also include having the NCOs in charge in the maintenance and supply sections open a Logistics Information Warehouse account. This will provide the support NCO staff members with a tool that can be used for personal development and resource management. PRT S-4 sections that find success downrange attribute their success to developing and implementing SOPs early and getting the right training to the right people.

PRT missions embody the full-spectrum operations environment. This is due to the nature of the mission and the composition of the PRT. A PRT includes infantry, civil affairs, information operations (IO),

engineer, information technology, and communications components. To ensure that all sections are supported in a timely and accurate manner, the PRT S-4 should maintain an open dialog with each section and conduct accurate logistics estimates. Each section has its own mission within the PRT, so opening up a dialog with the section leaders can help the PRT S-4 to more effectively contribute to the success of the PRT. In addition to engaging section leaders, the PRT S-4 will work closely with the S-3 and the first sergeant to ensure mission readiness for future missions.

Supporting Voting

Voting is a good example of a mission that requires the PRT S-4 to conduct logistics estimates and solicit requirements from the various staff sections. By corresponding with the various staff sections, the PRT S-4 will learn if the IO section will need more handheld radios, which it distributes through the civil affairs team, to deliver the IO message. More radio airtime must be approved for purchase to ensure maximum effectiveness of the IO campaign. The S-2 and the infantry platoon leader will highlight historical data to explain the need for an increase in the unit basic load during this operation. The S-3 will request the status of class IV (construction and barrier materials) for the polling sites and the distribution plan to send to higher headquarters.

Although this example offers insight into the scope of the various logistics requirements encountered in support of the PRT, it is more typical that the various sections will be pulling in different directions, as opposed to this example of a common mission across the board.

Since the first PRT was established in Afghanistan in 2003 and the concept was extended to Iraq in 2005, PRTs have played a significant role in U.S. and coalition operations. An assignment as a PRT S-4 offers junior officers a great opportunity to develop their skills while supporting our Nation's stability efforts in Southwest Asia.

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Combat Sustainment Support Soldiers in Special Forces

BY CAPTAIN ZACHERY BRISCOE

Logistics Soldiers working in an Army Special Forces unit need to be able to handle several logistics jobs, and they must have Special Forces training so they can function with and support their units.

Combat units in today's military require logistics support personnel with specialized knowledge and training to support the efforts of the "trigger pullers." Without organizational support, either the combat specialty Soldiers will be unable to conduct combat operations because they are too busy doing the tasks necessary to keep a unit operational or the support tasks will go undone and the unit will be rendered unable to conduct combat operations. Nowhere is this truer than in special operations units.

Although a vehicle mechanic is absolutely necessary to keep an Army Special Forces operational detachment alpha (ODA) in the fight, not just any vehicle mechanic will be able to provide the level of support needed. This article will provide an overview of training sustainment personnel for Special Forces units from the perspective of a logistics officer assigned to the 5th Special Forces Group (Airborne).

Special Training Needed

Because of the differences between Special Forces units and other Army units, Soldiers assigned to a Special Forces group require additional training. Keeping Soldiers from these training opportunities because "we're too busy" or "you don't need that school" only serves to restrict their abilities to support the mission. Skills training, such as air assault, pathfinder, jumpmaster, and sling load inspector, provides qualifications that enable sustainment Soldiers to better support the mission.

The 528th Special Operations Support Battalion, before its conversion to the 528th Sustainment Brigade, developed a multiskilled Soldier concept. The point of this program was to formalize military occupational specialty (MOS) cross-training across the battalion in order to create multifunctional Soldiers capable of performing multiple tasks as they were attached to operational units. Since Special Forces units are frequently understrength, this cross-training can help overcome personnel shortfalls by providing one Soldier with two specialties.

In a Special Forces battalion, the Soldiers most

frequently attached to ODAs are MOS 92G (cook) and MOS 91B (wheeled vehicle mechanic). Formalized cross-training under the multiskilled Soldier concept would give an ODA not just a cook or a mechanic but a cook who is able to manage supply and ammunition requisitions or a mechanic who is certified to work on a much broader range of military equipment than just trucks. Every ability that these Soldiers possess beyond their primary MOS enables the ODA to focus more on operations and less on sustainment.

Much of the necessary training is available from Army sources. Hands-on courses in topics ranging from supply systems to vehicle recovery to sling load inspector are available at Fort Lee, Virginia.

Training should focus on developing a Soldier's skills across related MOSs. All quartermaster MOS Soldiers need to know as many areas of supply as possible. All vehicle maintenance Soldiers need to be able to repair as broad a range of military equipment as possible.

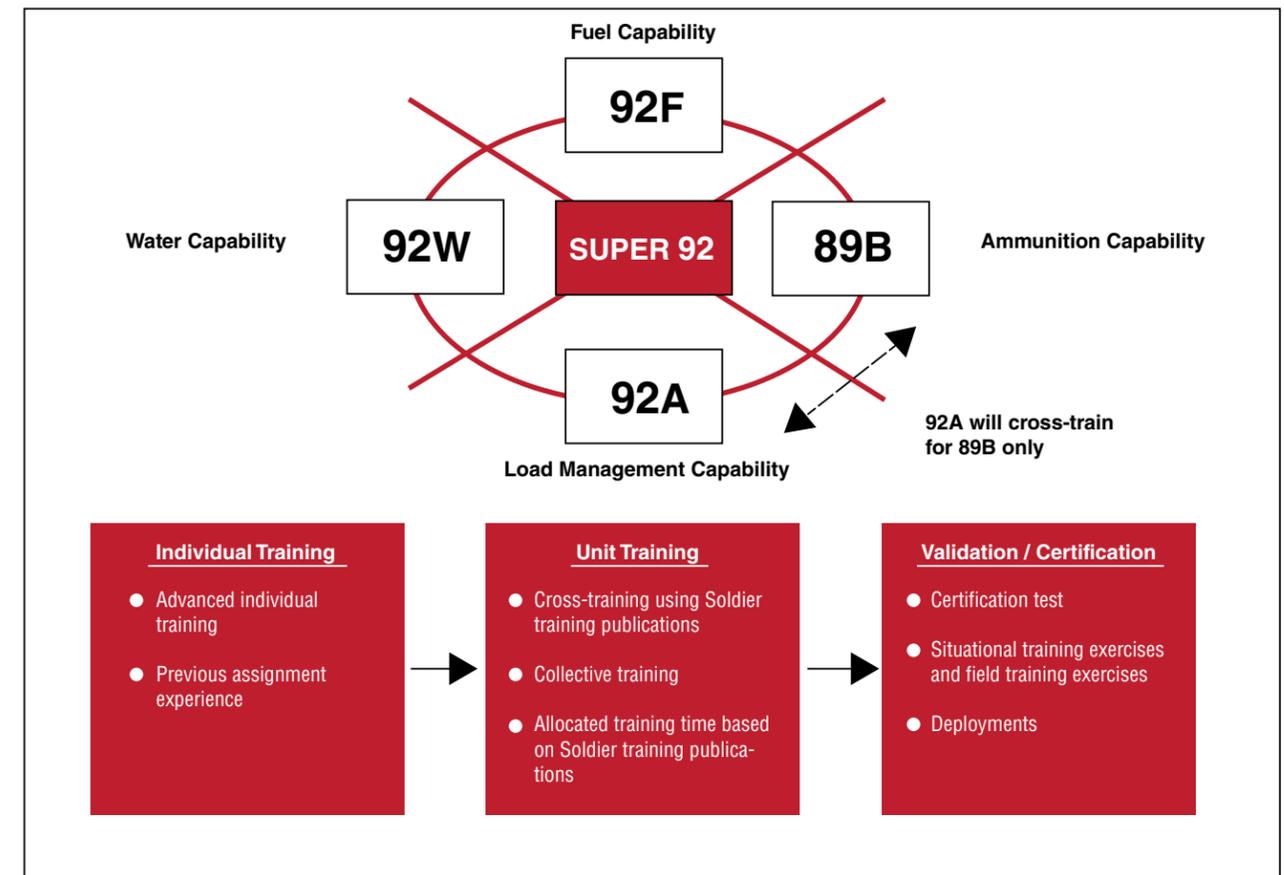
Nonstandard Training

Nonstandard training is also required because of the range of Special Forces operations. Mechanics must be trained to repair and modify civilian vehicles, armorers need to receive training on foreign weapons, and supply sergeants must develop cultural awareness and language skills to allow them to purchase supplies from local merchants.

Many of these skills have not been frequently used during operations in Iraq and Afghanistan because of the availability of conventional means of supply and contracted mechanics. However, these assets may not be present at the beginning of the next war. A formalized training plan to develop broad skill sets will increase the flexibility of organic logistics, not only in the contemporary operational environment but also in future missions.

Beyond low-level Soldier skills training, Special Forces logistics personnel must develop the ability to manage sustainment operations at a lower level than conventional forces. Because of the decentralized oper-

Multiskilled Soldier Concept



This chart shows the training progression for the multiskilled Soldier concept, which was developed by the 528th Special Operations Support Battalion.

ations conducted by Special Forces, a company supply sergeant may have to manage sustainment for multiple ODAs dispersed across hundreds of miles with little support from his parent battalion.

Training on topics such as support operations, contracting, and joint and multinational logistics can develop the knowledge needed to manage this mission by tying in with Army or joint and multinational partners. Developing knowledge typically found on higher level staffs at the battalion and company levels will increase the ability to operate independently. This is embraced operationally by Special Forces and must be embraced by supporting personnel.

Required Special Forces Skill Qualifications

Beyond developing logistics expertise, Soldiers supporting Special Forces must have various special skill qualifications. Some of this training develops a knowledge base that will help Soldiers fit in with a Special Forces unit. Other training provides qualifications and knowledge that a Soldier can use to assist an ODA. Sustainment Soldiers being certified to rig a sling load

or having the knowledge to assist in setting up a drop zone or landing zone increases the capabilities of a combat unit. Many of these skills are not commonly used in the contemporary operational environment, but a more dynamic or kinetically oriented mission would benefit from many personnel having these qualifications.

Sustainment Soldiers are integral to the success of a Special Forces unit. The level of training given to these Soldiers must be commensurate with the demanding nature of the mission they are supporting. Formalized cross-training, knowledge development, and special skills qualifications will increase the value of sustainment Soldiers to all areas of Special Forces operations.

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Supporting a Special Operations Task Force During the Withdrawal From Iraq

BY MAJOR THOMAS B. CRAIG

During the Responsible Drawdown of Forces, Special Operations Task Force–Central ensured that its units and outstations had sufficient supplies and equipment to maintain pressure on the enemy.

During the spring and summer of 2010, U.S. Forces–Iraq worked hard to reduce the number of troops in Iraq to below 50,000 by 1 September. During this massive and well-orchestrated drawdown, Special Operations Task Force–Central (SOTF–C) maintained its force level and repositioned operational detachments to continue to conduct combined lethal operations and target enemy networks seeking to destabilize the Government of Iraq.

The reduction in forces throughout the theater began to change the operational environment; no longer were forward operating bases (FOBs) and patrol bases always within easy reach of Army Special Forces operational detachments alpha (ODAs) and Navy sea, air, and land team (SEAL) platoons. U.S. forces made a more deliberate effort to keep off the major roads during daylight hours, whenever possible, to avoid Iraqi perceptions of U.S. involvement during the important



Army Special Forces logisticians remove excess property from a closing forward operating base in central Iraq.

Logisticians remove property from an operational detachment alpha's location in preparation for redeployment.



Iraqi election period and the formation of the new government.

These changes made the operations that the task force's ODAs and SEAL platoon conducted every day all the more important, both in maintaining the Iraqi Government's pressure on enemy networks and in painting a clear picture of enemy activity as battalions and brigades departed the theater.

ODA Independence

As U.S. forces drew down, SOTF–C continued to ensure that its outstations maintained a level of support that allowed them to stay focused on their mission. SOTF–C accomplished this goal by focusing on two parallel actions: providing ODAs the tools they needed to sustain themselves independently of thinning U.S. forces and reducing their requirements to become more expeditionary. SOTF–C recognized five key requirements to sustain ODA independence from departing conventional forces:

- ❑ Independent over-the-horizon communications that were separate from conventional networks, which were going away.
- ❑ Increased force protection measures as U.S. forces departed.
- ❑ Larger bulk food and water storage facilities as the length of time between resupply increased for outstations. (As U.S. forces grew smaller, outstations needed to be able to sustain themselves with less frequent resupply missions.)
- ❑ More reliable power-generation options for outstations far from conventional U.S. support. (Each location had to stand alone and be self-supporting.)

- ❑ Materials-handling equipment (like forklifts and cranes) to replace the departing equipment belonging to redeploying units.

These requirements were filled by transferring equipment from departing Army units elsewhere in the theater. SOTF–C was able to link an emerging requirement in one task force location with excess resources at a conventional base by staying closely tied in with the Combined Joint Special Operations Task Force–Arabian Peninsula (CJSOTF–AP) headquarters and the U.S. divisions as they thinned their lines. U.S. forces recognized that special operations forces in Iraq were still engaged in the fight, partnered with key Iraqi Special Operations Forces units and other internal security elements, and gave them the logistics priority needed to maintain pressure on the enemy.

Property Turn-In

At the same time, SOTF–C recognized its own need to be lighter and more agile. After 7 years in Iraq, some outstations had grown beyond their mission-essential needs and wanted to shed excess materiel so they could reposition quickly to other areas of Iraq when needed. SOTF–C launched a massive excess property turn-in program designed to pare the outstations down to the materials and resources they used and needed daily and to remove the excess property that could slow down relocation and the eventual withdrawal and base returns.

From April to August 2010, SOTF–C turned in over 1,600 excess property items worth more than \$29 million. Commanders at every level took a hard look at their true mission requirements and shed unneeded equipment to “lighten the rucksack” at every base,



Soldiers load property to relocate it to another forward operating base in central Iraq.



Army Special Forces Soldiers transfer a potable water tank to the Iraqi military as part of the base closure process.

large and small. As the task force consolidated and relocated ODAs, targeted turnover of excess property to partner forces during the SOTF-C base returns was also a valuable and efficient means to reduce excess and support partner units at the same time.

Mobility Packages

As the operational environment in Iraq changed, so did the mobility requirements for each ODA and SEAL platoon in the sector. An ODA may have conducted a partnered combat operation using painted M1151 high-mobility multipurpose wheeled vehicles one day, and the next day it may have transitioned to low-visibility movements in up-armored nonstandard tactical vehicles. The ODAs also maintained their requirement for RG-33 mine-resistant ambush-protected vehicles and continued the logistics support to keep those platforms in the fight.

Fielding a diverse mobility package that fit into each ODA and SEAL platoon's unique operational environment was a major goal for the logisticians at the SOTF-C headquarters. Each detachment had unique needs for up-armored vehicles, and SOTF-C procured the right color and style of vehicle for each

area through continued close coordination with the withdrawing U.S. divisions, which continued to offer their priority of support to CJSOTF-AP. The SOTF-C painted and modified vehicles when necessary to produce the right platform for the right location and then moved them to points of need.

SOTF-C forces continued to mitigate the operational impact of the drawdown by coordinating with adjacent units as they thinned and consolidated their lines and by becoming more expeditionary and reducing their logistics footprint to be more agile. Special operations forces support units in Iraq remained focused on sustainment operations that allowed ODAs to stay closely linked with their key Iraqi partners into the Operation New Dawn era.

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The Training of Movement Control Teams

BY LIEUTENANT COLONEL LILLARD EVANS, MAJOR KEVIN M. BAIRD, AND CHIEF WARRANT OFFICER 4 KI HAN

Movement control has been a critical link in sustainment operations in Iraq, Afghanistan, and other contingencies. However, a standardized model for training movement control teams (MCTs) for deployments does not exist. While the National Training Center at Fort Irwin, California, and the Joint Readiness Training Center at Fort Polk, Louisiana, are useful training venues for most sustainment units, the small number of daily convoys and the focus on brigade combat team-centric training limit the ability of those training venues to prepare MCTs.

Force Structure Affects Training

The Army has 5 active-duty movement control battalions (MCBs). However, more than 100 MCTs are spread throughout the world and across all components. With this force structure, the most daunting challenge becomes standardizing the training of MCTs. With the limited number of MCBs, MCTs at home station are assigned to combat sustainment support battalions, special troops battalions, and other organizations for administrative and training purposes. The commanders and staffs of those organizations are capable of executing the tactical training for deployment, but MCT technical skills and oversight are not available in most sustainment units.

During its recent deployment to Iraq, the 49th Transportation Battalion (Movement Control) (49th MCB) identified a shortfall in the training of many of its MCTs. Because of the rotation policies in place, MCTs under

the battalion's control were constantly transitioning. These units came from locations across the globe and from every component of the Army and Air Force. As a result, the predeployment training these units received was not consistent and their skill sets varied widely.

Automation Training for MCTs

MCTs use the Transportation Coordinators' Automated Information for Movements System II (TC-AIMS II) as the Army's system of record for movement management and movement control. Besides TC-AIMS II, they also use many joint systems of record and web-based systems, such as the Single Mobility System, the Intelligent Road/Rail Information Server, the Integrated Data Environment/Global Transportation Network Convergence, the Radio Frequency-In-Transit Visibility Tracking Portal, and the Worldwide Port System. The ability to operate these systems is critical in assisting movement managers in organizing movements across a theater of operations. Therefore, MCBs must

Proposed Movement Control Team Courses

Operational Area	Course of Study	Learning Objectives	Time
Movement Control (Overview)	TC-AIMS Theater Operations, Host Nation Trucking Operations (OEF), and Operational Review (OEF)	Refresh skills on movement control, automated processing of movement requests, and coordination of movement as part of a movement control battalion.	1½ Days
Deployment Operations	TC-AIMS II	Plan, execute, and manage strategic deployment using TC-AIMS II to conduct asset management, deployment planning, movement execution, and movement tracking.	2 Days
Airfield Operations	AALPS, ADACG Operations	Conduct air load planning and manage air deployment operations.	1 Day
Seaport Operations	WPS, PSA, and HAZMAT documentation	Plan and manage sea deployment through WPS and orientation to seaport management.	½ Day
Movement Tracking	SMS, IGC, BCS3, RF-ITV Tracking Portal	Track global movement of personnel and cargo through web-based and tactical systems.	1 Day
Movement Control (Operations)	Integration of tracking and management systems	Execute a scenario-based exercise focusing on projected deployed missions and requirements.	4 Days

take an active role in ensuring that MCTs are trained to standard on these systems before deploying into any theater of operations.

To address this issue, the 49th MCB developed a training package for units to implement before deploying. The intent was to build a universal skill set for all MCTs, regardless of component or location. The topics covered in this training package can be customized to train an MCT for the specific mission it will execute once deployed. During a period of up to 10 days, the classes found in the chart below can be taught by subject-matter experts from the MCB staff.

Each topic is taught at most installations by either Army troop schools or civilian agencies responsible for deployment and redeployment operations. While these courses are useful, having them focused for an MCT audience as part of a larger course allows for better integration of the concepts for the MCT.

Learning From Units in Place

Teleconferences or video teleconferences with the deployed units that are executing the projected missions bring added focus to the training. They assist leaders in developing the scenarios that will be used during the culminating training exercise before deployment.

The 4-day scenario-based exercise tests the MCT's ability to apply knowledge gained during the formal training to a real-world scenario. In order to make the training more realistic and applicable, the scenario is built around the likely deployed mission set for the training unit. The scenario is designed to test leaders, Soldiers, and the team as a whole on their ability to operate systems, manage workflow and products, and integrate into a functioning team.

Organizing Standardized Training

Because of the distribution of MCTs across the continental United States (CONUS) and the ongoing deployments of MCBs, we propose that the three MCBs based in the continental United States take on the mission of training all MCTs as required. Retaining an ongoing training capability for MCTs is critical

Legend	
AALPS	= Automated Air Load Planning System
ADACG	= Arrival/departure airfield control group
BCS3	= Battle Command Sustainment Support System
HAZMAT	= Hazardous materials
IGC	= Integrated Data Environment/Global Transportation Network Convergence
OEF	= Operation Enduring Freedom
PSA	= Port support activity
RF-ITV	= Radio Frequency-In-Transit Visibility
SMS	= Army Strategic Management System
TC-AIMS II	= Transportation Coordinators' Automated Information for Movements System II
WPS	= Worldwide Port System

to maintaining the technical competence of movement control Soldiers and the MCTs as they progress through the Army Force Generation cycle. As the active-duty MCBs rotate through deployments, the mission to train units can be passed to MCBs remaining at home station. This same model can be applied to the MCBs and MCTs stationed overseas.

This arrangement is beneficial to the MCBs as well. When an MCB receives a nonorganic MCT while deployed, the MCB commander can be assured that the MCB is receiving a unit that is trained and capable of executing whatever mission it is assigned. When possible, deploying MCTs will train with the headquarters under which they will deploy, allowing commanders to build relationships before the task organization is put in place in theater. The process of building and maintaining this training capability will facilitate the training of the MCB staff during home-station training cycles.

By making sure that MCTs receive needed automation training before deployment, partner with the units they will replace in theater, and have a place to go to receive standardized training, the Army can make sure that the MCTs it deploys are ready to enter and support the fight. Standardizing a training model for these units is critical to their success on the ground.

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Who Pays the Bill? Budget Planning in the Military Decisionmaking Process

BY MAJOR FERNANDO PASQUIN, SPANISH ARMY

Can we imagine a chief of staff telling his commander, “Our maneuvers have been successful, but I know nothing about their costs”? This statement would be the beginning of a failure. We know we must consider a maneuver’s costs, troop numbers, fuel requirements, and camp facilities. If we are concerned about these real problems in maneuvers, why do we neglect them when planning an operation?

This article illustrates the need to include budget planning during the military decisionmaking process (MDMP) and to include budget estimation in the course of action (COA) analysis and comparison. Later, once a COA is selected, monitoring the budget will allow the commander to track the operation and compare it with the established plans and orders.

The Military Decisionmaking Process

As stated in Field Manual 5-0, The Operations Process, “The military decisionmaking process is an iterative planning methodology that integrates the activities of the commander, staff, subordinate headquarters, and other partners to understand the situation and mission; develop and compare courses of action; decide on a course of action that best accomplishes the mission; and produce an operation plan or order for execution.”

The MDMP consists of the following phases:

- Receipt of mission.
- Mission analysis.
- COA development.
- COA analysis (wargaming).
- COA comparison.
- COA approval.
- Orders production.

The development of these phases allows the staff to produce operation plans and orders, which are created following the commander’s guidance and the best options developed by the staff.

When a commander receives a mission, the staff begins to analyze it, developing a frame of reference to guide the staff work that will follow. After this, the COA development begins and the staff looks for different options to accomplish the mission. Later, the staff uses the COA analysis and comparison to present a recommended COA to the commander. The commander’s final decision opens the orders production phase, where the staff produces the operation plans and orders.

The complete process is based on developing different COAs using various criteria (such as maneuver, firepower, and protection) and comparing them in a decision matrix to select the best COA to accomplish the mission.

Project Budget Planning

A project is an effort to reach a specific objective, achieved by developing interrelated tasks using specific resources. The objective of every project is based on four factors: scope, program, budget, and customer satisfaction.

The life cycle of a project is divided into four phases: needs identification, project definition, project development, and project closing. After a person, enterprise, or country identifies a need, the next step is to define the exact and specific requirements to solve that need. (For example, we may need a car, and our requirement could be that the car must have enough seating for six people.) After considering these requirements, a team can be assigned to prepare a project that develops defined and specific tasks to achieve all previously defined aspects.

When the assigned team begins preparing for a project, one of its main concerns is the budget estimation. Before determining how and when all tasks will be completed, it has to present an initial estimation of all project costs. Later, when the plan is approved, the team will develop a detailed budget plan and monitor the costs during program development to ensure that all costs fall within the planned budget.

Initial budget planning allows the project manager to know if the project will be developed successfully or if he will need more funds to complete the required tasks. All tasks are developed according to the initial budget plans, and subordinates are responsible for their own slices of the pie.

By planning an initial budget and monitoring its execution, the project manager knows at all times the expenditures and the progress made in relation to the available budget plan. The main goal of this process is to provide a long-term vision about the development of the project and to adhere to the available budget.

Knowing the budget, the project manager will know if the project will be successful or if he will need to request more money. But even in the latter case, he will recognize the need in time to prevent interruptions in the project. This capability avoids the need for a sudden

budget increase and the probable veto of that increase, which would stop the entire project and create a funding spike when the project is reengaged.

If we think about the MDMP as a project, the main shortcoming of this process is the lack of budget planning. We develop the mission we are given and provide our commander with the best option to accomplish it. We perform the mission analysis, COA development and comparison, and COA selection and development; however, in none of these phases do we study a required budget.

Budget Estimation in the MDMP

We can include the budget planning process in the MDMP and create an initial estimate for every mission. First, the budget should be mentioned in the MDMP as a constraint in the mission analysis section. We cannot think of the mission as free of charge, and we need to know of any budget limitations in order to develop the mission. Without defined limits, we should at a minimum state broad requirements, such as “as cheaply as possible while accomplishing the mission” or “reduce costs through contractor use.” These should be one of the first inputs to show that the commander not only is focused on accomplishing the mission but also is concerned about minimizing costs.

Second, budget planning should be included during COA development. Just as we analyze different aspects of a COA (such as maneuver, firepower, and protection), we should include the cost estimate in the COA development. This new output of the COA development helps define the remaining outputs, making them more effective. In the case of a force deployment, taking into account transportation costs and available time could change the deployment planning.

Finally, operational cost should be included as evaluation criteria in the COA comparison. We are accustomed to including maneuver, simplicity, fires, and mobility in the COA comparison, but we should also include the budget criteria and its corresponding weight. This weight depends on the commander and takes into account the relative importance of cost in the entire operation development.

In the end, the staff recommends which of the developed COAs offers the best solution, and the commander decides which one will be used and issues the final planning guidance.

Budget Estimation Framework

We have taken into consideration the importance of budget planning, but this article would be incomplete without a brief explanation of possible elements to include in a budget estimate. During COA development, we analyze different operational aspects because the initial budget estimation requires a broad picture of the entire operation.

The first step is to analyze human resources requirements and estimate the total involved manning costs. The second step is to analyze materiel resources and estimate the costs of buying or renting resources. We should include not only the new materiel costs but also the organic means and exploitation costs, expressed as total cost percentage (normally modified according to environmental conditions).

The third step is to quantify the funds allocated to contractors, like fuel suppliers, food and kitchen providers, and transportation enterprises. The fourth step is to consider infrastructure renting. We normally assume open-field installation, but recent experience shows an increasing trend toward renting existing infrastructure. The fifth step is logistics. Here we should include all transportation and movement costs as well as the maintenance costs during each phase.

Finally, we must consider contingency funds. This is money reserved to be used in unexpected situations. There is no defined amount because it depends on the operation, but as a general rule we should allocate 10 percent of the total budget to contingency funds.

Once the COA is selected, we allocate funds to the different units according to their respective missions, personnel, and means and we monitor their expenditures to ensure that they are staying within the budget. Monitoring the operational budget lets us know if one unit is spending more or less than expected so that we know if we should redistribute or request funds.

Budget planning is a vital factor to analyze during the MDMP because it gives the commander the ability to see if the operation can be funded appropriately and completed with the initially allocated funds. We cannot base our processes on the assumption that money will always be available and wait for the execution phase of an operation to realize that we have a massive budget shortage.

We must devise budget control measures and take immediate corrective actions to avoid final financial ruin. This is our mission as Department of Defense budget managers, and the application of these measures will assure taxpayers that their dollars are wisely and efficiently spent.

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Responsible Contracting in a Counterinsurgency Campaign

BY CAPTAIN JOHN T. O'CONNOR

The goal of the Afghan First policy is to create lasting peace in Afghanistan by bolstering the nation's economy, but money intended to support the counterinsurgency campaign can end up also funding the insurgency.

On 23 April 2010, the North Atlantic Treaty Organization (NATO) published the NATO Afghan First policy. This policy suggests that, whenever possible, NATO and the International Security Assistance Force (ISAF) will look first toward Afghan goods and services to accomplish missions, thereby “promoting the development of the Afghan private sector and supporting the economic development of the country.”

This policy parallels numerous texts on economic lines of effort in counterinsurgency (COIN) operations, notably Field Manual (FM) 3–24, Counterinsurgency, and Dr. David Kilcullen's “Three Pillars of Counterinsurgency.” Both of these texts stress economic development as a critical aspect of COIN. FM 3–24 states that “after security has been achieved, dollars and ballots will have more important effects than bombs and bullets.” Dr. Kilcullen reminds the COIN warfighter that “tailoring [economic] efforts to the society's capacity to absorb spending, as well as efforts to increase absorptive capacity, underpin other development activities.”

With these two texts in mind, the Afghan First policy was created with the goal of assisting in creating lasting peace in Afghanistan. However, implementing this policy has been rocky.

Know the Contractors

Aram Rostrom's 2009 article for *The Nation*, “How the U.S. Funds the Taliban,” painted a scathing picture of the United States' haphazard use of funds that are allocated to host-nation trucking (HNT) contracts. Rostrom's article led to the longer and even more critical congressional report, “Warlord, Inc.” This report was prepared by the Subcommittee on National Security, Homeland Defense, and Foreign Affairs of the House Committee on Oversight and Government Reform.

The report shows in painstaking detail how money intended for supporting the ISAF COIN campaign ended up directly funding the insurgency. Although the report calls for intense contract oversight and audit pro-

cedures for future trucking contracts, it does not recommend a ground-up reevaluation of the implementation of the Afghan First policy as it relates to contracting. Further, it does not address the fact that potentially hundreds of other local and regional contracts may be funneling money to the insurgency in similar ways.

To ensure the success of the economic aspect of the ongoing COIN campaign, changes are required in every level of the contract acquisition and management process. The first step in this process is to identify the contractor. All regional contracting command offices in Afghanistan have a list of vendors for potential contracts—from manual labor to skilled labor and logistics services—but reports like “Warlord, Inc.” show just how little is often known about the contractors themselves.

As contracting in Afghanistan is a multibillion dollar industry, the list of all potential contractors needs more thorough vetting than has occurred in the past. In fact, an entire agency or team may need to be created solely for the purpose of this research. Such research should include who the owner of the company is and his historical ties to society. This is not to say that a former gunrunner cannot be an effective business partner, but offering funds to a known criminal for services rendered may not be the most successful way to promote economic or political stability in Afghanistan.

This proposed process is hardly discriminatory; instead, it is a foundation of solid business. Just as a businessperson in the United States would think twice before investing money with a known criminal, ISAF must seriously consider not only how much money is being paid for the contracted service but also who that money is going to.

Choose Afghan Contractors

An additional aspect to consider when vetting the list of potential contractors is the nationality of the contractors in question. The HNT contract, the largest of its type, pays hundreds of millions of dollars to contrac-



Afghan workers spread asphalt across a new road at Forward Operating Base Sharana. To help stimulate the economy and grow a skilled workforce in Afghanistan, the 243d Construction Management Team, Task Force Sword, follows the Afghan First policy when selecting contractors for jobs. (Photo by SPC David Huddleston)

tors not based in Afghanistan. While the employees of the trucking companies are largely Afghan, the contractors pay those employees very little compared to what they receive from the United States and NATO for each mission. And because the contractors' overhead costs are quite low, they pocket most of the money they receive for the contract. As such, hundreds of millions of dollars per year intended to bolster the Afghan economy instead flow to companies based in Pakistan, the United Arab Emirates, and the United States.

Although some economic models support a regional wealth theory—which means that by increasing the wealth of the surrounding countries, Afghanistan will eventually become wealthier—it is the long way to economic stability. Rather than paying enormous sums to contractors outside of Afghanistan, the process can be amended to ensure Afghan contractors alone are receiving bids.

Unfortunately, this potentially creates a situation in

which a less-capable contractor inside Afghanistan receives a contract rather than a foreign contractor who could perhaps provide better service and value. However, a less-equipped contractor who can provide tailored local service may be better suited to the task than an outside contractor who does not meaningfully engage at a local level. Afghanistan is a rural and tribal country, and business solutions that most engage the populace of a specific area are crucial to building provincial stability. Regardless, a long-term view must be adopted in cases like this because directly funding the economy of Afghanistan will eventually result in contractors whose quality will be on par with that of the surrounding countries.

Ensure the Money Is Well Spent

Ensuring that the contractors themselves are based in Afghanistan will not completely alleviate the irresponsible distribution of contract funds. The Central

Intelligence Agency World Factbook ranks Afghanistan 212 out of 229 countries in gross domestic product per capita based on purchasing power parity. Afghanistan has a 35 percent unemployment rate, with 36 percent of the population living beneath the poverty line and only 28 percent of the population literate.

Despite the billions of dollars in both aid and contracting spent over the last decade, Afghanistan remains one of the poorest, unhealthiest, and most uneducated countries in the world. The massive influx of funds has not substantially raised the quality of life for the average individual, and stories of graft and corruption are common at the lowest levels of civic activity and at the highest levels of the Afghan Government.

Continuing to inject funds at a high rate without the infrastructure to absorb them will remain a destabilizing factor in and of itself. If the United States and NATO forces are paying immense sums of money to local contractors, it is the responsibility of those providing the funds to ensure that they are distributed equitably. This is not to suggest that contractors should be forced to give up their hard-earned money to organizations or efforts they have no stake in, but allowing a contractor to absorb the majority of a contract award while paying his employees next to nothing will not help to close the colossal income gap in Afghanistan.

Income gaps of such severity are a notable destabilizing agent, both currently and through recent history. To prevent the income gap from growing, contractors should be subject to greater oversight of what they do with the funds provided. Fair wages to employees is the absolute minimum initiative that should be accepted by U.S. and NATO forces.

Beyond fair wages to contracted employees, many opportunities exist to advance the communities of the contractors through the efforts of provincial reconstruction teams (PRTs) and agricultural development teams (ADTs). Investments provided by a contractor to the recipients of PRT and ADT efforts, whether in the form of nonpredatory lending or microfinance, parallel other lines of effort to isolate insurgents and further the goals of the COIN campaign.

It is not in the best interest of the United States or NATO simply to assume that western best-business practices will prevail if enough money is thrown at the problem. Without critical oversight into how the contractor is spending the money paid to him, the door will remain open to war profiteers.

Identify the True Requirements

The last step for increased oversight of contracting in Afghanistan is to reexamine both the process and the requirements for initiating a contract. Currently, a company-level unit can initiate a contract worth hundreds of thousands of dollars, with no guarantee that a totally holistic approach was taken in defining

customer needs or the potential effects of pushing so much unchecked money into the local economy. While different commands have different philosophies and practices on when to use local contracting, the fact remains that it is a remarkably easy process.

Since the potential positive effects of responsible contracting are great, in terms of economic lines of effort, it is in the best interests of all to have an acquisition process that is not so complicated that it scares away potential customers. However, reports like “Warlord, Inc.” have demonstrated just how funds intended for innocuous contracts can end up harming U.S. and NATO Soldiers.

With this in mind, not only does the acquisition process need to be reevaluated to ensure that the customer and the contract administering agency are performing with due diligence but all existing contracts need to be reevaluated for their value. Day laborers to perform janitorial tasks may make deployed life easier for Soldiers, but the money paid to those contractors may be used directly to counter the U.S. and NATO lines of effort.

These suggestions are not quick fixes. In addition to thoroughly vetting all potential contractors, ensuring the contractors are not based outside of Afghanistan, and reexamining the process and requirements for initiating a contract, a theater-wide reeducation on the potentially deleterious effects of negligent contracting is needed.

Dr. Killcullen, in explaining his three pillars of counterinsurgency, places as much weight on the economic pillar as he does on the political and security pillars. And much like a three-legged stool, removing any one of these lines of effort results in a collapse.

The United States and its NATO partners can no longer pretend that the economics of the COIN campaign exist in a vacuum. One commander’s contract may be funding the rocket-propelled grenade used against another commander’s Soldiers. Without meaningful reform to the local contracting process and its implementation, Afghanistan will never fully develop as a country and the COIN campaign will not succeed.

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Establishing a Central Receiving and Shipping Point at the Largest General Support Hub in Afghanistan

BY MAJOR DONNA J. JOHNSON

During its deployment to Afghanistan, the 17th CSSB improved logistics operations at Bagram Airfield by establishing a central receiving and shipping point.

From June 2010 through May 2011, the 17th Combat Sustainment Support Battalion (CSSB) operated the class I (subsistence) and water warehouse, supply support activity (SSA), class III (bulk petroleum) fuel farm, forward arming and refueling point, retail fuel point, ammunition supply point, and central receiving and shipping point (CRSP) at Bagram Airfield, Afghanistan. The battalion also sustained seven major hubs throughout Regional Command East (RC–East). As only the second CSSB to sustain RC–East, the 17th CSSB arrived at a critical time, when the number of forces in Afghanistan surged from less than 70,000 to nearly 100,000 troops. To sustain the surge, the 17th CSSB had to expand its operations, particularly the CRSP.

OUR RSOI AND CRP YARDS WERE DISPERSED AND FILLED WITH FRUSTRATED CARGO, SOME OF WHICH HAD BEEN THERE FOR YEARS.

Conditions on Arrival in Country

When we first arrived, our inland cargo transfer company (ICTC) operated the reception, staging, onward movement, and integration (RSOI) yard, which consisted of unit cargo containers and rolling stock. The contractors operated the central receiving point (CRP), consisting of sustainment containers for the SSA and materials for base operations.

As we became inundated with the equipment and supplies needed to support the arrival and sustainment of units deploying into the theater, we struggled with throughput at Bagram Airfield. At our peak, we had 1,273 containers in the pipeline headed for Bagram

Airfield, entering from Pakistan through Torkham Gate and from Uzbekistan through Hairaton Gate.

Backlog Issues

Initially, we were not prepared to ingate, receive, and process this volume of cargo. One of our greatest challenges was space constraints. Our RSOI and CRP yards were dispersed and filled with frustrated cargo, some of which had been there for years. Many units and various nodes at the forward operating base (FOB) did not have the space to receive and store their cargo.

The CRP’s biggest customer, the SSA, received 60 percent of the containers ingated each day. As the largest SSA in Afghanistan with more than 11,000 lines, it operated on just over 2 acres of land. This was the same location the SSA occupied at the beginning of the war in 2001, when it only had 3,400 lines. For nearly 10 years, the demand for classes II (clothing and individual equipment), IIIP (packaged petroleum, oils, and lubricants), IV (construction and barrier materials), and IX (repair parts) steadily increased, but the space allocated for this operation remained unchanged.

Because of the limited space, the SSA could not accept containers. All containers had to be unloaded at the CRP and the contents transported to the SSA. Daily, the SSA received an average of 80 wooden pallets from the CRP and 60 463L pallets from the arrival/departure airfield control group. All SSA-bound cargo had to be cleared off the flight line within 72 hours of arrival, so this cargo was the SSA’s top priority for processing. The SSA cargo that arrived at the CRP by ground was second priority, making the backlog in the CRP increase significantly.

Personnel and Equipment Shortages

Another challenge we faced was a shortage of personnel and equipment. Our ICTC arrived in theater with less than half of its modified table of organization and equipment authorizations. Not only was the

ICTC required to operate the RSOI yard at Bagram, it also provided Soldiers and materials-handling equipment (MHE) at four additional FOBs. Supporting these FOBs further strained our ability to receive and ship cargo at Bagram.

The ICTC was directed to turn in its rough-terrain container handlers (RTCHs) to the Army Material Command reset program. These RTCHs were equipped with top handlers that could rotate 195 degrees clockwise and 105 degrees counterclockwise, which enabled the ICTC to maximize the limited amount of space in its yard and reduce the number of moves a RTCH needed to make to retrieve a container from a stack. The remaining RTCHs had a safety mechanism that limited the top handler's movement to 105 degrees clockwise and 45 degrees counterclockwise, ultimately reducing the efficiency in the RSOI yard.

ONCE WE BEGAN TO CLEAR OUT FRUSTRATED CARGO, WE CONSOLIDATED THE RSOI YARD AND CRP PERSONNEL AND MHE INTO ONE LOCATION.

The contractor had a finite amount of MHE (six RTCHs, nine 10,000-pound forklifts, and four 4,000-pound forklifts), which was used to support the CRP and base operations. Because of competing requirements, the contractor's MHE was often diverted from CRP operations to other locations at the FOB. Not having dedicated contractor MHE adversely affected CRP operations.

The constant operation of this MHE and poor maintenance degraded its operational readiness rate, which also affected CRP operations. On many occasions, the ICTC had to shift MHE and personnel from the RSOI yard to the CRP to prevent an interruption in operations. The CRP also struggled with a high turnover rate in its management. In a 2-month period, the CRP had six different supervisors. This turnover adversely affected the momentum of the operation during this critical period.

Diverting Cargo

Because of the reduction in capabilities, we had to divert cargo to the commercial carrier holding yards in Kabul and monitor the flow, which resulted in the charge of carrier detention fees to the U.S. Government. Universal Service Contract 06, managed by the Military Surface Deployment and Distribution Command, allocated 15 days for a container to move from

the seaport of debarkation to its final destination before it began to accrue detention fees of \$22 to \$92 per day. (Fees depended on the size of the container and whether it was a dry or reefer container.) The carriers also charged the Government a fee for storing containers in their yards.

Of greatest concern, diverting cargo to the carrier holding yards voided the carriers' requirement to meet the required delivery date. Failure to meet the required delivery date had the potential to adversely affect units' ability to execute their missions.

Creating a New CRSP

We quickly realized that we needed to change how we operated. With the assistance of Combined Joint Task Force 101, base operations, and the 82d and 101st Sustainment Brigades, we set out to develop a CRSP at Bagram Airfield capable of expanding and contracting with the flow of cargo.

The arduous task of creating a CRSP took most of our tour to accomplish. We had to clear out the clutter that had been accumulating for 9 years. To do this, we had to gain a better understanding of what we actually had in the yards. In the past, we had relied on internal spreadsheets to manage our inventory. With the Military Surface Deployment and Distribution Command's assistance, the support operations staff and the ICTC became proficient at using the Integrated Booking System—Container Management Module, the Army's primary tool for container management in a deployed environment. This enabled us to know exactly what was in the yards and track detention.

We also developed a call log for contacting the cargo points of contact. Customers who failed to pick up within 30 days had their cargo turned over to the 82d and 101st Sustainment Brigades' mobile retrograde team. The mobile retrograde team inventoried these containers and returned their contents to the supply system.

Once we began to clear out frustrated cargo, we consolidated the RSOI yard and CRP personnel and MHE into one location. Our CRSP consisted of an inbound yard, an outbound yard, and an empty container collection point. We also pulled back some of our personnel and MHE from outlying FOBs. As the largest general supply hub in Afghanistan, we had no choice but to scale back our resources at these smaller FOBs.

We allocated M915/M872 tractor-trailer systems and palletized load systems from the battalion to assist in moving cargo to various nodes and customers at Bagram Airfield. This step was critical to freeing up space in the CRSP to receive more cargo from the Pakistan ground lines of communication.

To tackle carrier container detention fees, we transloaded the contents to Government-owned containers. Although this required double handling, transloading

reduced container detention significantly.

The sustainment brigades also erected a joint distribution management center (JDMC) in the CRSP. The JDMC provided customers with a one-stop shop to receive and schedule the onward movement of their cargo. Within the JDMC, the 17th CSSB had liaison officers to assist the customers with their cargo. Our presence in the JDMC was critical since we controlled the assets required to move cargo on and off of Bagram Airfield. This initiative vastly improved throughput.

THE GREATEST LESSON LEARNED FROM THIS EXPERIENCE IS THE IMPORTANCE OF CORs IN A CRSP OPERATED JOINTLY BY MILITARY AND CIVILIAN ENTITIES.

Overcoming Challenges

The most challenging aspect of creating a CRSP was combining the operations of the ICTC and the contractors. Although the consolidation of the CRSP brought the ICTC and contractors together physically, they continued to operate independently.

To improve the operation, we realigned the contracting officer's representative (COR) responsibilities from the battalion to the ICTC. This forced both operations to work together. The ICTC also had the right skill set to know what the contractor was supposed to do to operate a CRSP effectively.

We assigned a COR and assistant COR to each contract for container, cargo, and yard operations and made this their sole function. Previously, CORs had been assigned to multiple contracts, but we found that this did not allow them to consistently evaluate the performance of each contractor. Assigning the ICTC as the COR for the contractors ensured greater oversight.

Although we realigned the COR responsibilities, our ICTC initially encountered challenges. The performance work statements contained in the Logistics Civil Augmentation Program IV contract were very vague and lacked performance metrics. However, the performance work statement stated that the contractor must follow certain Army regulations that govern container and yard operations. This allowed the ICTC to make the contractor improve its performance. Several of our CORs had experience operating CRSPs in Iraq, which proved invaluable as we worked to improve the infrastructure and cargo operations in Afghanistan.

Because of all of these efforts, we were able to increase the number of containers ingated from 30 to 150 per day. This, coupled with moving cargo out of

the CRSP, eliminated the need to divert cargo into the carrier holding yards. Cargo flowed freely into Bagram Airfield, saving more than \$800,000 in detention fees. Of greatest significance, units received their cargo by the required delivery rate.

Having the Contractor Take Over the CRSP

Toward the end of our tour, we realized that the CRSP was an operation that we could completely turn over to the contractor, which would enable us to reduce our logistics footprint. With Congress capping the number of U.S. forces in Afghanistan at approximately 100,000 and potentially reducing it even further, eliminating the requirement for an ICTC would make room for additional combat troops.

Since the contractor was already conducting this operation, it did not seem that it would be too difficult for it to assume the ICTC's workload. However, the process proved to be somewhat complicated and lengthy to implement. We met with the contractor and the Defense Contract Management Agency numerous times to work out the details. We also had to submit letters of technical direction to the contractor before it would take on the ICTC's cargo mission.

Since the ICTC was critical to cargo transfer operations on four additional FOBs, we also had to assist the base operations and brigade support battalions at these locations in contracting out this function. Before the 17th CSSB departed from Afghanistan, the conditions were set to turn the CRSP over to the contractors and completely eliminate the requirement for an ICTC in RC-East.

The 17th CSSB's experience in Afghanistan serves as an example of how to establish a CRSP and increase throughput. The greatest lesson learned from this experience is the importance of CORs in a CRSP operated jointly by military and civilian entities. To be successful, units must select CORs with in-depth knowledge and experience in the contract they oversee. This must be a full-time position so CORs can be actively engaged with their contract and the operation on a daily basis. Anything less will lead to undesired results and have the potential to adversely affect operations.

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Convoy Operations in Afghanistan

BY MAJOR TIMOTHY S. MOON

During its deployment to Afghanistan, the 17th CSSB conducted logistics convoys over a large area of the country. Its experience may prove helpful to other battalions tasked with providing logistics convoy support.

In 2010 and 2011, the 17th Combat Sustainment Support Battalion (CSSB) conducted logistics convoys in Afghanistan, delivering cargo and supplies to customers throughout Regional Commands East, North, South, and Capital. The battalion established and refined its convoy procedures to address the challenges logistics convoys face in this austere country.

Convoy Preparation

In addition to Army troop-leading procedures, the convoy element and staff provided the battalion command team with a formal backbrief 48 hours before the execution of each mission, detailing the battalion's plan. The backbrief included an indepth enemy, route, and weather analysis; supporting battlefield enablers; a manifest with all personnel and equipment involved in the convoy; actions on the objective; rest and meal plans; and points of contact for each delivery location.

THE 17TH CSSB'S CONVOY ELEMENTS COMPLETED MORE THAN 400 LOGISTICS CONVOYS OVER SOME OF THE MOST DANGEROUS ROUTES IN AFGHANISTAN.

The mission was planned and briefed, and the convoy element arrived at the battalion motor pool 4 hours before its scheduled start time. The Soldiers loaded their personal equipment while the leaders conducted pre-combat checks and inspections. The mission commanders verified their loads.

The Convoy Readiness Center

Two hours before departing on a mission, the convoy element moved into the battalion's convoy readiness center. The convoy readiness center created an environ-

ment free of distractions. It provided convoy commanders with an area in which they could issue their combat orders, conduct a manifest rollcall for all personnel and sensitive items, and complete a thorough mission rehearsal, including battle drills. It also allowed convoy commanders to complete their final preparations for their missions.

After concluding all required troop-leading procedures, the battalion chaplain and command team offered a prayer and some departing words of encouragement. The facility was stocked with last-minute comfort items, and Soldiers enjoyed a warm meal before starting the mission.

Convoy Mission Dangers

The 17th CSSB's convoy elements completed more than 400 logistics convoys over some of the most dangerous routes in Afghanistan. The Soldiers constantly faced a changing environment on these missions because as the war in Afghanistan continued, the enemy continued to adjust and change its tactics, techniques, and procedures. The convoys faced constant dangers as they maneuvered across the country from one forward operating base (FOB) to another.

In addition to enemy attacks, improvised explosive device strikes, and complex ambushes, other hazards were also present. For example, as the weather changed from season to season, the terrain became restricted, which caused severe civilian congestion. In highly populated areas, this scenario had the potential to turn violent at a moment's notice.

Protests were common, especially in conjunction with elections or after such unfortunate events as military-civilian accidents. The number of protesters could grow quickly, posing an extreme threat to logistics convoys. As rocks and objects were thrown, vehicle windows were damaged and the exposed gunners sustained personal injuries. Through effective and continuous communication with battlespace owners, the logistics convoys were often able to avoid these events. However, when they were unable to avoid the protests, 17th CSSB Soldiers displayed remarkable restraint and avoided any further escalation of these events.

Convoys on the Road

When the Soldiers departed for a mission, they planned to be gone for 3 to 7 days, but some of our elements were out for up to 25 days because of weather and impassable roads. While out on the road, the Soldiers rested overnight at FOBs across the combined joint operations area. Some FOBs were remote with austere conditions, while other, larger FOBs had post exchanges and morale, welfare, and recreation facilities and warm buildings for sleeping.

As our logistics convoys maneuvered across the combined joint operations area, they traveled through numerous battlespaces. The 17th CSSB's battle desk bridged the gaps between its logistics convoys and various battlespace owners by remaining in constant contact with other tactical operations centers. The battle desk managed the flow of information between the logistics convoys and the battlespace owners and coordinated for all required battlefield enablers. Route clearance packages, scout weapons teams, close air support, quick reaction forces, explosive ordnance disposal detachments, and medical evacuation assets were dispatched in support of our logistics convoys, helping mitigate the effects of enemy activity on the logistics convoys.

THE BATTALION'S LOGISTICS CONVOYS DELIVERED MORE THAN 150 CONTAINERS OF MAIL TO ENSURE SERVICEMEMBERS ACROSS THE COMBINED JOINT OPERATIONS AREA RECEIVED THEIR CHRISTMAS PACKAGES ON TIME.

Accomplishments

The 17th CSSB also conducted joint and coalition logistics convoys. During the battalion's deployment, its logistics convoys safely delivered all classes of supply to more than 85,000 servicemembers on more than 35 FOBs across the combined joint operations area.

The logistics convoys successfully delivered more than 2.4 million gallons of petroleum, oils, and lubricants and more than 5,000 pallets of ammunition. They also delivered more than 639 vehicles and other items to stand up several new bases in support of the Presidential decision to increase the overall American troop strength in Afghanistan.

Through coordinated efforts, the 17th CSSB's logistics convoys delivered all materiel before the 2010 Afghani-

stan presidential elections. Another important accomplishment occurred before Christmas 2010, when several dedicated mail delivery routes were established. The battalion's logistics convoys delivered more than 150 containers of mail to ensure servicemembers across the combined joint operations area received their Christmas packages on time. This initiative ultimately saved the Government more than \$1 million in contracts.

Major Undertakings

As the largest CSSB in Afghanistan with more than 1,000 Soldiers, the 17th CSSB faced constant change. Not only were there changes in the weather, enemy tactics, and maneuverability throughout the country, the logistics convoys also faced constant change across the formations with the relief in place/transfer of authority of battlespace owners, sustainment brigades, joint sustainment commands, and 10 separate multicomposition units.

Another major undertaking occurred as the battalion assumed operational control of the Kabul base cluster, a mission previously supported by an entire brigade support battalion. [The 17th CSSB sent a forward logistics element of about 190 Soldiers to Kabul, which replaced a battalion of about 482 Soldiers.] This mission supported safe passenger and equipment movements in and around the base cluster. Upon arriving in Afghanistan, the 17th CSSB quickly established the first-ever convoy academy with its Afghan National Army (ANA) partners. This academy enabled the ANA to learn how to prepare for and conduct convoys within their sectors of Afghanistan. It also allowed the ANA an opportunity to create and develop a set of standards and procedures for its own use.

The mission that the 17th CSSB performed in support of Operation Enduring Freedom would not have been as successful as it was if not for its high standards and concern for all Soldiers and the mission. Its dedication to duty and high professionalism in executing tasks made this CSSB stand out and ensured overall mission success and will undoubtedly have long lasting effects. The 17th CSSB executed all tasks with 100-percent commitment and devotion to excellence. The Soldiers of the 17th CSSB remain "Always Ready!"

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The Army Learning Model: Changing the Way Sustainers Train

BY LIEUTENANT COLONEL RICHARD J. STAFFORD
AND MAJOR WILLIAM MARK THORNHILL II

The Army Financial Management School is implementing several initiatives that support the Army's new emphasis on learner-centric, outcome-based education and training.

“The Army Learning Model—why do I need to know about that? It sounds like an educational topic to me, but I’m not an instructor. So why should I care?”

The answer is that the Army Learning Model, or ALM, will affect not only how Soldiers learn in the institutional education system but also how they train in operational units. Although ALM is an Army Training and Doctrine Command (TRADOC) initiative, it will profoundly influence how all Soldiers learn and develop.

ALM is a catalyst for changing the way Army schools train by directly affecting educational outcomes. It will allow sustainment schools to produce improved sustainment officers and enlisted Soldiers who possess a greater depth of knowledge, have faster access to information and job aids, are skilled in their crafts, and are resilient and ready to adapt to an ever-changing environment.

Many of the methods the schools will use also apply to operational force units as they conduct home-station and predeployment training. As newly-trained Soldiers and instructors report to operational units, ALM will begin to enhance the way those units train. Unit training will become more effective as leaders and trainers use multisensory, learner-centric techniques to train Soldiers. Army schools and centers are making training products, including lesson plans and applications, available to the operational force to use in training its units. Improved unit training will accommodate many of the most common learning styles by adapting training for visual, auditory, and hands-on learners.

Since ALM will affect how Army personnel train both at the schoolhouse and in the unit, the curious sustainer may ask, “So what exactly is this Army Learning Model, and what does it look like in real life?” That is a good question. It is also the perfect lead-in for a discussion of ALM and of some of the new educational and training methods being implemented at the Soldier Support Institute’s Financial Management School at Fort Jackson, South Carolina.

ALM: The Catalyst for Change

Many sustainers have heard of the Army Learning Concept 2015 (ALC 2015), which has just transitioned from the concept phase to ALM. Others who have been heavily engaged in the current conflicts may have not heard of either ALC or ALM.

Published in January 2011, TRADOC Pamphlet 525–8–2, The U.S. Army Learning Concept for 2015, provides the roadmap for how the Army will transform its training and education system. The latest fragmentary order for ALC 2015 officially moved this initiative from planning to execution by designating it as the new Army Learning Model.

The pamphlet emphasizes “the need for a new learning model . . . to develop adaptive, thinking Soldiers and leaders” who can “operate under conditions of uncertainty and complexity.” It sets forth “a continuous adaptive learning model that instills 21st century Soldier competencies through a learner-centric 2015 learning environment, supported by an adaptive development and delivery infrastructure that enables career-long learning and sustained adaptation.” In short, ALM calls for learner-centric, outcome-based education and training.

To help Army schools understand the initial intent of the learner-centric concept, TRADOC directed that three actions begin immediately. First was a directive for the schools to “convert most classroom experiences into collaborative, problem-solving events led by facilitators (vs. instructors) who engage learners to think and understand the relevance and context of what they learn.” The second action required the schools to “tailor learning to the individual learner’s experience and competence level based on the results of a pre-test/assessment.” Third, the schools were required to “dramatically reduce or eliminate instructor-led slide presentation lectures and begin using a blended learning approach that incorporates virtual and constructive simulations, gaming technology, or other technology-delivered instruction.”

ALM affects development and delivery methods

for all enlisted, warrant officer, and officer training, including initial military training, professional military education, and functional courses. ALM is coordinated through governance bodies such as the Army Learning Coordination Council.

ALM advocates expanding the role of blended learning, which combines face-to-face instruction with on-line learning. By placing more knowledge-based learning into self-paced online modules, time spent in the classroom can focus on more effective training. With more time spent on higher levels of learning, students will graduate with greater knowledge and skills.

Mid-Grade Learning Continuum for 2015

A related initiative by the School of Advanced Leadership and Tactics (SALT) at Fort Leavenworth,

THE APPLICATION OF ALM IS UNIVERSAL
ACROSS THE ARMY, AND NOT ONLY FOR USE
IN THE SCHOOLHOUSE BUT ALSO
IN OPERATIONAL UNITS, WHICH IS WHERE
MOST SUSTAINERS ADD VALUE
TO THE EXECUTION OF THE ARMY’S MISSION.

Kansas, is the officer Mid-Grade Learning Continuum for 2015 (MLC 2015). SALT identified the existence of a training gap for Army officers and recognized that the officer career and education model lacked the leadership training opportunities that exist in the noncommissioned officer developmental model. The officer model includes large gaps of time between the Basic Officer Leader Course (BOLC) for lieutenants, the Captains Career Course (CCC), and Intermediate Level Education for majors.

Using the concept established by ALM, SALT is designing a “tailored, student centered, life-long learning continuum” to shift away from the current resident instruction paradigm. MLC 2015 is establishing a system of resident and self-development opportunities that close the training gap while designating a common core of decisive action skills. The combination of ALM and MLC 2015 will establish a culture of lifelong learning among officers that fosters doctrine-based training using common scenarios, simulations, gaming, and other ALM strategies.

Connecting Soldiers to Digital Apps

Another TRADOC initiative that serves as an enabler for ALM is Connecting Soldiers to Digital Apps

(CSDA). The purpose of this initiative is to improve the ability of the Army to produce technology-enhanced products to support education, training, and job performance. Schools are currently developing the in-house capacity to build more interactive multimedia instruction (IMI), including mobile applications (apps) for use on smart phones and mobile devices.

Army centers of excellence have developed CSDA pilot programs to build expertise in IMI and education technology. The Sustainment Center of Excellence at Fort Lee, Virginia, and related schools are already producing apps and other products that improve how Soldiers are learning and performing their jobs.

Application of the Army Learning Model

Now many sustainers who have read this far may ask, “Why should I continue reading? I noticed the authors are from the Financial Management School, but I am not a financial management Soldier.” Although this article provides a financial management perspective, the application of ALM is universal across the Army, and not only for use in the schoolhouse but also in operational units, which is where most sustainers add value to the execution of the Army’s mission.

The following initiatives are similar to many that the sustainment community, as well as all Army branches, will implement under ALM. Sustainers will begin to notice many of these techniques being implemented in their units, enabling them to conduct more effective training programs.

FMS Army Learning Model Initiatives

The Financial Management School (FMS) at the Soldier Support Institute (SSI) is fully engaged in implementing ALM to improve the quality of Soldiers and leaders who graduate from FMS courses, including resident and distributed learning. With the full support of the SSI command and staff and SSI’s Capabilities Development and Integration Directorate and Training Development Directorate (TDD), FMS pursues its mission to train and educate financial management personnel as a part of the sustainment warfighting function.

One of ALM’s implementing steps is to review all courseware, looking for portions of courses suited for delivery by means of distributed learning (dL). The goal is to shift this training to the unit or the point of need and remove it from resident courseware, thereby reducing the time Soldiers spend in schools away from their operational units. All sustainment schools have conducted the initial review of courseware. FMS will

continue this process to look for even more opportunities to place relevant and timely information in the hands of financial managers and other sustainers.

The pre-assessment is another ALM tool that enables courses to become more learner-centric. Students will

THE FINANCIAL MANAGEMENT COMMUNITY NEEDS THE CAPABILITY TO “TRAIN AS IT FIGHTS.” THE FINANCIAL MANAGEMENT SYSTEMS TRAINING REQUIREMENTS PLATFORM OVERCOMES THIS CRITICAL TRAINING GAP.

get the opportunity to complete a pre-assessment at their home stations before they arrive at scheduled resident training. The results of the pre-assessment will allow facilitators to identify prospective students' current levels of knowledge and experience and use this information to begin shaping the course early. Knowing the areas of precourse knowledge strength and weakness also affords the opportunity to provide dL products to correct knowledge deficiencies and allows facilitators to pair strong and weak students for peer assistance.

Classroom Facilitation Skills

FMS continues to develop the skills of its instructors by ensuring that they receive training in facilitation methods, especially for instructors of professional military education like the CCCs. Facilitators of CCCs use many of the techniques in the experiential learning model (ELM) to enable discussions and enhance peer-to-peer learning. The classroom thus becomes a platform for critical thinking, problem solving, and collaboration.

Instructor-facilitators for courses like advanced individual training (AIT) and BOLC use their skills to facilitate practical exercises and hands-on training. Although AIT students and new lieutenants do not yet have the depth of experience to fully benefit from some ELM methods, skilled facilitators can still enhance their student's learning by ensuring that the training materials they present use multisensory techniques to assist visual, auditory, and hands-on learners. By using practical exercises and group projects, facilitators can ensure that all students participate in “collaborative problem-solving events.”

Access to Financial Management Training

Access to knowledge and learning is a key enabler in ALM. FMS, in collaboration with TDD, has made

courseware available through the SSI Learning Resource Center (LRC). The SSI LRC provides access to the latest adjutant general, financial management, and recruiting and retention training materials.

Updated live within the SSI SharePoint website, these training resources are available to common access card and Army Knowledge Online users for individual, collective, and distributed learning. FMS resident and functional courseware is available, as well as the warfighter training support packages (WTSPs) that support unit operational training. All FMS WTSPs are available to financial management and sustainment units through the Army Training Network.

Interactive Multimedia Instruction and Technology

The military occupational specialty 36B enlisted AIT course at SSI has received TRADOC funding as part of the FMS's CSDA effort, and a pilot study is underway. TDD has developed an in-house capability to enhance courseware with higher-level IMI. By leveraging lessons learned and their success in integrating IMI and mobile technology into the Human Resources Plans and Operations Course for the Adjutant General School, TDD has a jump-start on where to look for CSDA opportunities in the 36B course. Since this pilot is longer and more complex than the Human Resources Plans and Operations Course, TDD and FMS will build even more capability within SSI to incorporate technology-delivered instruction into remaining courseware.

Many of the resources used by financial managers and other sustainers are currently under development for universal access. The newly updated Field Manual (FM) 1-06, Financial Management Operations; other sustainment-related FMs; and Army tactics, techniques, and procedures (ATTPs) are being prepared in Adobe PDF, interactive ePub, and mobile download formats. At SSI, as the Capabilities Development and Integration Directorate revises FMs and ATTPs, TDD is using IMI and mobile technology to provide these publications in multiple formats to enhance learning and improve accessibility through the SSI Digital Library and the LRC.

To reduce legacy-style slide presentation lectures, TDD is incorporating more multisensory media and interactive methods in lesson plans to provide more realistic and robust training materials for the facilitators to use. Some of the enhancements include more problem-based practical exercises that use common scenarios, facilitated discussion, simulation, gaming, and other IMI technology.

Field Training Exercises

In recognition of the importance of capstone, or culminating, training events, FMS is conducting a complete evaluation of its field training exercises (FTXs). FMS conducts its FTXs at SSI's Warrior Training Area at Fort Jackson, which includes a mission simulation center and a tactical training area.

FMS personnel are collaborating with simulations personnel to incorporate the right level of simulations and mission command systems so that Soldiers conducting financial management operations in a field environment will have to use critical thinking and problem solving to adapt to ever-changing situations. By adding complexity and rigor, the FMS exercises will continue to become more realistic, thus producing a level of experience for financial managers that rivals an actual deployment.

Systems Training Requirements Platform

Financial management Soldiers in garrison normally do not coordinate with the full complement of Government organizations that participate in deployed operations. These organizations include the Defense Finance and Accounting Service, U.S. Army Central, the Army Financial Management Command, national providers, FMS, and deployed operational units. Neither do financial management Soldiers train directly on the systems that other organizations own.

The financial management community needs the capability to “train as it fights.” The Financial Management Systems Training Requirements Platform overcomes this critical training gap. This platform is an integrated training database comprising the full suite of financial management applications and U.S. Treasury peripherals. We recently completed development of the database after more than a year of complex coordination led by SSI's Capabilities Development and Integration Directorate.

The training database allows Soldiers to train on the many systems and applications using self-contained training data, either in preparation for deployment or to maintain critical financial management skills to better support sustainment in the Army community. It also allows the FMS, in coordination with TDD, to support ALM directly by designing realistic virtual systems training for use within the school and by operational units.

Virtual Training Environments

The ALM learning and training environment will employ virtual simulation, stimulation, and gaming tools in both institutional and operational applications. FMS, in direct coordination with the Army Financial Management Command, has begun an effort to review training materials and develop opportunities to leverage this virtual training environment to enhance realism

and increase complexity in capstone and predeployment exercises.

From this collaborative effort, financial management leaders expect to develop a training environment that not only can be applied within the traditional “brick and mortar” schoolhouse environment but also can be exported to operational sustainment units for use in both individual and collective training applications.

ALM is changing the way schools educate and train Soldiers. While the specifics of implementing ALM throughout the Army may vary, the objective remains the same: to create “a continuous adaptive learning model that instills 21st century Soldier competencies through a learner-centric 2015 learning environment, supported by an adaptive development and delivery infrastructure that enables career-long learning and sustained adaptation.”

TRADOC Pamphlet 525-8-2 has now codified the doctrine of learning. Not only is ALM changing the way all sustainment and other Army schools train, but it has already affected the way sustainment Soldiers train in their units. Initiatives at the Financial Management School highlight effective implementation of the key tenets of the Army's learner-centric, outcome-based education model.

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The “Second Half” of the Life Cycle

BY LOUIS GORENC

With the expense in time, personnel, and equipment required to refill expended fire suppression system bottles, the author suggests an alternative that should save money and time in replacing fire suppression agent.

In her article, “Sustainment Moves to the Next Level: Rethinking Our Life-Cycle Focus,” in the September–October 2009 issue of *Army Sustainment*, General Ann E. Dunwoody, the commanding general of the Army Materiel Command, stated, “We must now renew our focus on the ‘second half’ of the life cycle—the maintenance, distribution, sustainment, and disposal of equipment.” When I read this, I realized that General Dunwoody’s statement applies to my work in supporting Army ground vehicles’ automatic fire-extinguishing systems (AFES) at the TACOM Life Cycle Management Command Integrated Logistics Support Center’s Tools Group, Fire Suppression System.

While working with the Tank Automotive Research, Development and Engineering Center, program executive offices, and other Department of Defense agencies, I was surprised to learn of the vast numbers of replacement fire extinguishers being used by tens of thousands of mine-resistant, ambush-protected vehicles (MRAPs), high-mobility multipurpose wheeled vehicles (HMMWVs), armored security vehicles, and light and heavy combat vehicles.

Replacing discharged fire suppression system (FSS) bottles, cylinders, and discharge valves has been expensive, costing millions of dollars just to purchase cylinder assemblies. For example, I noticed new procurement orders from various integrated logistics support centers for thousands of FSSs, consisting of the cylinder, discharge valves, and extinguisher agents (which made up the bottle and cylinder assemblies), at an average cost of \$1,500 per unit, with some priced at more than \$3,000 each.

Proper management of the second half of the life cycle, which includes maintenance, distribution, sustainment, and disposal, is essential to FSS equipment and support items.

Diverse FSS Assemblies

Currently, more than 20 major groups of vehicle platforms use AFESs. These include heavy combat, light combat, MRAP, light tactical, and heavy tactical vehicles. All have FSSs with single or multiple cylinder assemblies that use from one to eight discharge cylinder assemblies.



This currently used rechargeable bottle assembly weighs 28 pounds and carries 7 pounds of extinguishing agent. A lighter, single-use, disposable, plug-and-play extinguisher will replace this bottle.

Several different agents are used for different areas of a vehicle. The vehicle’s engine compartment FSS might use a different agent from that of the crew area, which could be different from that of a fuel tank or tire FSS. For example, the M88-series has eight bottle assemblies using carbon

dioxide as the agent, while the up-armored HMMWV has three bottles using HFC227, with sodium bicarbonate powder to neutralize the acidity of the agent and prevent mucous membrane irritation for the crew.

AFES equipment is produced by several different original equipment manufacturers (OEMs). This adds to the mix of variables for different engineering designs using different agents, different capacity bottles, different valves, and different control modules and sensors within a vehicle’s FSS.

It is costly to train personnel to troubleshoot and repair the many different OEM systems. Replacing discharged bottles and refilling empty bottles for reuse or disposing of empty bottles and purchasing new ones is very expensive. A vehicle without an operating AFES must be deadlined, possibly forcing the crew to use a vehicle with less armor or less FSS protection to continue their mission. A better solution must be found.

FSS Agent Replacement Issues

Three years ago, with so many new MRAPs and up-armored HMMWVs being built and quickly pressed into theater service, the Army was regularly replacing AFES bottles because of errant discharges, operator errors, and engineering design flaws. Platform item managers were purchasing from new OEMs at an unbelievable rate.

The average weight of a filled bottle assembly was approximately 40 pounds. The shipping costs of 3,000 to 4,000 bottles from the continental United States to the U.S. Central Command was millions of dollars, and the lag time for shipping was considerable.

The Army soon had private contractors refilling some bottle assemblies in theater, which also cost millions of dollars. The serviceable bottle assemblies that were not refilled were tossed in the scrap heap or stored by the thousands at retrograde yards in Southwest Asia. Certain bottle assemblies needed rebuilt discharge valves at a cost of approximately \$400 each, plus the cost of shipping the assemblies to the OEM in the continental United States. The turnaround time was months. Gradually, a better and faster refilling service was developed, but new bottle assembly procurement continued.

FSS Bottle Assembly Logistics Footprint

The replacement procedures for a discharged bottle assembly are very specific. Remove the discharged bottle assembly from the vehicle. Install a new replacement bottle assembly. Transport the discharged bottle assembly back to a collection point or refill station for turn-in, or destroy the bottle to make it unavailable for other uses. Obtain another bottle assembly.

Beyond the cost of the bottles themselves is the cost of handling them. If the discharged bottle assembly goes to a refill station, it must be transported there by personnel. At the refill station, the bottle assembly is serviced by at least two trained individuals in a building with utilities, reclaiming and refilling agent equipment, and test equipment. A storage area is needed for discharged and refilled bottle assemblies.

If the bottle assembly is transported back to an Army supply unit for exchange, supply personnel are needed along with a building equipped with utilities, storage space, and equipment for disposal or refilling and packaging.

Sustainment and Disposal

The FSS sustainment process is long, complicated, expensive, and convoluted, with much unnecessary handling by many individuals. After a designated number of years in service, bottles or cylinders must be hydrostatically tested by a Department of Transportation-certified testing facility. This testing ensures that the bottle is structurally safe to use with high pressure agents.

The disposal of FSS bottle assemblies currently requires total control of the empty forged or deep-pressed bottles or cylinders. Most current bottles and cylinders are made from 3/8-inch-thick steel weighing approximately 20 pounds that can withstand up to 1,800 pounds of pressure per square inch. To demilitarize a bottle, it must be cut into pieces with a power saw or with an oxygen acetylene torch to render it safe. It cannot be crushed because of its wall strength, but it may be buried deep enough to make it unrecoverable, or it can be exploded.

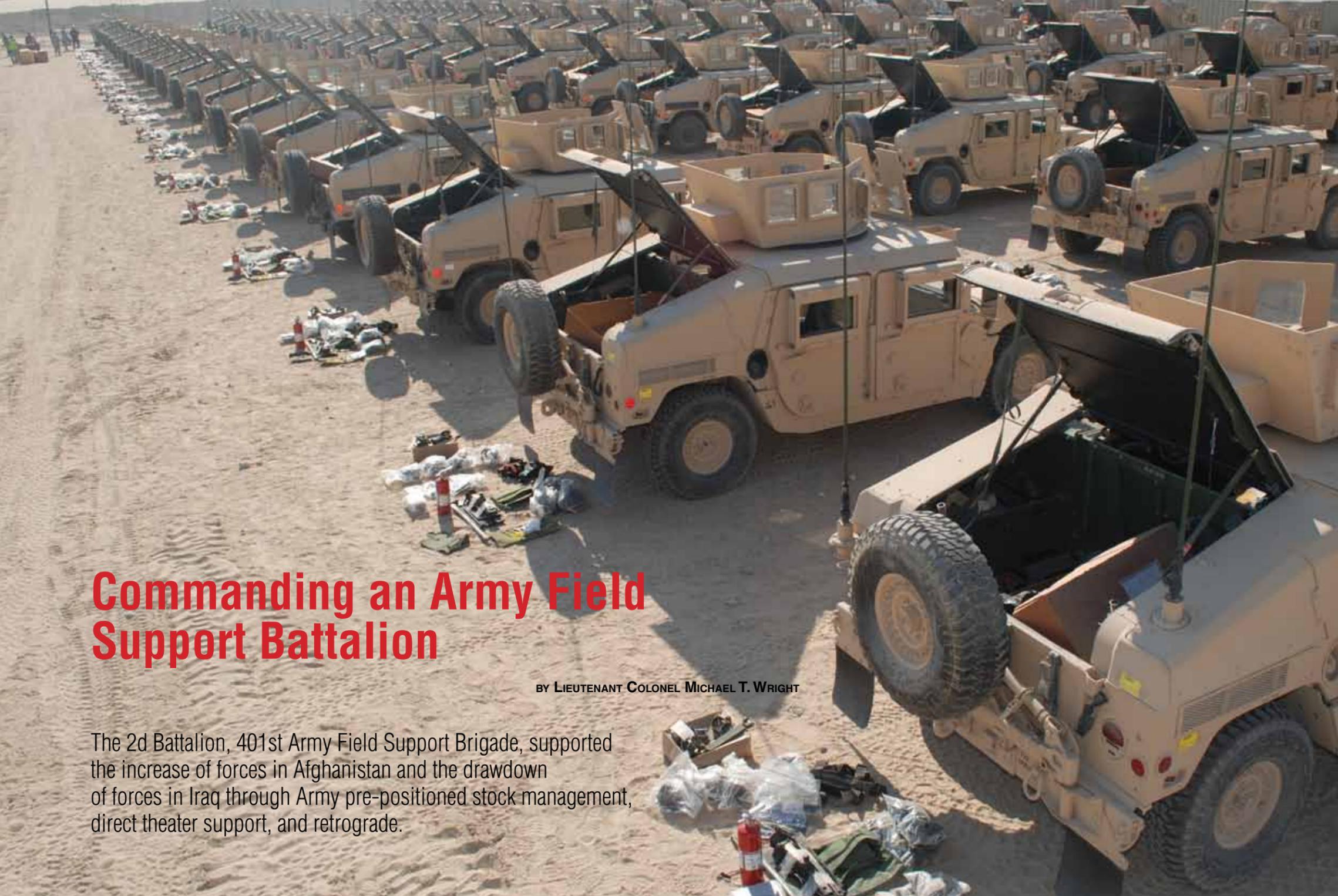
Second Half of the Life Cycle Alternatives

The alternative to the large logistics footprint might be the disposable fire suppression bottle assembly—a plug-and-play assembly as a direct replacement for the refillable bottle assemblies now in use. A disposable plug-and-play assembly would have the same physical dimensions, electrical connections, discharge flow volume, and discharge flow time as the current system. Constructed of high tensile-strength, thin (1/8-inch), stainless steel with a lightweight valve, the bottle weighs 50 percent less than a forged or deep-pressed steel bottle or cylinder. Since the valve would be used once, it could be constructed of a high-strength plastic or carbon fiber or fiberglass material. The valve would have a diaphragm disk punctured by a small squib device, allowing the complete, instantaneous discharge of the agent. A vehicle using three replacement disposable bottles instead of refillable bottles would reduce the total FSS weight by approximately 45 pounds, allowing for more water, ammunition, or other gear to be carried.

Using this disposable bottle or cylinder would eliminate the need for personnel to refill and recharge bottles, training for those personnel, a refilling or recharging facility, utilities, refilling equipment, recharging agents, and shipping discharged bottles and cylinders back to and from a refill station.

General Dunwoody’s insightful statement, “We must now renew our focus on the ‘second half’ of the life cycle—the maintenance, distribution, sustainment, and disposal of equipment,” should apply to one-use disposable FSSs. They are the future.

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High-mobility multipurpose wheeled vehicles prepared and stored by the 2d Battalion, 401st Army Field Support Brigade, stand ready at Camp Arifjan, Kuwait. (Photo by Galen Putnam, 402d AFSB Public Affairs)

Commanding an Army Field Support Battalion

BY LIEUTENANT COLONEL MICHAEL T. WRIGHT

The 2d Battalion, 401st Army Field Support Brigade, supported the increase of forces in Afghanistan and the drawdown of forces in Iraq through Army pre-positioned stock management, direct theater support, and retrograde.

While assigned as the professor of military science at Gannon University, I received the call to command the 2d Battalion, 401st Army Field Support Brigade (AFSB), also known as the 2-401 Army Field Support Battalion (AFSBn), at Camp Arifjan, Kuwait. I was informed that this unit was pivotal to the Army's success in supporting two theaters of operations, was a key strategic asset, and would be executing an integral role in support of two Presidential directives:

Operation Enduring Freedom (OEF) Build I and II and the responsible drawdown of forces in Iraq.

Although leading and mentoring future Army leaders as a professor of military science was extremely rewarding, I could not turn down the opportunity to command a unit whose mission contributions would make history. Two years later, as I said good-bye to this exceptional unit and relinquished command, it seemed very appropriate to provide others with the knowledge I had gained

about AFSB missions, the challenges faced, the lessons learned, and the highlights experienced during this critical time in history.

2-401 AFSBn Missions

Many Soldiers and Department of the Army (DA) civilians are unfamiliar with AFSBn missions. I actually had to look up the definition of an AFSBn before taking command. I later found that was a common procedure

for incoming 2-401 AFSBn Soldiers and DA civilians. As I began to understand the 2-401 AFSBn's missions, it became increasingly clear why the battalion was tagged as the "Logistical Tip of the Spear."

The AFSBn is many things, but its primary role is serving as the face of the Army Materiel Command in the Southwest Asia joint operations area. The unit synchronizes and integrates the activities and capabilities of program managers, life cycle management commands, and sustainment support organizations and places the entire Materiel Enterprise at the service of Soldiers. In short, it forms the wholesale logistics link to retail logistics systems for key classes of supply.

In my experience, most Army units are standardized, but few AFSBns are uniform in appearance and mission. The 2-401 AFSBn is no exception, since numerous unique and critical missions clearly set it apart. The 2-401 AFSBn supports the Army at the tactical, operational, and strategic levels. This is evident in the battalion's role in two Presidential directives at the operational and tactical levels that directly supported the Nation's wartime missions in Afghanistan and Iraq. The battalion executes as many as 35 supporting missions, but Army prepositioned stocks 5 (APS-5) management is the battalion's enduring mission and direct theater support (DTS) and retrograde form the key missions in support of Operation Iraqi Freedom (OIF), Operation New Dawn, and OEF.

APS-5. The battalion is responsible for the care, maintenance, and ready-for-issue status of APS-5, a key strategic asset in a strategically significant theater postured to engage in many potential missions. The battalion's APS-5 mission is inextricably linked to the defense of Kuwait and contingencies that may arise in the joint operations area. APS-5 currently consists of the enduring heavy brigade combat team (HBCT) equipment set, an infantry brigade combat team (IBCT) set (an operational set), and motorized options for both.

The APS-5 mission also includes a mine-resistant ambush-protected vehicle (MRAP) modernization program and the Watercraft Equipment Site-Kuwait at the Kuwait Naval Base, which has a full complement of Army boats and a causeway system. The materiel is forward-maintained and postured for hasty issue to a rapidly deploying unit in support of threats to Kuwait or other theater contingencies.

DTS. DTS is an ongoing mission that includes the sourcing, maintaining, and shipping of rolling and nonrolling stock. The mission largely supports tactical needs, but it also supports many operational needs. The



Soldiers from a receiving unit work with Soldiers and civilian employees of the 2d Battalion, 401st Army Field Support Brigade, to complete basic issue item inventories during Exercise Friendship II at Camp Arifjan, Kuwait. (Photo by Galen Putnam, 402d AFSB Public Affairs)

Phases III and IV saw a large surge of equipment. The vast majority of this equipment was retrograded directly back to a source of repair at the life cycle management commands' depots, such as Anniston Army Depot, Alabama; Sierra Army Depot, California; and Red River Army Depot, Texas, in support of the ARFORGEN effort. All of the equipment was linked to that effort through the battalion's inventory, tracking, and shipping systems.

Contract Support

To accomplish these missions, the battalion employs more than 4,500 contract personnel. Oversight of this contract activity is provided by 47 Government personnel (36 by table of distribution and allowances), including Soldiers and DA civilians, augmented by a small contract staff. This performance-based contract is valued at more than \$240 million, with a property book totaling more than \$5 billion of equipment maintained in the wholesale system.

As one can imagine, commanding a mission of this magnitude with a 98-percent contracted workforce and a 2-percent Government oversight workforce presented many challenges, but it also provided the opportunity to find inventive ways to achieve mission success.

One challenge the battalion experienced was a total change in the contract, which was announced in early 2009 but not finalized until February 2010, resulting in a contract transition during a peak in the operating tempo of all three of the battalion's missions. The incumbent contractor won the bid, but the contract was radically altered from the previous one.

The contract workforce presented the most serious problems because of a significant workforce reduction and change in composition. Although the missions had not changed, the workforce was reduced by two-thirds from the previous contract and the workforce composition was changed to a largely third-country-national workforce. Language barriers and cultural differences added to the challenges of the substantial overall personnel reduction and resulted in a significant struggle to maintain and manage missions.

As the mission demands and the operating tempo increased, the contract transitioned from having more than 3,200 contractors in April 2010 to having only 1,200 at the end of May. The reduction was compounded by a large workforce strike caused by pay and work-hour disputes and was followed by a severe shortage of transpor-

tation personnel to move retrograde materiel and equipment. Soldiers were brought in to overcome the shortfall and maintain the mission timelines.

The Government's oversight mission was critical and ensured that solutions to mission concerns were identified. On numerous occasions, the contractor teamed up with its Government counterparts to develop and implement mutual solutions.

During this same period, we had trouble completing the APS maintenance mission because of a lack of contracted mechanics and a lack of Soldiers to fill in for those mechanics. The result was a significant effort of accountability to correct the shortfall and get the mission back on track.

Administrative Challenges

Competing demands were also a significant challenge for the battalion. The battalion struggled to meet information requirements, short suspenses, personnel turnover, and competing requirements from multiple chains of command.

The battalion is administratively controlled and has its formal chain of command under the 402d AFSB and the Army Sustainment Command. The battalion was initially under the 401st AFSB but was attached to the 402d in November 2009. The 402d AFSB has one headquarters, but during the deployment it was split between two locations: Iraq and Kuwait. The 2-401 AFSBn was also operationally controlled by U.S. Army Central and

tactically controlled by the 1st Sustainment Command (Theater).

Navigating through the multiple command associations and the resulting demands required tremendous efforts to balance mission requirements, ensure clear information flow, understand requirements, manage expectations, educate others about the battalion's processes, and maintain overall satisfaction of demands and missions.

Lessons Learned

Contractual issues can be mitigated in the early stages by receiving timely input from the people most directly affected. Applying on-scene maintenance, supply, and transportation expertise to the development and review of proposals will pay dividends. Strong Government oversight must be resourced during contract transitions and should be synchronized as closely as possible with the operating tempo.

Government personnel and contractors ultimately have to execute critical, time-sensitive, and Soldier-focused missions. Mission execution is best accomplished with a team effort between the Government and the contract team; an "us versus them" attitude significantly impairs mission accomplishment.

Multiple chains of command and competing demands require an adept balancing act, solid support from top military officers, and quality staffing from the immediate chain of command. A clear understanding of priorities, processes, and intent must be coupled with the confi-

A mine-resistant ambush-protected vehicle rolls aboard a transport ship, ready for a new mission.



DTS mission provides equipment for multiple locations throughout the theater and beyond, including Bahrain, Sinai, Jordan, and Djibouti, to name a few. The bulk of the battalion's DTS activity is directed toward Iraq and Afghanistan.

Retrograde. Retrograde is a function that supports Army Force Generation (ARFORGEN) at the strategic level, but it also supports the operational level as a key sourcing tool for DTS and APS. The retrograde mission consisted of five phases covering OIF and Operation New Dawn. Phases I and II saw a steady stream of retrograded equipment arriving from Iraq; this equipment went on to support a large portion of the first and second OEF troop increases.

Retrograde also supported many other theater requirements, including foreign military sales, the U.S. equipment transfer to Iraq, and the replacement of APS equipment issued or otherwise diverted from stocks. This retrograded equipment flowed through a number of repair efforts, such as the Theater-Provided Equipment Refurbishment Program, the Joint Program Office MRAP sustainment facility, and the battalion's theater maintenance facility.



A Soldier inventories basic issue items before signing for a high-mobility multipurpose wheeled vehicle from the 2d Battalion, 401st Army Field Support Brigade, during Exercise Friendship II at Camp Arifjan, Kuwait. (Photo by Galen Putnam, 402d AFSB Public Affairs)

dence to execute and command within the commander's intent.

Highlights of the Command

During OEF Build I and II, the battalion repaired, processed, and provided more than 63,251 pieces of rolling and nonrolling stock in support of DTS and, ultimately, the Soldier. Of significant note was the sourcing, maintenance, and shipment of more than 6,000 vehicles—more than 50 percent of the class VII (major end items) rolling stock required—for OEF Build I and II, which increased troop strength by 30,000 and 20,000 Soldiers respectively. This was done in a very compressed 6-month timeframe and included building the equipment into combat systems with key enablers and the latest armor upgrades.

During the responsible drawdown and conclusion of OIF, 11 percent of the DTS equipment came from the retrograde process, including the sourcing of requirements in Kuwait, such as APS and local unit requirements. The remaining 152,980 pieces of equipment were processed from Phases II and III to the continental United States in support of ARFORGEN.

At the end of Phase III, through Phase IV, and into Phase V, retrograde rolling stock flowed at an average of 2,200 pieces a month as the equipment surged out of Iraq to meet the required 50,000-Soldier reduction in force by September 2010. Nonrolling stock totaled more than 126,827 pieces retrograded, and rolling stock totaled more than 44,702 pieces. More than 18,549 pieces of retrograded equipment were used in support of DTS requirements.

The HBCTs began a complete reconstitution starting in October 2008. By March 2010, nearly 100 percent of the equipment was processed and linked as combat systems in the HBCTs. In the meantime, new equipment destined for the HBCT and IBCT reconstitution was diverted to support OEF. Retrograde assets, including rolling and nonrolling stock, compensated for most of those diverted assets.

The shortfalls in both brigade combat team equipment sets resulting from OEF support were filled, and the sets had the required enablers and armor upgrades to meet theater requirements. Watercraft reached 100 percent of

its required fleet, complete with a number of boats issued to units. Finally, the entire APS fleet received MRAP vehicles. The MRAPs—more than 900 vehicles of every variant—came from an aggressive retrograde effort and support from Afghanistan.

Every mission has its own challenges, lessons learned, and highlights. Although the obstacles sometimes appeared insurmountable, I consider the opportunity and journey of commanding this exceptional battalion a professional gift that I will continue to draw from many years from now.

From the first day of command, the size and scope of the operation—spread across multiple sites in Kuwait, with a footprint encompassing 264 acres, 30 facilities, and a high of 4,700 personnel—was daunting. The historic significance of each mission and the subsequent weight of responsibility were immensely satisfying. The unique opportunity to be a pivotal component of both Nickel II, which was the largest logistics operation since World War II, and the massive short-term equipment push to meet the OEF build of forces, all while reconstituting a key strategic asset, was not only satisfying; it was an honor.

Although I was rarely able to interact with Soldiers directly, many stories of equipment that saved lives and the Soldiers' expressions of gratitude for the equipment's key role in their safe return home provided the greatest rewards. The 2-401 AFSBn's impact on our Army's Soldiers and historic missions made serving at the Logistical Tip of the Spear the richest, most valuable professional experience the Army has offered me thus far and one that I will never forget.

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Improving In-Theater Maintenance for the Bundeswehr

BY COLONEL GERALD FUNKE, GERMAN AIR FORCE

The German Federal Defense Force faces many maintenance issues that are similar to those faced by U.S. forces. The author offers a possible solution to maintaining newly fielded equipment for which military mechanics have not received training and technical manuals have not been published.

Even though a final evaluation still needs to be conducted on the implications, particularly for maintenance, of establishing the Joint Support Service (Streitkräftebasis) in the German Bundeswehr (Federal Defense Force), a broad range of insight can be gained from past years' deployment operations. The phrases "train as you fight" and "think operational" are often used with utter conviction, but whether they have been appropriately implemented in all facets is doubtful.

This article aims at drawing possible conclusions for maintenance from an operational point of view, based on accounts of the current conditions in various theaters of operations, with special emphasis on Afghanistan as the current, most complex, and most diverse mission. This will hopefully become a stimulant for evolving concepts, starting with the operational level but also including other levels and areas of responsibility. The focus lies on ground-based systems, which currently constitute the backbone of missions.

It would be a mistake to consider the situation in Afghanistan, where Germany is the third largest International Security Assistance Force troop contributor, as a blueprint for all future conflicts and thus the sole yard-



German military mechanics change the engine of an armored infantry fighting vehicle at a provincial reconstruction team logistics base in Afghanistan.

stick for the further development of the German forces. However, the experience gathered in Afghanistan is unquestionably a valuable indicator in the evaluation of current military maintenance capabilities and shortfalls and their far-reaching implications for how to organize maintenance assets in a combat environment.

Situation in Afghanistan

Thinking about Afghanistan brings to mind the various factors that place both man and machine under



Construction work is conducted as part of the ongoing upgrade of this main vehicle maintenance facility, which houses work pits and vehicle shelters at an operating base in Afghanistan.

extremely arduous conditions. The rather poor infrastructure (according to western standards), extreme and vastly fluctuating temperatures, and the fine dust that forces its way through the smallest gaps in equipment subject deployed materiel to maximum stress and accelerate degradation. For some vehicle types, the maintenance effort in theater is twice as high as it is in Germany. Repairs often have to be carried out under adverse working conditions since fully equipped maintenance halls with workshop pits and overhead cranes are seldom available.

Because of combat activities, which have significantly increased since 2008, maintenance units are faced with new damage patterns. An extended presence throughout the area, such as in a forward operating base (FOB), creates new challenges and requirements. For example, the need will increase for battle-damage repair to restore at least limited operational capability, as will the level of workmanship required from military maintenance personnel.

Another indicator of the complex maintenance challenge in theater is the approximately 1,300 armored vehicles of roughly 125 types and modifications that are currently deployed in Afghanistan. Just imagine the different qualifications of maintenance personnel and diverse toolkits required to maintain the various vehicles.

Equipment Standardization

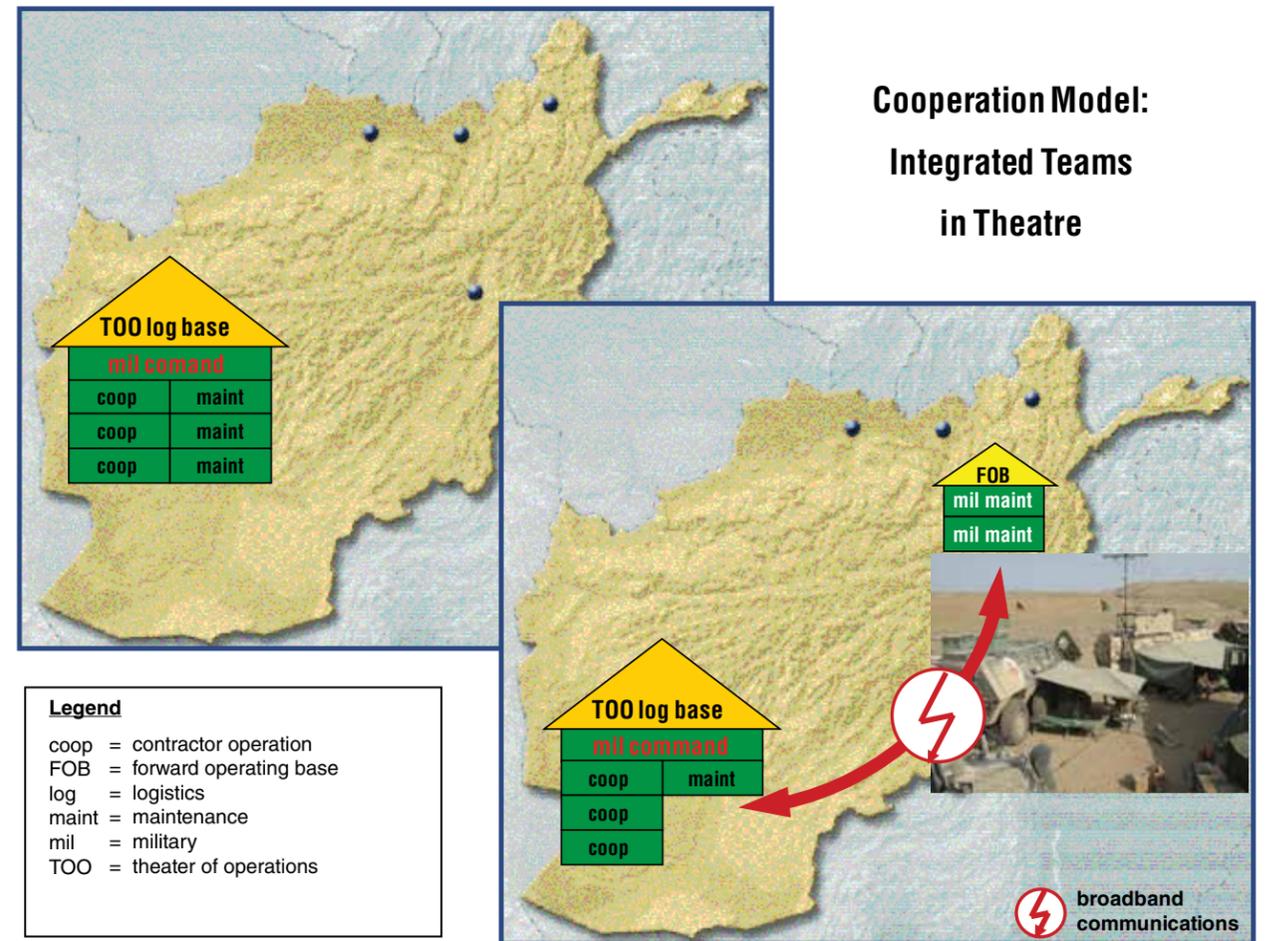
To alleviate this situation, the call to standardize equipment is understandable from a technical and logistics point of view. However, the reality of operations has given rise to a vast number of specialized and individualized equipment designed to best meet the

different operational requirements, and providing maximum protection for deployed Soldiers is paramount.

Fully operationally ready and logistically supportable defense materiel has proved useful in peacetime Bundeswehr operations. This is even more vital for deployed operations. However, the operational reality has shown that, especially for longer missions, soldiers often need new, or at least modified, equipment that is more suitable for the combat situation. This results in immediate fielding of equipment without waiting for logistics supportability to be established in a lengthy, mostly cumbersome process. Fielding operationally ready and logistically supportable materiel would not only require the establishment and availability of an entire set of documentation, stocks of spare parts, the associated workflow, and all necessary special tools, but it would also call for extensive training of military maintenance personnel.

Quickly Fielded Items

Quickly fielding recently developed vehicles to the troops is part of the operational reality in Afghanistan. Logistics supportability by military personnel thus always lags behind, which makes support by civilian industry, however temporary, indispensable. Enhancing and preserving military technical knowledge is complicated by the very dynamic technological innovation process in the civilian sector, which affects military goods but does not necessarily contribute to durability and simplicity in operations. This oversophistication is also the reason for the increasing number of different equipment configurations within the forces and makes it even more difficult to establish full operational readiness and logistics support.



Cooperation Model: Integrated Teams in Theatre

The chart illustrates how the civilian/military theater of operations logistics base can provide maintenance support to a forward operating base.

Another problem is that delivered preproduction models or initial batches often require subsequent upgrades in several steps until full operational readiness has been established. With the proven instrument of urgent operational requirement, materiel can be purchased off the shelf within 12 months. However, complete operational readiness often must be established subsequently. This kind of materiel faces the same technology and logistics challenges as preproduction models or initial-batch items.

From a budgetary point of view, it would make little sense to establish full logistics supportability for preproduction models or initial-batch items. The same applies to the rapidly changing number of different configurations, such as the increasing integration of electronic components in vehicles. Given these conditions, resorting to civilian industry, at least temporarily, seems mandatory.

Furthermore, the increasing restriction to military core capabilities, as is the case with routine duty in the German homeland, increases dependence on industrial support and eventually diminishes technical expertise

within the forces. This widens the gap in military capabilities desperately needed for operations abroad.

Civilian Maintenance Services

In recent years, the Afghanistan mission has seen a continuous increase in the number of contracts awarded to civilian maintenance services. The number of armored vehicles in the German International Security Assistance Force contingent has more than doubled in the last 4 years, and the amount of contracted services has almost quadrupled in the same period. This undermines all efforts to save maintenance funds. Alternative measures can hardly be taken in the short term since a shift toward military capacities is impossible at present. This is mainly due to mandated personnel ceilings and the lack of logistics supportability.

The present division of competencies between the military user and the civilian supplier and the distribution of materiel management responsibilities among several users often cause additional delays in establishing operational readiness and logistics support. The capability approach, as the underlying concept of cus-



At this typical logistics base in Afghanistan, civilian- and military-run maintenance and supply facilities are located next to each other.

tomor product management (the German procurement process for military equipment), has still not been fully implemented as competencies within a system have been split up without assigning an overall system manager (in-service manager) with full executive authority.

Partial reliance on civilian support for new equipment in theater is indispensable not just because full logistics support has not yet been achieved but also because of the limits to the military logistics footprint in theater. Use of company know-how in theater not only requires the services of civilian mechanics but also company documentation, test equipment, special toolkits, and company-owned spare parts and exchange parts. Already in Afghanistan today, more than a dozen civilian contractors with 1 to 30 employees are working in the field of maintenance.

On the other hand, particularly during highly intense military operations, mobile operations, or operations from a FOB, extensive military capabilities are cru-

cial. It is often on these occasions that equipment that was procured on short notice and fielded for a specific purpose is employed even though logistics support had not yet been planned.

Development Perspectives

If the described situations are accepted as unalterable realities, the question arises: Which creative possibilities are left to make a “virtue out of necessity” and shape reality with a goal of satisfying military requirements?

Industry has an interest in cooperating with deployed forces, and it can recruit enough civilians willing to work in an environment of “limited but defined security,” as is the case in a theater of operations logistics base. Working in field conditions, even on a FOB, is not an option for either civilian employees or the troops who would be responsible for the safety and security of the civilians.

Civilian contractors work on armored vehicles in Afghanistan.

This leaves only military personnel to provide maintenance on a FOB, although they might not be fully qualified to work on newly introduced equipment. On the other hand, operations that are conducted outside of a FOB involve increased maintenance efforts since the materiel is often stressed to its limits. Under such conditions, it is imperative to establish broadband communications between the civilian experts available at the theater of operations logistics base and the military maintenance personnel located at a FOB.

Most military maintenance personnel have general technical knowledge of certain equipment but often have not been trained on the particulars of special versions of the equipment. It should be possible for the military mechanics to consult civilian experts online in order to conduct a damage assessment or damage control under field conditions or, in a best-case scenario, conduct damage repair. Depending on the particular operational scenario, even damage assessment and damage control might be sufficient to return a vehicle to defined and limited operations.

Military and Civilian Maintenance Teams

More flexible options for employing civilian mechanics in a theater of operations logistics base seem conducive to further developing effective cooperation between civilian and military maintenance personnel in theater. Adjusting contracting practices (for example, discontinuing special service contracts tied to special vehicle types or tasks in favor of open-ended repair contracts for on-site repair abroad) in order to consolidate the tasking and management of all maintenance personnel present under a single military lead would be a possibility.

This would allow level-2 maintenance and repair to be provided by integrated civilian and military teams. Technical know-how would be exchanged automatically on site between civilian and military personnel. Even before deployment, this could partly compensate for deficits on the military side caused by a lack of central training.

For an upcoming mobile deployment from a FOB, the military maintenance personnel could be detached from an integrated team and moved to the FOB. If necessary, the military team members at the FOB could obtain help from the civilian team members using video and electronic diagnostics.

In contrast to the current situation, if increasing threat levels required a withdrawal of civilian employees, much better military fallback positions for dealing with new vehicle types could be established through integrated teams. In those cases, at least limited operability



of new vehicles could be ensured, even under adverse conditions, through modern communications between team members in the home country and in theater.

The German Army School of Land Systems Engineering and Army School of Engineering is pursuing the ongoing development of information and communication relations between the theater of operations and the home country. It will be crucial to start with an 80-percent solution and allow iterative development to be based on real-life experience gained in the field. Striving for absolute perfection in the conceptual stage, as too often is the case, is detrimental to improving the capabilities of the units in the field.

Close cooperation in theater can offer industry new opportunities to gain new insights and knowledge, which may subsequently be incorporated in the further development of existing or entirely new products and thus contribute to commercial success.

It will be important to systematically place the focus on mission-related efficiency when planning future capabilities and structures. A credible limitation to logistics core capabilities must be thoroughly considered and, from the very beginning of conceptual planning, include military fallback positions for extreme conditions. One key to success when contracting civilian services is intelligent and cooperative conditions that also clearly take into account military requirements.

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A-TCOP: Clearing the Fog

BY BRANDON J. DAUPHINAIS

The ARCENT–Theater Common Operating Picture integrates logistics data from multiple sources and provides metric insights, leading to better, faster, and more relevant decisions.

Throughout history, Soldiers have had to overcome harsh weather conditions while fighting for victory on the battlefield. To succeed, armies have had to adapt to and overcome the obstacles in their way, including heavy rain, thick fog, sandstorms, and hail. Yet, the physical battlefield is not the only terrain with obstacles to overcome.

In his article entitled “Clausewitz’s Theories of Fog and Friction of War: Are they Obsolete in the Realities of the Computer Age?” in the November–December 2010 issue of *Armor*, Major Aaron B. Dixon stated, “Cyberspace contains its own virtual weather system.” By extension, the “weather system” of the electronic battlefield has its own harsh conditions.

Layers of the Fog

U.S. Army Central (ARCENT) experienced the “weather” elements of the electronic battlefield when it tried to create a consolidated, timely, and accurate picture of logistics operations in a theater common operating picture. It faced numerous problems that collectively created a digital “fog” that obscured and reduced logistics operations visibility in theater. The three primary issues that limited visibility were information gaps among tactical and strategic levels, inefficiencies with manually generated data, and breakdowns in reporting.

The first layer of the fog was the information gap between the tactical and strategic levels of command. At higher level commands, the products and reports needed for maintaining visibility of logistics actions on the ground required that the data pulled from a number of automated systems and manual sources be received in a specific format. Inevitably, many of the data sources did not provide data in the correct format, and an ad-hoc process (either manual or automated) had to be created to bridge the format issue between the two levels. This slowed down the higher level command’s ability to integrate the data it needed for visibility of operations under its command.

The next layer of fog that ARCENT faced was the inefficiencies with manually generated logistics reports. Part of the tactical-to-strategic logistics reporting gap was based on the fact that tactical-level groups often

generated their reports using manual processes. The tactical-level commands’ manual data products were delivered by email in the form of Microsoft Excel spreadsheets or PowerPoint presentations.

Furthermore, gathering the data from the tactical-level commands, each with its own unique format that could change over time, created a dampening effect on the desire to share or aggregate data, thus making the task of pulling this information together very difficult.

Another issue with the manually generated reports was that these data products were rarely centrally archived for future analysis; consequently, researching and analyzing the data for an immediate need was highly problematic, if not impossible. The lack of a central data archive reduced the ability of the command staff to establish trends and patterns for the data because the only archive, if one existed, was on an individual’s computer and not in a location accessible by higher commands.

The final layer in the fog that reduced logistics operations visibility was breakdowns in reporting. Reporting periods were not synchronized across all the data sources, thus causing issues with data from one source becoming out of date before related data from other sources were submitted. This was further complicated by the fact that many of the data sources did not have validation procedures to ensure data quality, resulting in incomplete or inconsistent data. Therefore, additional time and effort were needed for data integration, which delayed critical command decisions and affected the Army’s ability to sustain the fight.

Clearing the Fog

To overcome these three problems and disperse the fog created by inconsistent and untimely data, ARCENT’s G-4 Logistics Automation Branch created the ARCENT–Theater Common Operating Picture (A-TCOP). Using a proven business intelligence model, this system addresses the problems affecting the command’s ability to see the logistics picture within theater by integrating data, closing the information gap between the tactical and strategic levels, and enabling rapid implementation of business processes.

One of the primary ways A-TCOP overcomes the is-

issues facing ARCENT is by using data located in multiple authoritative data systems of record and combining them with numerous manually fed data sources located on both classified and unclassified networks. The data integrated from the manually fed sources are validated by comparing them with authoritative source records, thereby providing a snapshot of the logistics TCOP. The integration of Standard Army Management Information System (STAMIS) data with the manually generated tactical information increases the usefulness of STAMIS information. Discrepancies in reporting can be found through the automated comparison of data from multiple sources.

The integration of the data into one system also allows for complex analyses of the various systems’ data. This provides an opportunity for complete logistics information snapshots that were previously unavailable elsewhere.

A-TCOP further disperses the fog by eliminating the information gap between the tactical and strategic levels. As a result of the data integration, high-level commands now gain drill-down capability with the consolidated data made available within A-TCOP. This allows them not only to have a high-level view but also to dig down to the root of the problem should an issue be identified.

By seeing logistics information from lower echelons, strategic commands are empowered to create more accurate predictive analyses and improve their ability to support Soldiers. By serving as the sole data reporting terminal, A-TCOP also ensures that command decisions are consistent and not based on contradictory information. (Data are verified and synchronized after being compiled from the various sources.)

Finally, A-TCOP enables the rapid implementation of business processes. As an analytical tool, A-TCOP can quickly evolve with Army and theater operation policies as they change. Changes to business processes and rules are applied directly upon implementation to A-TCOP’s business model, and the effects are seen immediately by the personnel accessing A-TCOP. This eliminates downtime between command decisions and operation execution and allows the command group to rapidly adapt their business processes to the evolving logistics operations situation in theater.

An added benefit is that, because A-TCOP captures the business process rules, it ensures that they are not lost in the transitions of troop rotations. Prior to their deployments, personnel rotating into theater can review, on both secure and unsecure networks, the theater operations applicable to their upcoming duties, and they can quickly integrate themselves into theater operations once deployed.

Business Intelligence

A-TCOP brings the power of business intelligence to bear on the many data sources being used in order

to show a clearer picture of what the data represent. Logistics data sources typically include national data resources, such as the Logistics Information Warehouse, Army War Reserve Deployment System, Worldwide Port System, and Intra-Theater Airlift Request System. Authoritative agents of business processes that do not currently have an automated system may generate their own “homegrown,” nonstandard repository of data using common office automation tools like Microsoft Excel and Access and include that database in the A-TCOP data warehouse.

ARCENT first built a data warehouse by aggregating the Task Force Organization and Property Book Unit Supply Enhanced data sources with manually entered information. The data sources are woven together by establishing relationships that would logically link them. This process uses business intelligence to apply appropriate business rules to construct a congruent, understandable dataset. As data sources are identified, they can be incorporated into the model in the same fashion. This approach supports an ever-expanding and constantly improving business intelligence model.

A-TCOP improves logistics operations by providing metric insights that lead to better, faster, and more relevant decisions and provide capabilities for advanced analysis, self-service reporting, end-user analysis, and performance management at the strategic, tactical, and operational levels.

By providing visibility of resources and equipment in theater, A-TCOP has enabled the decisionmakers at ARCENT and throughout the Afghanistan Combined Joint Operations Area to get Soldiers what they need. A-TCOP has cleared the fog created by stovepiped systems and a lack of visibility across theater by giving clarity to requirements, sourcing options, and equipment losses. These changes enabled ARCENT to more effectively execute the drawdown in Iraq as part of Operation New Dawn.

With these accomplishments, A-TCOP gives the Army the ability to see through the fog and maintain visibility of logistics in the middle of the fight. That ability can often mean the difference between success and failure.

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The New Spice Route for Africa

BY LIEUTENANT COLONEL DAVID L. CORRICK, USAFR



Commercial trucking has been used sporadically over the years by the Department of Defense (DOD) in East Africa without a comprehensive plan. However, because of short timelines and a lack of standardized processes for surface movement, airlift remains the predominant means of delivering supplies to units dispersed in the Horn of Africa (HOA).

The New Spice Route team, which includes the Combined Joint Task Force–Horn of Africa (CJTF–HOA), U.S. Africa Command (AFRICOM), U.S. Army Africa (USARAF), U.S. Naval Forces Africa, and the Military Surface Deployment and Distribution Command (SDDC), seeks to change that. Led by the CJTF–HOA J–4, the New Spice Route team matches all DOD shippers with the right commercially contracted capability through the expertise of USARAF.

New Spice Route Beginnings

The New Spice Route, established by CJTF–HOA, is designed to minimize AFRICOM’s reliance on military airlift by developing reliable surface movement options across East Africa. Trucks carrying no-longer-needed equipment started moving in February 2011 from Garissa and Manda Bay, Kenya, to the Port of Mombasa and then on to Djibouti. A shorter run with fresh fruits and vegetables departed Kampala, Uganda, for a training camp on the way to Entebbe.

In February 2012, trucks with construction supplies

and provisions began rolling from Djibouti to Dire Dawa, Ethiopia. Still in its nascent stages, the line-haul program has been adding to local economies, while CJTF–HOA promotes stability through its many programs.

Expanding the New Spice Route

At CJTF–HOA’s East Africa Coalition Conference, held in January 2011 in Djibouti, the Army’s lead planner, Chris Zahner, said, “Marco Polo wasn’t just an explorer; he was also a logistician developing logistics nodes along the Silk Road. Now let’s do something similar where the Queen of Sheba traveled.”

Gloria Evans, CJTF–HOA’s J–4 Fusion Cell chief, turned the concept into a joint plan and process. “As a supported command [that is] building partner nation capacity, we rely on external sources for movement,” Evans said. “Working together with our DOD partners to develop better contracts covering East Africa, with seamless connections to sealift, is the way to take pressure off of the C–130 fleet, save Defense dollars, and support local economies.” She noted that even U.S.-owned companies use local subcontractors to ship throughout the region.

By creating a network that will eventually span all of Africa, the New Spice Route complements and enhances the services currently provided by the SDDC through theater-managed indefinite-delivery, indefinite-

These trucks are parked at a truck stop on the highway from Djibouti to Ethiopia. Line haul in Africa is a no-frills business, and leaving it up to the local-national truck drivers is the best choice on a continent with seasonal roads and only a few status of forces agreements.

quantity contracts. USARAF synchronizes the overall effort. This system has been called the Africa Surface Distribution Network, and CJTF–HOA’s New Spice Route is its first application.

New Spice Route Challenges and Benefits

The Africa Surface Distribution Network fits squarely within AFRICOM’s Adaptive Logistics Network. Similar to the U.S. Central Command- and Department of State-coordinated proposal for the Middle East known as the New Silk Road, the New Spice Route emphasizes both land and sea transportation solutions. As challenging as the New Silk Road Route from Asia to Europe can be, CJTF–HOA and its partners operate in an area truly forsaken by 20th century advances in road and rail.

“We didn’t even consider trying to line-haul direct from Kenya to Djibouti,” said Evans. “Our move from Garissa took us to the port of Mombasa, then on to Djibouti by sea.”

According to Air Force Master Sergeant Allen Rickles, CJTF–HOA Joint Logistics Operations Center noncommissioned officer-in-charge, the movement of cargo from Manda Bay to Mombasa by truck, then to Djibouti by sea (instead of by air), saved the Government \$380,000 in February 2011. The sealift portion from Mombasa to Djibouti mirrors one of the legs of the original Spice Route.

Hans Garcia, the sustainment branch chief at AFRICOM’s Deployment and Distribution Operations Center, says this combination of land and sea movement of supplies supports the theater distribution plan. Navy Lieutenant John Belisle, Camp Lemonnier’s first installation transportation officer, adds that the New Spice Route also builds equity and economies of scale, especially when all of the DOD branches are using the same route.

“I’m glad I am part of something innovative,” Lieutenant Belisle said. “The Spice Route saves the Government money, and we’re looking forward to the advanced tracking technologies our civilian partners have to offer—a kind of high-tech version of an old idea.”

Navy Lieutenant Marcus Thomas, a regional logistics planner with CJTF–HOA J–4, says that the New Spice Route offers increased flexibility. “Sustaining our forward operating locations has been historically challenging, particularly in Ethiopia, where our Navy Seabees had no other option but to use their own equipment



This map shows the New Spice Route that is used to move supplies in East Africa.

to receive and transport supplies and materials,” said Lieutenant Thomas. “By using local commercial truckers who know how to navigate the roads and customs procedures, our guys can focus less on moving their materials around and more on their tasks of building schools and drilling wells.”

CJTF–HOA’s New Spice Route is truly transformational for DOD, even if it simply builds on existing commercial trade routes. In a time of shrinking budgets, concern about carbon footprints, and ongoing military commitments, every kilometer trucked is a step ahead toward networking East Africa, where the Queen of Sheba traveled with her riches more than 2,000 years ago, and it represents another pillar of AFRICOM’s adaptive logistics network concept contributing to stability and progress.

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Finding Alternatives to MHE on the Battlefield

BY MAJOR JAMES J. LUCOWITZ, JR.

Transporting materials-handling equipment on the battlefield uses resources that could be better devoted to moving combat equipment and vehicles. The author offers an alternative for unloading needed supplies on the battlefield.

Logisticians must prepare to sustain the next fight without repeating mistakes from previous combat operations. Since the beginning of Operation Iraqi Freedom, the Army has restructured the force while keeping the same inefficient logistics techniques that rely heavily on legacy force materials-handling equipment (MHE) and distribution procedures. The success of future combat operations will depend on more efficient logistics capabilities that include reducing reliance on MHE forward on the battlefield, eliminating large commercial container detention fees, and ensuring the uninterrupted flow of supplies to their final destinations.

MHE Forward on the Battlefield

On 19 March 2003, coalition forces began offensive operations in Iraq. On 15 April, 27 days and over 600 kilometers later, those forces were in control of Baghdad. Sustaining a rapidly moving combat force during Operation Iraqi Freedom pushed the demand on logistics capabilities to their limits.

As units of the 3d Infantry Division moved north into Iraq during the initial advance toward Baghdad, heavy equipment transporters and lowboys that were carrying forklifts had to offload those forklifts in order to recover and remove broken combat vehicles. As a result, Atlas forklifts had to road march across the Iraqi desert.

Forklift operational readiness rates dropped below 50 percent because of excessive use, harsh climate conditions, and a lack of available repair parts that led to controlled substitution and sometimes cannibalization of equipment in order to meet daily mission requirements. This caused theater resupply convoys to experience excessive wait times at logistics support areas because of the limited number of forklifts available to offload trailers and containers.

The 3d Infantry Division had no organic or task-organized rough-terrain container handlers (RTCHs) to support logistics operations until the division reached Baghdad. The lack of container-handling equipment created turmoil for division logistics units by making

it very difficult to offload, break down, and distribute supplies that arrived in containers. Some 20-foot containers arrived with the door sides of the containers up against each other on 40-foot trailers to avoid pilferage. This made it impossible to access the cargo without offloading the containers.

With no container-handling capability forward with divisional units, containers had to be offloaded using the cranes of two M88 recovery vehicles. The 40-foot containers exceeded the variable reach capability of the Atlas forklift, so once the containers were offloaded, cargo straps were required so that the forklifts could pull pallets out of those containers. Sometimes, if the doors were accessible and no RTCHs or M88s were available, containers were emptied while loaded on the trailer.

A simple way to avoid excessive time on station caused by waiting for trucks to be offloaded would have been to conduct a trailer transfer at the division logistics support area. However, the 3d Infantry Division did not have 40-foot trailers to exchange with the corps line-haul units. Many commanders were opposed to using trailer transfer or flatrack exchange procedures because the trailers and flatracks were serial-numbered property book items and they wanted to avoid property book issues.

When RTCHs were task-organized to support the division, the division still had to rely on the RTCHs' parent cargo transfer company for maintenance because the division did not have mechanics familiar with the Kalmar RT-240 RTCH. An engineer boat company with M1120 heavy expanded-mobility tactical truck load-handling systems was later task-organized to the division to support distribution operations. However, these trucks did not possess container-handling unit systems or M1077 flatracks. Therefore, flatracks had to be borrowed from other units in order to move containers forward to the division logistics release point for distribution to the brigade support areas. Most of the available flatracks were the container roll-in-roll-out platform style that cannot haul containers.

Commercial Container Recovery

A major issue that was brought to light in Operation Iraqi Freedom was the difficulty of recovering commercial containers. By 2005, the number of unaccounted-for commercial containers exceeded 60,000, costing the Department of Defense detention fees in excess of \$513 million monthly.

Many containers ended up being used for force protection when units turned them into bunkers, ammunition storage facilities, unit arms rooms, and forward operating base perimeter walls. This was the result of the inability to upload empty containers at support areas for retrograde because of limited container-handling capabilities and because corps convoys did not wait for retrograde containers to be uploaded.

Distribution Throughput

Distribution throughput techniques are the way forward for shipping containerized cargo. Current sustainment strategies work well for doctrinally based logistics operations in a mature theater, where stability operations and support operations are being accomplished by routinely replenishing break-bulk cargo that is palletized on the backs of trucks.

However, since cargo must be handled multiple times before it reaches its final destination, this distribution method does not work well in forward combat areas that need immediate replenishment to sustain offensive operations. During these periods, containerized throughput methods of resupply are involved in maintaining the momentum of the offensive.

MHE is a force multiplier; however, it requires substantial maintenance and transportation support. RTCHs also are not likely to be located forward on the battlefield during offensive operations, and forklifts are unreliable.

Reducing Dependence on MHE

The challenge is to prevent these problems from being repeated during future full-spectrum combat operations. Logisticians can sustain a fast-paced offensive operation more efficiently by reducing the number of times cargo must be handled before it reaches the point of consumption. They must decrease the amount of time needed to conduct resupply operations and eliminate their dependence on MHE. Finally, logisticians need to avoid future container retrograde issues that lead to large detention fees.

Logisticians must develop new techniques, procedures, and equipment that enable improved distribution-based logistics capabilities. They can accomplish this by meshing container-handling and transportation capabilities into a seamless system that provides the ability to sustain offensive operations while maintaining the maneuver commander's momentum.

The recommended course of action to solve these

problems is based on using the M1075 palletized load system platform with a container that has rollers on its floor, like those in a transport aircraft that can deliver supplies all the way to the forward lines without the need for MHE. Using the hydraulic arm hook or container-handling unit on the back of the truck to tilt the container at an angle off the rear of the truck would allow for the palletized cargo within the container to roll out onto the ground. Cargo could be delivered directly to maneuver battalion forward support companies, where it could be broken down for distribution to combat units.

A second course of action adds a hydraulic system to a 40-foot trailer, similar to the hydraulic system on an M1000 heavy equipment transporter system. The hydraulic system lifts up the trailer in the front and lowers it in the back. By adding ramps, palletized supplies then can roll off onto the ground.

These techniques could revolutionize the Army's distribution capabilities. This new distribution method provides the ability to strategically deliver supplies forward on the battlefield to combat units. It eliminates the need for MHE to download or transfer cargo, along with the extensive maintenance issues related to the limited availability of repair parts during initial combat phases. It would significantly reduce the vulnerability of soft targets (logistics vehicles) in forward combat areas and greatly cut the time needed to download supplies.

Supplies that combat units cannot carry or consume can be left behind for follow-on formations to consume. This technique would eliminate the need for flatrack exchange or trailer transfer operations and related property book issues.

The M1075 palletized load system truck is a common operating platform across the Army with reliable repair part stocks available and a proven maintenance record. The M1075 platform is currently up-armored and has a successful track record of providing protection to the Soldiers who operate it. The M1075 is a tactical vehicle capable of traveling over rougher terrain than M915 tractors with M872 trailers while carrying the same load (two 20-foot containers).

This technique will also eliminate the need for container retrograde operations because the container remains a part of the system and will never be left behind.

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Retaining Logisticians

BY COLONEL GARY C. HOWARD, USAR (RET.)

How can the Army ensure that enough logisticians are available for future operations?

Logisticians are essential to any Army operation, and logisticians are concentrated in the Reserve components (RC), particularly the Army Reserve. In recent years, the RC has transformed itself from a strategic reserve to an operational reserve. Because of this transformation, the RC has been able to respond to the Army's additional logistics support needs and, at the same time, RC Soldiers have gained a degree of predictability in their lives.

Recruiting and retention are successful right now, but maintaining these numbers has been accomplished with a significant increase in cost and a decrease in quality. What will happen when the economy turns around?

ALTHOUGH WE TECHNICALLY HAVE A SELECTIVE SERVICE SYSTEM, WE DO NOT HAVE THE POLITICAL WILL TO ACTIVATE IT. AND WE HAVE NO LOGISTICS SOLUTION FOR HOW TO TRAIN AND EQUIP A CONSCRIPTED FORCE EVEN IF WE WANTED ONE.

This question is particularly important for logisticians and for the Army. With no draft available, the Army Reserve and the National Guard are the only trained forces that can be quickly made available to expand the Army and support operations. In the Persian Gulf War and the recent wars in Iraq and Afghanistan, the RC was in great demand.

Demand for Reserve Soldiers

Although it is impossible to predict exact future requirements, several trends seem likely. First, the demand for deployed forces will probably go down.

At the end of 2011, essentially all U.S. troops had left Iraq, and forces committed to Afghanistan increased in 2010 but began drawing down in the summer of 2011. Second, any President is unlikely to choose to go to war again anytime soon. These factors should better enable the Active Army to respond to contingencies and significantly reduce the demand for Army Reserve forces.

QDRIP Observations

Recently, the Quadrennial Defense Review Independent Panel (QDRIP) stated, "There is reason to doubt that the military can attract and maintain the requisite numbers of recruits and maintain its high quality as the economy continues to improve and unemployment declines. It is a fact that over the past decade, despite limited job creation, the force has survived only through extraordinary efforts and at substantial additional costs."

The QDRIP noted several specific areas of slipping standards and increasing costs:

- ❑ The maximum enlistment age was raised to 42.
- ❑ More recruits have been accepted without high school diplomas (29 percent in 2008, the most in 25 years), with criminal records, and in category IV on the Armed Forces Qualification Test.
- ❑ More noncitizens were recruited.
- ❑ The Army offered enlistment and reenlistment bonuses as high as \$40,000, which the former Comptroller General of the United States described as "unsustainable."
- ❑ Advertising costs have tripled since 1997.
- ❑ Selection rates for officer promotions are at 95 percent, significantly higher than the normal average of 80 percent.

Shrinking Reserve Force

Sobering as these observations are, they might understate the long-term problem. As the perception of an immediate threat fades, families and employers will become less supportive of activations. Even now, complaints about reemployment rights are growing, and

anecdotal evidence suggests that midcareer officers and noncommissioned officers are leaving the service.

Furthermore, the pool of potential recruits is shrinking. As the QDRIP pointed out:

Those planning to continue education beyond high school already include 85 percent of youth today. In addition, numerous surveys reveal a decline in the propensity of youth to serve. More than 75 percent are ineligible for physical, mental, or educational reasons, or due to criminal records (unless standards are reduced even further). The numbers of service-influencers—people who influence our youth to enlist, which are overwhelmingly family members who are veterans—are also declining in the American population.

Identifying the Need

The real question is how we can best ensure that there are enough RC Soldiers for the next Desert Storm. Although we technically have a Selective Service System, we do not have the political will to activate it. And we have no logistics solution for how to train and equip a conscripted force even if we wanted one. The RC is the only reserve we have.

In the long run, will regular activations help or hurt

IN 2002, THE CHIEF OF ARMY RESERVE, LIEUTENANT GENERAL JAMES R. HELMLY, SUGGESTED A "THIRD FORCE" TO BRIDGE THE GAP BETWEEN THE RESERVE AND ACTIVE COMPONENTS.

recruiting and retention? Will Soldiers be more willing to stay if they get to put their training into actual practice on a regular basis, or will the repeated activations be too disruptive to families and civilian careers?

These questions are not simple to answer. Reservists join or stay in the service for many reasons. However, ultimately, they have to weigh patriotism against the practical needs of family, civilian careers, and community responsibilities. We will always have some reservists who can devote unlimited amounts of time to the military and whose careers will not be hurt by repeated deployments. The critical question is whether there will be enough reservists if we continue with the activation cycle of an operational reserve. Will the repeated activations (or the threat of them) deplete the ranks below a critical number? Can we afford the bonuses and benefits to entice them to join?

Possible Solution

So far, the discussion about the future of the RC has centered on the strategic reserve and operational reserve. However, these may not be the only two options.

In 2002, the Chief of Army Reserve, Lieutenant General James R. Helmly, suggested a "third force" to bridge the gap between the Reserve and Active components. This innovative concept received very little interest then, but it may be time for a second look.

Under this concept, some number of reservists would agree to be available for repeated activations on short notice. In return, they would receive additional pay and benefits. The Soldiers would be organized into units that would form a small but effective "quick reaction" force. The bulk of the Army Reserve would continue as a traditional strategic reserve, modeled on that of the Desert Storm era. Activations of these Soldiers and units would involve a period of postmobilization training to give them a "tune up" to Active Army standards before deployment. This scenario would allow more RC Soldiers to remain in the force and to be on call when needed for quick missions or for large-scale Desert Storm-like deployments.

The executive director of the QDRIP, Paul Hughes, recognized this strategy when he observed, "Right now [the RC is] boxed in by cold war attitudes and procedures and requirements. . . and then you take the Reserve, and you split them into a strategic reserve and an operational reserve."

Reservists have long had multiple ways to participate, so adding a new option would be nothing new. Many RC Soldiers belong to a troop program unit that drills monthly. In the Individual Ready Reserve, Soldiers are on call as needed. Individual mobilization augmentees are assigned to fill key positions in active units upon order. Soldiers in the Active Guard Reserve program work full time in their units of assignment.

Lieutenant General Helmly's third force seems to offer the best of both worlds. The Nation gets a rapid reaction force from the RC to support the Active component and a large, cost-effective strategic reserve for exceptional emergencies. Reserve logisticians also get additional options for continuing their military careers in a way that is compatible with their civilian career and family needs.

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The Polar Bear Expedition: The U.S. Intervention in Northern Russia, 1918–1919

BY ALEXANDER F. BARNES AND CASSANDRA J. RHODES

Outside the wooden walls of the outpost in northern Russia, the wind picked up again, causing the frozen snowflakes to rattle against the thick, smoke-colored glass of the window panes. The young American corporal blinked and then looked out again. Something was moving out there in the tree line beyond the railroad tracks. Was it the “Reds” scouting the Allied positions, or was it the equally frightening pack of wolves that roamed the forest near this lonely guard post? With luck, it was neither but merely a Canadian patrol coming to make contact and perhaps get warm before heading back to their own outpost.

Not taking any chances, the corporal yelled across the room to his sergeant and then picked up his Mosin-Nagant rifle to be ready in case the visitors were hostile. As he did so, he had the fleeting thought that this sure was one heck of a way for a draftee from Detroit to spend Christmas of 1918.

As described in the article, “Logistics in Reverse: The U.S. Intervention in Siberia, 1918–1920” in the January–February 2012 issue of *Army Sustainment*, the U.S. Army was present in Russia at the end of World War I

for several reasons. One was that the massive amounts of military supplies and equipment stockpiled at the Siberian port of Vladivostok and the northern Russian ports of Murmansk and Archangel had to be recovered for retrograde to their countries of origin or distribution to the anti-Bolshevik “White Russian” forces fighting the Bolshevik “Red” army in the Russian Civil War.

These supplies, including 110,000 rifles in the northern Russian warehouses alone, had been provided to the Czar’s forces by France, Great Britain, and the United States in a vain attempt to keep them fighting against the Germans. But that had not worked. The Russian leaders had been incapable of distributing the war materiel to their forces, and most of what they received still sat in the warehouses where it had been initially offloaded from Allied ships. Some wishful politicians subsequently hoped that a small Allied military force could stabilize the area long enough for the Russians to create a democratic government and field a viable army.

Four thousand miles east of Archangel, in the vast expanses of Siberia, two other reasons led to American involvement: supporting the movement of the Czech Legion in its attempt to escape from Russia and halting

En route to Archangel, a group of 339th Infantry Regiment doughboys pose with their newly issued M1891 Mosin-Nagant rifles. Most would have preferred to keep their originally issued British Enfields, but the large supply of Nagant ammunition already in theater drove the rearming decision. (Photo courtesy of Charles G. Thomas)



The only resource in great abundance in northern Russia was lumber, and it was used as the basic material for defensive positions and blockhouses. Even the sawdust was useful, serving as insulation between interior and exterior walls. In an indication of the scarcity of vehicles, a number of American, French, and British soldiers catch a ride on one of the trucks assigned to the American lumberyard in Archangel.



further encroachment of Imperial Japanese forces into the region.

Why Were Murmansk and Archangel Important?

Archangel and Murmansk were strategically important to the White Russians and their supporters for several reasons. With the tumultuous events of the revolution in Russia, many of the ambassadors of the Allied nations and their military liaison staffs had retreated north from Moscow and settled in the northern towns controlled by White Russian forces. These included Archangel and Murmansk, which were located in the thinly populated region bordering Finland and the Arctic Ocean. Both were port towns and therefore valuable entryways into northern Russia. With the Red forces controlling the large central part of the country, the anti-Bolshevik forces were primarily arrayed on the borders, in Siberia, Crimea, and northern Russia.

That Murmansk remained ice-free year round, thanks to the flow of relatively warmer North Atlantic waters, made it an invaluable site for naval activity. The availability of such an ice-free port during the frigid Russian winter obviously made Murmansk a prized possession worthy of defending. During the early years of World War I, the ports of Archangel and Murmansk had remained out of reach of the invading German forces, which permitted supplies to enter Russia from the international community and the Czar’s allies.

The two towns were also critically important because of their close proximity to the railway lines and the navigable rivers in the region. Control of these towns gave the White Russian forces and the Allied expeditionary forces direct access to waterways that were essential for their campaigns in this isolated region close to the Arctic Circle. The combination of rail and river access allowed the Allies to move supplies, communicate with the rest of Russia, and deploy their troops where they desired throughout the countryside.

The American Northern Russia Expedition

In response to a request similar to that from the Allies

to send U.S. Army troops to Siberia, the U.S. Government ordered the Army to deploy a force, which soon became known as the Northern Russia Expedition, to Archangel Province in Russia. Unlike the U.S. Regular Army units that deployed to Siberia, the Soldiers sent to northern Russia in August 1918 were mainly draftees from the Midwest. The force consisted of the 339th Infantry Regiment (also known as “Detroit’s Own”), a battalion of the 310th Engineer Regiment, the 337th Ambulance Company, and the 337th Field Hospital. Including later reinforcements, fewer than 6,000 Americans were deployed.

The U.S. units, originally assigned to the 85th Division, had been destined for frontline duty in France when the orders arrived diverting them to Russia. Along with the new destination, the doughboys of the expeditionary force were directed to turn in their recently issued British Enfield rifles and were armed instead with Russian made Mosin-Nagant rifles. Though an unpopular exchange, this order made sense logistically since significant stockpiles of Nagant ammunition were already awaiting the force in warehouses at the Russian ports.

The convoy that delivered the 339th Infantry Regiment from England to Russia also carried two other significant passengers: a small Italian army contingent and influenza. Unfortunately for the Italian and American Soldiers, influenza proved to be a terrible foe. Over 100 Soldiers died from its effects either en route or almost immediately after arriving in Russia.

Awaiting the arrival of the American force, and spread thinly throughout northern Russia, were the British, Canadian, and French expeditionary detachments and their sometimes reluctant allies, the White Russians.

The mission to protect and redistribute the stockpiles of military equipment in Archangel was nearly a failure before the 339th Infantry Regiment even set foot in Russia. Pro-Bolshevik forces had seized the port and were loading supplies onto railcars when a small force of British and French soldiers, accompanied by 50 American Sailors from the USS *Olympia*, managed to retake the town. This mixed force was able to stop the passage of some of the trains and recover some supplies; however, a large



The gunboat USS Sacramento arrives in Archangel to assist in withdrawing the American forces from northern Russia in June 1919. The Sacramento served the Navy for many years and is credited with shooting down a Japanese aircraft during the attack on Pearl Harbor, Hawaii, in 1941.

amount had already been “liberated” by the Bolsheviks.

With more enthusiasm than common sense, the Allied force then set out after the fleeing Reds and soon became trapped and required rescue from the just-landed, and flu-ridden, 339th Infantry Regiment. The newly arrived Americans, under British command, hurriedly scrambled a battalion of Soldiers onto a Russian train and sent them south to rescue their Allied comrades. Although successful in their rescue mission, the Americans were now spread across the countryside in small detached units. Just like their fellow Soldiers in Siberia, the doughboys soon found themselves fighting from blockhouses and guarding isolated railheads and small villages.

Sustainment Operations and Challenges

Supporting the American forces was the 339th Infantry Regiment’s regimental supply company under the command of Captain Chauncey Wade. Complicating Wade’s mission was the fact that the distances between some of his “customer” units were equal to the distance from New York City to St. Louis. His Soldiers were forced to rely on riverboats, railroads, horse-drawn wagons, and even reindeer-drawn sleds to deliver the required supplies to the scattered outposts.

Another harsh reality for the Americans was that the supply pipeline ran back to Britain, and most of the U.S. Soldiers did not care for British rations or their version of military shoes. With the harsh winter setting in almost immediately after their arrival in Russia, most Soldiers, rather than wearing the uncomfortable British shoes, replaced their own worn-out footgear by trading with the local inhabitants or removing the boots from dead Bolsheviks. Similarly, medical supplies proved almost impossible to obtain, and the medical service personnel assigned to the 339th Infantry Regiment were constantly foraging for medicines to treat the sick and wounded.

Adding to the complexity of the logistics mission was

the tendency of the local inhabitants to switch sides on a regular basis, which required the Americans to diligently guard every barracks, hospital, and support facility. In a short while, an entire battalion was gainfully employed guarding the streets of Archangel. Ironically, several of the Soldiers who had previously worked in Detroit as train engineers and conductors now found themselves performing similar duties on Archangel’s streetcars as American logisticians and engineers took over responsibility for the city’s powerplant and other infrastructure.

Combat Operations

In contrast to the U.S. forces in Siberia, whose main function was the protection of the logistics stockpiles and maintenance of the Trans-Siberian Railway, the majority of U.S. Soldiers in northern Russia quickly became involved in combat operations. In time, it became obvious that those Soldiers who were involved in maintaining the infrastructure and security of Archangel got the better deal. Their less fortunate comrades, deployed across hundreds of miles of swampy marshes and thick forests, were engaged in a very active series of campaigns against the Reds.

Unfortunately, by the time the real winter weather arrived, the Americans and their allies were stranded at remote sites that could not easily support each other. The Red forces that had given ground rather than contest each Allied advance now returned with a vengeance and began a series of hit-and-run raids. Countering these raids was complicated by temperatures that at night dropped to 50 degrees below zero, freezing the oil in machineguns. Wounded Soldiers who were not retrieved and brought under cover quickly froze to death.

Adding to the Americans’ discomfort was the fact that most operation orders came from British officers who outranked their U.S. counterparts. It was a common belief among the U.S. Soldiers that Britain had provided a large

staff but few soldiers and, as a result, the Americans were doing the bulk of the fighting and the work. John Cudahy, a lieutenant in the 339th Infantry Regiment (and later U.S. Ambassador to Poland, Ireland, Belgium, and Luxembourg) accused the British officers of “muddling, blundering and fuddling,” and he found them generally to have a “lack of understanding, the brutal arrogance and cold conceit.”

Other American officers were equally upset by the disparity in rations provided to wounded American enlisted men at British-operated hospitals in comparison to the rations provided to British officers. In time, with the help of the American Red Cross, U.S. medical personnel were able to establish their own facilities. For a while thereafter, many U.S. Soldiers, discharged as “fit for duty” from the British hospital, were immediately reexamined by American medical personnel and placed in their hospital for proper treatment and feeding.

Relations between the two Allied forces did not improve when an American medical officer was officially reprimanded for refusing to order his enlisted Soldiers to dig a latrine for British officers. It was not until British Major General William Edmund Ironside arrived to take command of all of the Allied forces in northern Russia that the Americans developed any confidence that they were being properly led.

Interestingly enough, American relations with their French and Canadian allies remained strong throughout the deployment. French expertise with machineguns and Canadian proficiency with artillery turned the tide in several battles and saved a number of the doughboy detachments from being overrun by Red forces.

It was Canadian artillerymen and their extremely close-range fire support that prevented the annihilation of a number of U.S. Soldiers at the battle of Toulgas. After Canadian fire stopped a large Red force from encircling the American position, a desperate bayonet charge led by Lieutenant Cudahy inflicted heavy losses on the Bolsheviks and forced them to retreat. The Americans were then obliged to burn the village of North Toulgas to the ground to prevent its use for further infiltration in that area. Nonetheless, a number of senior “Bolo” (as the Bolsheviks were nicknamed by the Americans) leaders were killed in the fight at Toulgas, and the area remained peaceful for a while.

Deteriorating Conditions

Unfortunately, though successful in most of the battles and skirmishes against the Reds, the Allied forces were fighting against time and an ever-improving Red Army. When the armistice ending World War I was signed in France on 11 November 1918 (coincidentally, the same day as the battle of Toulgas), the Americans in northern Russia began to ask when their war would end. Red forces also took advantage of this event to increase their propaganda campaign by circulating leaflets that asked

the question, “If the war is over, why are you still here?”

The Americans were also increasingly disheartened by the local inhabitants’ lack of interest or enthusiasm in building their own army to fight the Reds. Though some White Russian units fought well, for the most part they required the leadership and presence of Allied soldiers to ensure that they would stay in the fight.

Similarly, dealing with the civilian population was difficult and confusing. One officer wrote that the Bolos dressed like every other Russian peasant: “No one could distinguish them from a distance, and every peasant could be Bolshevik.” In words that would also echo in the late 20th and early 21st centuries, he further stated that the enemy “had an uncanny knowledge of our strength and the state of our defenses . . . despite the closest vigilance there was working unceasingly a system of enemy espionage with which we could never hope to cope.”

Under these conditions, every American supply convoy venturing out to the remote outposts had to be prepared to fight off ambushes en route to its destination. It was also becoming quickly apparent that, regardless of the politics of the armistice and governmental decisions, the Allied forces were subject to a higher, more powerful authority: the Russian winter.

Surviving the Winter and the Bolsheviks

The arrival of Major General William Edmund Ironside in late November 1918 soon marked a change in philosophy. Under his command, the Allies adopted a more defensive posture and attempted to survive until spring brought better weather. Operating and defending in an area the size of Texas and Oklahoma combined, the Allies reinforced their fortifications and prepared to hunker down in the bitter cold.

It became painfully obvious just how poorly informed the U.S. Army headquarters in Paris was about the events in Russia when, in response to a telegraphed report about the status of U.S. forces in Pinega sent by 339th Infantry Regiment headquarters in Archangel, it received a telegram back asking, “Just where is the Pinega front?” What had started as an expedition to rescue military supplies and stabilize a portion of Russia had changed focus to staying alive through the winter.

Sensing the shift in Allied tactics, the Bolsheviks began a winter campaign aimed at dislodging the foreigners from their country. Using their knowledge of the terrain and their ability to move swiftly through the countryside on skis and sleds, the Bolshevik forces infiltrated the region. In January 1919, after a pitched battle, they managed to drive the Allies from a stronghold at Shenkursk and force them to retreat toward Archangel. By April 1919, when a new U.S. commander arrived in Archangel with orders to evacuate the American force as soon as practicable, the Allies had been forced to evacuate many of their distant outposts.

Accompanying the new commander were the only unit-

sized reinforcements the Americans would receive: two Army Transportation Corps railroad companies, the 167th and 168th. By this time, however, it was obvious to the U.S. Government and to the American public that it was time to bring the 339th Infantry Regiment home. While preparing for their withdrawal from Russia, the Americans awarded themselves the nickname of the “Polar Bears” as a testament to surviving the arctic winter.

Going Home

In June 1919, the cruiser USS *Des Moines* escorted a convoy of supply ships to Archangel to extract the Americans. The only U.S. forces remaining behind after the Polar Bears’ departure were the two railroad companies and a graves registration detachment attempting to recover the bodies of the Soldiers who had died in Russia. A short while later, even those logistics units departed, leaving behind more than 120 bodies still unaccounted for. (Efforts by the Veterans of Foreign Wars and other organizations would later succeed in recovering the remains of nearly a hundred of those Soldiers in the 1920s and 1930s.)

The British forces stayed a while longer, until the fall of 1919, when they too had had enough and departed, leaving the White Russians to defend Archangel by themselves. In February 1920, the world received news, via telegram from Moscow, that the city had fallen to Red forces and that “the troops remaining in the town passed over to the [Bolshevik] side.” The sudden shift in loyalties would not have surprised any of the Polar Bears.

On the frozen White Sea, the USS Des Moines cuts through 15 feet of ice en route to Archangel in May 1919.



Lessons Learned

We can take away several lessons from the U.S. Army experience in northern Russia.

Trust your people on the scene. When the British requested U.S. support for the Northern Russia expedition, they stated, “The dispatch of additional French or British reinforcements is impossible and it is therefore essential that America should help by sending a brigade . . .” And then they added, “It is not necessary that the troops sent should be completely trained, as we anticipate that military operations in this region will only be of irregular character.”

The U.S. consul in Archangel at the time, Felix Cole, strongly opposed American participation. Cole replied in June 1918, with some foresight, “Intervention will begin on a small scale but . . . will grow in scope and in its demands for ships, men, money and materiel. . . . It means establishing and maintaining telegraph, telephone, wireless, railroad, river, White Sea water, sledge, automobile and horse communication with repair shops, hospitals, food warehouses, munitions trains, etc.” He also predicted that the Russians would not prove to be effective allies against the Reds: “They work for themselves neither willingly nor effectively. Still less so will they work for others.”

The U.S. Government ignored Cole’s warnings and deployed the 339th Infantry Regiment to Russia anyway. As a result, out of a force of 5,500 Soldiers, the Polar Bears suffered 244 deaths from action or accidents, 305 wounded, over 100 dead from influenza, and one suicide.

Rank is important. When operating in a coalition, the leaders of an expeditionary force must have rank commensurate with their responsibility. If this is not possible, ensure that they understand that they maintain the ultimate authority in how U.S. forces are employed. In far too many cases in northern Russia, the senior American officer on the scene was only a captain or a lieutenant and therefore was outranked by an attached British or French officer. Though they commanded fighting forces, the American junior officers were obligated to take orders from senior foreign officers who were completely unfamiliar with U.S. goals, tactics, and capabilities.

Because of some of the complications arising from this problem, General John J. Pershing, the overall U.S. commander in Europe, would later insist on keeping a major general, Henry T. Allen, as the commander of the U.S. forces during the occupation

of Germany. Though the size of that command was more suited for a lower-ranking officer, Pershing insisted that the commander be of the higher rank so he could deal on an equal footing with the other Allied occupation commanders from Great Britain, France, and Belgium.

Understand the weather, terrain, and distances, and send a large-enough force for those conditions. This is pretty much the same lesson learned by the U.S. forces in Siberia. Even today, with advanced communications and transportation technology, no commander would attempt to defend and police an area the size of Texas and Oklahoma with 5,500 Soldiers. By comparison, in November 1918, to occupy the American zone in Germany, which was a much smaller area than northern Russia, the U.S. Army deployed 250,000 Soldiers and maintained another 50,000 in nearby Luxembourg.

Adding to the problem was the fact that much of the area was impassable swamp or nearly impenetrable forest, which increased reliance on rail and riverine transportation.

The U.S. Soldiers sent into this region soon found their cold-weather gear, suitable for the trenches in France, to be inadequate for what was waiting for them in the Russian winter. They also had little knowledge of the type of issues this weather would bring them during the defense of their bases and supplies.

Coalition operations are hard, and coalition logistics are even harder. Many of the same problems that confronted coalition operations in Siberia were also present in northern Russia, but they were magnified by the isolation and weather constraints. As difficult as it was for U.S. forces to receive their supplies in Siberia, it was even harder in northern Russia. Making matters worse, most of the supplies they did receive came from British sources and, particularly in the case of rations and clothing, were not well received by the American Soldiers. Other than lumber for building facilities and fortifications, very few resources were available in the Archangel area.

When the White Sea froze around Archangel, the only way to get supplies to the Allied forces there and to the remote outposts in the surrounding region was by the rail line from the port of Murmansk. Attempts to build up the White Russian forces also proved frustrating to the Americans when they recognized several of the Bolsheviks they had captured only weeks before when they appeared, apparently rehabilitated, as part of the British-trained White forces.

What can be concluded about the American efforts to protect and recover the mountains of military supplies in Russia during 1918 to 1920? It was a tough mission. That can be said about many military operations, but certainly the two American expeditions into Russia after World War I were unique in their concept, execution, and difficulty. While the rest of the world celebrated the end

of the bloodiest war in history to that time, two relatively small groups of American Soldiers were fighting for their lives at opposite ends of a country that was undergoing a violent revolution.

For their part, the Soldiers were only partially successful in their Siberian and northern Russian missions. Most of the supplies they were sent to preserve and protect were lost to the Reds or were misused by the Whites. However, the Czech Legion was aided in its successful withdrawal from Siberia and transported to its new homeland. Obviously, such small forces as the Americans provided could not stabilize revolutionary Russia in time to prevent the ultimate victory of the Bolsheviks, especially when it became apparent that the White forces were ineffective and suffering from poor leadership.

On the other hand, the U.S. Soldiers did prove themselves capable of operating and sustaining combat forces in an extremely austere and harsh environment. In that environment, where the greatest measure of success often was survival, the American Soldiers served bravely and remained loyal to their country and to their Allies. That they did so in spite of overwhelming odds and an ever-increasing sense of isolation is evidence of their courage and perseverance.

When the infantrymen and logisticians of the two expeditions to Russia finally returned to the United States, they found that few people knew or cared about their sacrifices. Ninety years later, fewer people are aware that U.S. forces had even been there. Nonetheless, in the vast wilderness of Siberia and hidden in the deep forests near Archangel, the remains of some of their comrades are still buried. As one American Army veteran of northern Russia wrote in 1920, “Why if the job had been worth doing at all had it not been worth while for our country to do it wholeheartedly with adequate force and with determination to see it through to the desired end . . . Why had we come at all?” It would not be the last time American service members would ask that question in the 20th century.

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A User's Perspective of GCSS-Army

BY W. ALLEN HUCKABEE AND CAPTAIN MARCUS SMOOT

Global Combat Support System–Army will enable the Army to transform its logistics processes by integrating legacy system functions into a single repository to store and view logistics data. The authors describe how users have responded to using the system.

The Army has been working to transform its logistics capabilities since the 1990s.¹ In a May–June 2001 *Supply Chain Management Review* article entitled “Logistics Transformed: The Military Enters a New Age,”² Lieutenant General John McDuffie and others expressed the need to transform Army logistics capabilities. The authors identified some of the challenges associated with a transformation, including diverse requisitioning requirements and a large and highly mobile customer base.³ As tough as these challenges are, the Army continues to work diligently to transform current and legacy logistics information technology (LOG IT) systems used to conduct sustainment activities.

The Global Combat Support System–Army Solution

This transformation is becoming a reality with the introduction of the Global Combat Support System–Army (GCSS–Army). GCSS–Army is an enterprise resource planning (ERP) system that will enable the Army to transform its logistics processes by subsuming legacy system functions into a single repository to store and view logistics transactional data.

The Army Combined Arms Support Command's (CASCOM's) Enterprise Systems Directorate (ESD) and the Project Manager (PM) GCSS–Army, with its systems integrator, Northrop Grumman, is developing a tactical ERP system to replace legacy LOG IT systems. This system is based on the commercial off-the-shelf Systems, Applications, Products in Data Processing (SAP). Using SAP allows the Army to begin LOG IT transformation with a specific baseline that fits the logistics processes that the Army is accustomed to with minimal custom coding. Using SAP's capabilities, logistics can be reengineered to provide more effective and efficient processes to conduct business and enable seamless transformation.

The Business Transformation Agency has stipulated that GCSS–Army will provide logisticians with increased equipment readiness through near real-time maintenance and supply status. This is possible through the GCSS–Army integrated solution, which maintains a single database for the storage of all logistics and tactical financial information. This single database eliminates the need to seek information from other systems or databases for logistics information.

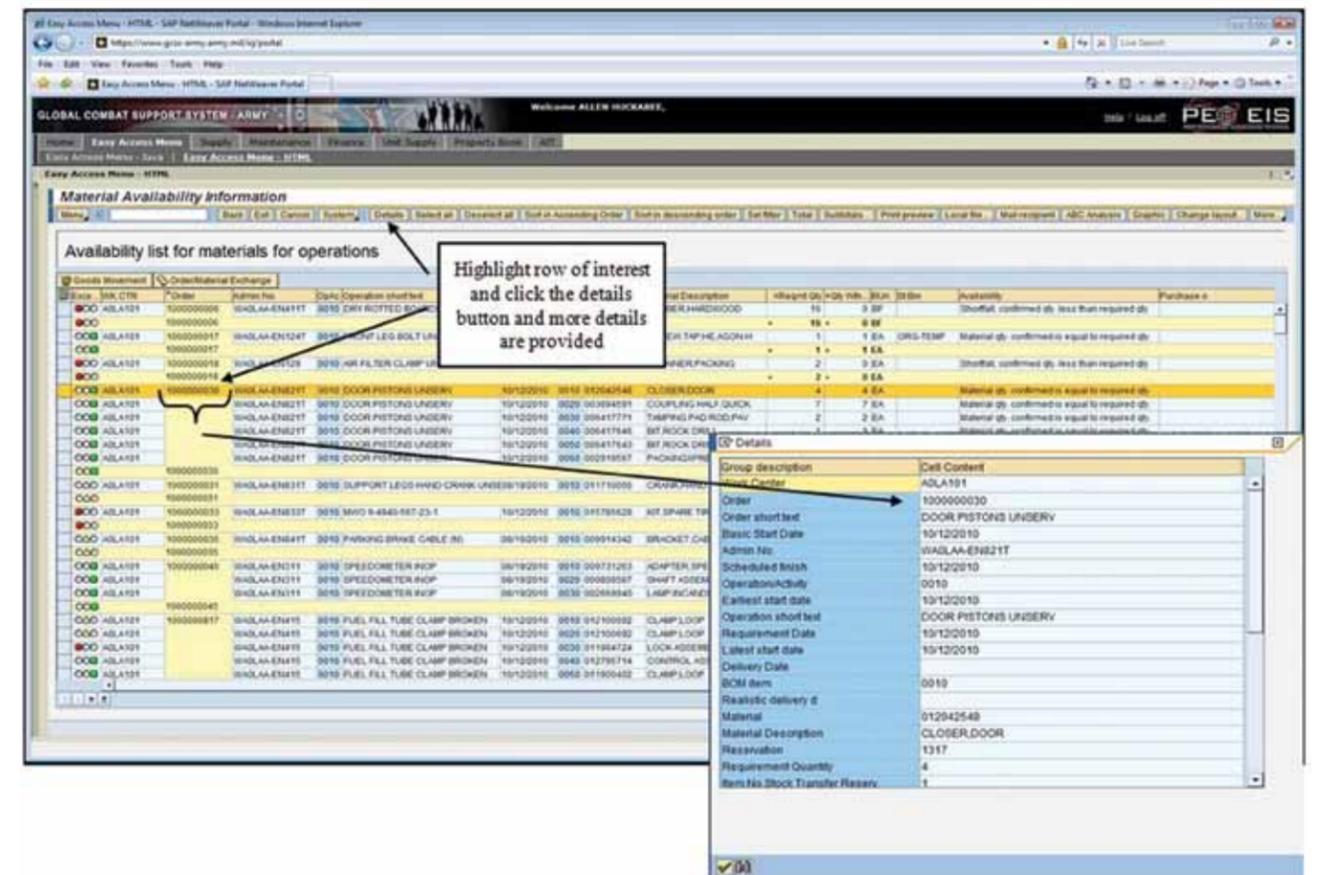
GCSS–Army provides the logistics community with several benefits, including increased service, decreased cost, decreased logistics cycle time, and increased asset visibility.⁴ PM GCSS–Army goes further to suggest that GCSS–Army will standardize logistics processes

¹ David W. Coker and J. Gary Hallinan, “A Logician's Primer on GCSS–Army (PLM+),” *Army Logistician*, May–June 2006, http://www.almc.army.mil/alog/issues/may-june06/logistic_primer.html, 2006, accessed on 6 July 2011.

² John M. McDuffie, Scott West, John Welsh, and H. Brent Baker, “Logistics Transformed: The Military Enters a New Age,” *Supply Chain Management Review*, May 2001.

³ Ibid., p. 92.

⁴ Business Transformation Agency, “Global Combat Support System–Army (GCSS–Army),” 2007, http://www.bta.mil/products/bea/bea41/etp/App_E/QuadCharts/GCSS-Army_Chart.html, accessed on 16 June 2011.



This screenshot from Global Combat Support System–Army shows how the user is provided with information on the availability of repair parts and other supplies.

across all functional areas, which should help streamline logistics training for all logisticians.⁵

Functional Business Modules

The current logistics functional areas will remain the same under GCSS–Army. However, each business area will employ new logistics management processes. The Army selected five functional business modules to implement, which are currently in use at the 11th Armored Cavalry Regiment (ACR) at Fort Irwin, California. The modules chosen by the Army are warehouse management (retail supply), inventory management (property book and unit supply), plant maintenance, finance, and Defense Forces and Public Security (DFPS). Together, these modules provide enhanced logistics capabilities and enable better logistics management at reduced costs.

DFPS is the heart of GCSS–Army. It uses force

structure data from the Army Force Management Support Agency to create and manipulate a force element structure. This structure mirrors the Army's hierarchical structure for the sole purpose of conducting sustainment operations.⁶ DFPS will provide the Army with a streamlined process to task-organize and conduct split-based operations and enable defense organizations to plan for, build, and operate a mobile force using flexible systems architecture.

The warehouse management module employs a materiel requirements planning function, which provides enhanced demand planning and forecasting, net asset computation, planned delivery times, and excess management capabilities. The inventory and warehouse management modules together provide intelligent stock placement, full traceability and visibility, deliberate excess and reparable management, and proof-of-delivery capabilities. The procurement and distribution

⁵ Project Manager Global Combat Support System–Army, “Global Combat Support System–Army,” <https://gcss.army.mil/index.html>, accessed on 16 June 2011.

⁶ Ibid.

functions provide dynamic reporting tools, activity monitoring (due-ins/due-outs), in-transit visibility, and full order history capabilities, among others.⁷

Property book enhancements provide the Army with a complete picture of organizational assets, and based on their roles, property book users have visibility of property assignments down to the lowest level. The commander's sub-hand receipts are aligned with modified table of organization and equipment (MTOE) and table of distribution and allowances (TDA) paragraphs. The integrated GCSS-Army single database solution enables the assessment of redistributions almost instantly. Users with the appropriate security roles can search for single or multiple unit items. The functional integration of GCSS-Army enables property book users to view maintenance-related information for all assigned assets.

The plant maintenance module provides users with equipment readiness and enhanced personnel qualification management capabilities. The Equipment Situation Board provides a single screen where users can view equipment status. (See screenshot at right.) With the click of a mouse, users can view work order status, parts status, and other information related to the equipment.

GCSS-Army allows users to view or pull details on any item an organization owns. For example, the screenshot shows an equipment situation report displaying the equipment assigned to an organization within the 11th ACR. The first two columns display the equipment administrative number and the operational status of the equipment: fully mission capable, not mission capable (supply), or not mission capable (maintenance). Next, there are two icons that provide a visual representation of the operational and technical status of the equipment.

Finance is an entirely new process for logisticians, and the focus is on tactical costs, not on budget execution. Logistics costs are captured automatically without the intervention of logistics users. For example, tactical equipment maintenance costs are collected by unit, which allows users to determine the potential cost of an exercise. This new capability enables the appropriate personnel to review requisitions by national item identification number, price, or priority before they become

obligations. The finance module can be a robust tool for commanders in forecasting budgeting requirements.

Why Transform?

The system just described is the result of Joint Vision 2010 and Focused Logistics, which signaled the beginning of the transformation process.⁸ The logistics capabilities of the future are akin to a paradigm shift or what has been called the "Revolution in Military Logistics." A transformation is needed because the Army can no longer afford to work within functional boundaries and win on the battlefield. Maintaining stovepiped systems dramatically reduces the effectiveness of an organization in meeting its strategic goals.⁹

A complete transformation is underway; it is based on business process management, which will require logisticians to cross functional boundaries to perform logistics tasks. This transformation has strategic implications in the form of streamlined processes, increased customer service levels,¹⁰ reduced customer wait time,¹¹ reduced inventory, increased productivity, better financial management,¹² and reduced logistics costs, among others.

To be successful, transformation on this scale will require a culture shift from stovepiped functional logistics areas to crossfunctional business areas using enterprise data and information for decisionmaking. This transformation will require every logistics process to be analyzed, diagnosed, and then reengineered into a more efficient and effective process.

In an organization such as the Army, reengineering must blend process management, which is the use of workflow and application integration to ensure management methods that were successful in the past continue into the future.¹³ The result of these reengineering and integration activities will provide the logistics community with visibility over the statuses of transactions, equipment, and materiel. Visibility will enable the Army to identify critical mission functions (CMFs) in logistics business areas. This will allow enterprise transformation by connecting these CMFs to Army and joint strategies, increasing the Army and Department of Defense's (DOD's) ability to transform logistics at the enterprise level.

GCSS-Army is complex, with more than 700 ac-

Equipment ID	Op. Sta	Op. Stalcon	Tech. Stalcon	Tech. Sts	Status Desc
WAO1AA-EN105	EMC	●	●	NS	No Dispatch
WAO1AA-EN111	EMC	●	●	NS	No Dispatch
WAO1AA-EN112	EMC	●	●	NS	No Dispatch
WAO1AA-EN113	EMC	●	●	NS	No Dispatch
WAO1AA-EN118	EMC	●	●	DI	In Use (Dispatched)
WAO1AA-EN121	EMC	●	●	DI	In Use (Dispatched)
WAO1AA-EN124M	NMCM	●	●	DI	In Use (Dispatched)
WAO1AA-EN126M	NMCM	●	●	DI	In Use (Dispatched)
WAO1AA-EN128	EMC	●	●	DI	In Use (Dispatched)
WAO1AA-EN129	EMC	●	●	DI	In Use (Dispatched)
WAO1AA-EN132	EMC	●	●	DI	In Use (Dispatched)
WAO1AA-EN133	NMCS	●	●	DI	In Use (Dispatched)
WAO1AA-EN211	EMC	●	●	DI	In Use (Dispatched)
WAO1AA-EN212	EMC	●	●	DI	In Use (Dispatched)
WAO1AA-EN225M	EMC	●	●	DI	In Use (Dispatched)
WAO1AA-EN229	EMC	●	●	DI	In Use (Dispatched)
WAO1AA-EN231	EMC	●	●	DI	In Use (Dispatched)
WAO1AA-EN232	NMCM	●	●	DI	In Use (Dispatched)
WAO1AA-EN235	EMC	●	●	DI	In Use (Dispatched)
WAO1AA-EN239	EMC	●	●	DI	In Use (Dispatched)

This screenshot shows the Equipment Situation Board, which allows users to see equipment status for a particular organization based on established roles and permissions.

tive transaction codes used in various business areas at multiple levels throughout the Army. The visibility this system offers requires a high level of data integrity. Access is no longer limited to the logistician; commanders, decisionmakers, operators, and their supervisors will now have access. The complexity of the system requires extensive training because user satisfaction with information systems is a key factor in a successful ERP implementation.

CASCOM ESD, PM GCSS-Army, and Northrop Grumman understand that usability is a key factor affecting user satisfaction, so they have been working together to prepare superior training products. These products are tailored to assist users in becoming effective and efficient. However, after completing two "go-live" software fielding events, and with a third underway and more functions under development, feedback from users indicated that they are skeptical of the products' individual contributions.

Independent Government Test

GCSS-Army, in its current configuration, has been employed at the National Training Center (NTC) at Fort Irwin, California, since 2007. Originally, the Army fielded the supply support activity (SSA) portion of GCSS-Army to Bravo Direct Support Unit, 11th ACR. This fielding has been successfully employed to ship, store, and receive supplies. The July 2010 go-live event implemented maintenance, property book, unit supply, and finance capabilities in the 11th ACR. During this implementation, PM GCSS-Army, in coordination with CASCOM ESD, and the Army Test and Evaluation Command, conducted a limited-user test and an independent Government test (IGT) to evaluate the capabilities of GCSS-Army in a battlefield environment. The results of these events were positive.

At the conclusion of the IGT event, PM GCSS-Army asked the users who participated in the IGT to complete an end-of-test survey; the results of the survey gave

⁷ Project Manager Global Combat Support System-Army. "GCSS-Army: Education," <https://gcss.army.mil/education.html>, accessed 16 June 2011.

⁸ Aundree F. Piggee, "Transformation—Revolution in Military Logistics," U.S. Army War College Strategy Research Project, Carlisle Barracks, Pennsylvania, 2002, pp. 1–2.

⁹ Thomas R. Gullledge, Jr., and Rainer A. Sommer, "Business Process Management: Public Sector Implications," *Business Process Management Journal*, Vol. 8, No. 4, 2002, pp. 364–376.

¹⁰ Vincent C. Yen, "An Integrated Model for Business Process Measurement," *Business Process Management Journal*, Vol. 15, No. 6, 2009, p. 867.

¹¹ James Y.L. Thong, Chee-Sing Yap, and Kin-Lee Seah, "Business Process Reengineering in the Public Sector: The Case of the Housing Development Board in Singapore," *Journal of Management Information Systems*, Vol. 17, No. 1, Summer 2000, p. 257.

¹² Fethi Calisir and Ferah Calisir, "The relation of interface usability characteristics, perceived usefulness, and perceived ease of use to end-user satisfaction with enterprise resource planning (ERP) systems," *Computers in Human Behavior*, Vol. 20, No. 4, July 2004, p. 506.

¹³ Jurij Jaklič, Mojca Indihar Štemberger, "A Methodology for a Business Process Change in Public Sector," 2005, p. 39, <http://si.vse.cz/archive/proceedings/2005/a-methodology-for-a-business-process-change-in-public-sector.pdf>, accessed on 16 June 2011.

PM GCSS–Army and CASCOM ESD a glimpse of how the system will be received in the field.¹⁴ The IGT participants were a mix of Army National Guard and Army Reserve personnel with over 60 years of combined logistics and financial management experience using legacy LOG IT and automated financial management systems. The diversity of these users was critical in testing the system.

The survey was intended to help the development team enhance GCSS–Army’s effectiveness and quality. The survey addressed each functional business area by allowing users to provide responses to open-ended questions that addressed various categories. The survey found that most users agreed that GCSS–Army provided a “greater level of visibility and data accuracy” than legacy systems, especially when it came to total asset visibility of classes II (clothing and individual equipment) and VII (major end items).¹⁵

IGT Results

Users thought that being able to immediately hand-receipt equipment to the user level as soon as equipment is received was a capability that legacy systems did not provide. But these same users found the dispatch process to be time consuming. One respondent suggested that a legacy dispatch that took less than 5 minutes takes 10 to 15 minutes in GCSS–Army.¹⁶

Because of this observation, CASCOM has been working with developers to enhance many of the system’s processes, including the dispatch process. For instance, by reviewing the process log for each completed dispatch, an analysis can be conducted to determine the length of time a dispatch notification takes. This process includes the time from when a user begins the dispatch notification until the notification is completed and the dispatch is put in process.

During the period from 31 October to 30 November 2010, 893 dispatches were processed at the 11th ACR. A random analysis of 63 of the completed dispatches revealed that the average time to put a dispatch in process was 5 minutes 12 seconds.

During the period from 30 May to 30 June 2011, 361 dispatches were completed. A random analysis of 63 completed dispatches revealed a reduction in the time it took to put a notification in process from 5 minutes 12 seconds to 3 minutes 51 seconds.

One explanation for the improvement could be that leaders implemented local policies and procedures to improve the processing of dispatches. Or CASCOM and the developer may have streamlined the dispatch

process. Another possibility is that 11th ACR users are more experienced with GCSS–Army. A final possibility is the switch from the SAP graphical user interface (GUI) for hypertext markup language file (HTML) to the SAP GUI for Java.

The SAP GUI for HTML reduces the usability of the system because a webpage will load each time a user requests or updates data. But when SAP GUI for Java loads a webpage, all of the data needed is loaded at one time, speeding up the associated processes. After making the switch to SAP GUI for Java, there was a “77% improvement in overall transaction duration over SAP GUI for HTML.”¹⁷

Users indicated that operator qualifications management significantly improved in GCSS–Army over legacy systems. The human resources (HR) management capability is not a major module within GCSS–Army, but it does play a part. Without the HR processes, vehicles could not be dispatched and materials could not be assigned. HR processes also facilitate security role management in the enterprise using MTOE and TDA data from the Army Force Management Support Agency.

For example, through an interface with authoritative HR sources, such as the Electronic Military Personnel Office, when personnel are assigned to MTOE or TDA positions through an interface with these agencies, users inherit specific security roles and permissions and access GCSS–Army with a security-enabled common access card. In legacy LOG IT systems, operators had to have their operator permits regenerated or rebuilt when they arrived at their new duty station. GCSS–Army maintains qualifications on all personnel, eliminating the need to recreate qualification records.

Finance will be new to many logisticians, and most of the financial transactions occur behind the scenes and do not affect the logistics users. GCSS–Army provides interface and transactional-level data to the General Fund Enterprise Business System (GFEBS). This system provides the financial visibility of the Army’s tactical assets. Overall, the respondents provided positive feedback on finance functionality. One respondent stated that GCSS–Army provides the “ability to track budget in one place and [have] an automatic mirror image,”¹⁸ which provides finance and logistics users more visibility over spending.

This control is provided by GCSS–Army through the ZPARK function, which works much like the Integrated Material Automation Program (IMAP) checkbook, which is an Army National Guard requirement. How-

ever, the finance capability is still being developed and enhanced based on the interface requirements and the mandate to have a fully synchronized federal financial template for GCSS–Army and GFEBS. This capability is one of the more difficult functions because it requires multiple agencies and programs (the Defense Finance and Accounting Service, the Assistant Secretary of the Army for Financial Management and Comptroller, GFEBS, and GCSS–Army) to agree on a standardized solution that will work for the Army as an enterprise.

Overall, the IGT participants’ comments and contributions are valuable to CASCOM ESD and PM GCSS–Army. Comments and contributions from users in the lab setting provide guidance and help to direct efforts to enhance the system’s capabilities, effectiveness, and quality, which affect user satisfaction with the system.

11th ACR Stakeholder Assessment

PM GCSS–Army, in coordination with Northrop Grumman, conducted a stakeholder assessment in January 2011. During this 3-day event, Northrop Grumman’s Organizational Change Management (OCM) team conducted 1½-hour interviews with 46 GCSS–Army users at the 11th ACR. Leaders and managers seemed to like the capabilities the system provides. For instance, the assessment suggests this group of users appreciated the increased visibility of statuses and processes the system provides.

Unlike many legacy systems, clerks can multitask in GCSS–Army. Users in the maintenance section of the 58th Engineering Company stated that before GCSS–Army only one clerk at a time could complete a task, but now clerks can perform several functions at the same time. This level of efficiency was unheard of with legacy systems.

Maintenance users seemed to like the system; they stated that the dispatch process “. . . has improved 10-fold from legacy [equipment].”¹⁹ This was attributed to the visibility of equipment statuses, which are provided in near real time in the equipment status report. However, to maximize the benefits for users and the organization, leaders need to be brought up to speed on the enhancements made to the dispatch processes.

Supply users revealed a different outlook on the system. Users in the support operations section (SPO) had difficulties understanding the new manager review file process and how cancellations are completed. As a result of the enhancements to the process, only those users who opened a request could terminate it and only those in the SPO had visibility of the release strategy.

This created confusion and problems at lower echelons of the supply chain. Miscommunication and misunderstandings of this process created problems for users at the 11th ACR.²⁰ For instance, a materiel officer at the regimental support squadron SPO summed it up this way:

When you do the release strategy, you don’t see what is there, you just see you have notifications, and then you have to click and drill down into each notification to see what it is . . . the amount of places you have to go and do research is a lot. You must have a clear understanding of each process.

It is important that leaders are aware of and understand supply statuses in GCSS–Army. A status update is provided for high-priority requests, whereas lower priority requests receive no status update unless it is provided to the user by the SSA based on a request to the supporting SSA. This inhibits decisionmaking processes and logistics planning. Supply statuses in accordance with Army Regulation 725–50, Requisitioning, Receipt, and Issue System, are provided to supporting SSAs, and when users request a status from supporting activities, the requester often believes the status being provided is inadequate for decisionmaking and planning.

Managing shop stock is an important point inhibiting GCSS–Army’s adoption. Unlike legacy systems, GCSS–Army is an integrated product crossing functional boundaries. The integration of the system prohibits many of the actions done in legacy systems. In legacy systems, for example, when a part is received at the motor pool, it is not hard for users to identify which vehicle a part belongs to. In GCSS–Army, this requires a considerable amount of time and research on the user’s part because the part is associated with a materiel release order containing a DOD document number not referenced to the GCSS–Army document number.²¹ This decreases the amount of repair parts processed at any given time, and leader awareness is needed to ensure that users can be successful in this process.

The OCM assessment indicated training and communication was an issue at the 11th ACR. Based on user responses, 26 of the respondents stated that “training was not realistic or accurate,” and 7 responses stated that new equipment training did not prepare them for their jobs.²² Early in the development process, producing quality training products for GCSS–Army was a problem. Both the PM and CASCOM combat developers have acknowledged issues with training products and have stepped up their oversight and involvement in

¹⁴ Project Manager Global Combat Support System–Army, Independent Government Test (IGT) Exit Survey Reponses, 2010.

¹⁵ Ibid., p. 3.

¹⁶ Ibid., p. 7.

¹⁷ Northrop Grumman, 11103–361: GCSS–Army Release 1.1 User Interface Performance Tiger Team Final Report, 2011, p. 27.

¹⁸ Project Manager Global Combat Support System–Army, Independent Government Test (IGT) Exit Survey Reponses, 2010, p. 8.

¹⁹ Northrop Grumman, GCSS–Army Organizational Change Management 11th Armored Cavalry Regiment Site Visit and Stakeholder Assessment, Final Draft, 2011, p. 14.

²⁰ Ibid., p. 10.

²¹ Ibid., p. 13.

²² Ibid., p. B-7.

the preparation of training products.

One example of the progress made in the development of training products is the Electronic Performance Support System. This online help system gives GCSS–Army users access to a wide variety of tools, such as simulations, job aids, cue cards, process maps, and other tools. Another possible solution is to have representatives from the field, including National Guard and Army Reserve logisticians, participate in training evaluation activities. Having representation from the field helps the developers capture the expertise needed to develop training products that are more realistic and as close to the logistics process as possible. This also helps to ensure that training meets the standards suggested by participants from both the IGT and the site visit conducted by the OCM team.

It is apparent, despite training issues and learning curves associated with the system, that users are adopting GCSS–Army as a viable replacement for legacy LOG IT systems. Users are realizing the benefits associated with an integrated system like GCSS–Army. Leaders need to ensure that all users embrace the system by communicating their acceptance of GCSS–Army, thereby displaying confidence in the users’ abilities to adapt to GCSS–Army and perform their missions as effectively as possible.

With the transformation of legacy logistics systems well underway, a continued analysis indicates that users have both positive and negative emotions about the GCSS–Army’s capabilities. It is important for leaders to understand that users can be affected negatively by the implementation of a mandatory-use system. The implementation of a mandatory-use ERP can negatively affect a user’s job satisfaction, feelings toward leadership, and loyalty toward the organization.²³ User satisfaction is probably the most important and widely used metric used in the determining ERP success.²⁴

CASCOM, PM GCSS–Army, and Northrop Grumman have increased their efforts to address the usability and training factors necessary to increase user satisfaction with the system. Together, their efforts in developing better training products and enhancing user interfaces have made great strides toward increasing user satisfaction. But it does not end there; leadership plays an important role in user satisfaction. For example, leaders can provide guidance on how the system can increase productivity or enhance mission success. Leaders’ intervention in the form of communication is

key to increasing user satisfaction and adoption of the system.²⁵

Open and honest communication at all levels throughout the development life cycle is important for a user’s adoption of the system. A good user interface will improve learnability, thus reducing the user’s mental workload associated with completing designated tasks.²⁶ Users must realize that using the system will increase their performance and productivity, and leadership is the key to this realization.

Finally, for GCSS–Army to be successful, we all must take action in all areas of this transformation in order to increase user satisfaction with, and adoption of, GCSS–Army. CASCOM is taking action by ensuring that the factors affecting usability and learnability are being addressed. The PM is communicating system benefits in every venue available. Northrop Grumman is working to ensure, within the constraints of the program, that these same factors are being properly addressed.

For further information about GCSS–Army, visit the GCSS–Army website, www.gcss.army.mil, or contact one of the authors at william.a.huckabee.civ@mail.mil or marcus.smoot@us.army.mil.

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²³ S. A. Brown, A. P. Massey, M. M. Montoya-Weiss, and J. R. Burkman, “Do I Really Have To? User Acceptance of Mandated Technology,” *European Journal of Information Systems*, Vol.11, 2002, p. 283.

²⁴ *Ibid.*, p. 284.

²⁵ Yujong Hwang, “Investigating Enterprise Systems Adoption: Uncertainty Avoidance, Intrinsic Motivation, and the Technology Acceptance Model,” *European Journal of Information Systems*, Vol. 14, No. 2, p. 151.

²⁶ Fethi Calisir and Ferah Calisir, p. 511.

Lead Materiel Integrator Decision Support Tool Released by Logistics Support Activity

The Army Materiel Command’s Logistics Support Activity (LOGSA) released the Lead Materiel Integrator (LMI) Decision Support Tool (DST) on 15 December 2011. LMI DST contains a powerful sourcing engine that compares the Army’s resources with its validated and prioritized requirements. The tool helps leaders make decisions about materiel distribution and redistribution within their units and agencies and provides guidance based on current Army policies and directives.

The initial software release and the designation of the Army Sustainment Command as the Army’s LMI on 15 February 2012 change the way the service executes materiel distribution by shifting the management of equipment to a collaborative, web-based environment emphasizing transparency and efficiency.

LOGSA plans to improve LMI DST every 6 months until it becomes fully functional in June 2013.

A future release will track each approved action from initiation to fulfillment.

Army Field Support Brigade Supports Department of State Mission in Iraq

Personnel from the 402d Army Field Support Brigade (AFSB) are providing maintenance support for Army equipment handed over to the Department of State and the Office of Security Cooperation–Iraq after the withdrawal of U.S. forces from Iraq.

“While the combat mission performed by [a] uniformed military presence will transition, the 402d Army Field Support Brigade will continue to support our Nation’s objective of maintaining a stable strategic partner in the Government of Iraq,” said Colonel John S. Laskodi, commander of the 402d AFSB.

Brigade support to the Department of State mission includes base life support and maintenance support for force protection equipment, such as mine-resistant ambush-protected vehicles. The brigade will have personnel at Department of State sites and will operate maintenance hubs at Basrah, Kirkuk, and Taji.

Army Explores Hydrogen Fuel Cell Use

The Army is in the process of providing hydrogen fuel cells to 24 buildings at 9 Government sites to replace fossil-fuel cells for backup power generators. The Building Operations Control Center at Aberdeen Proving Ground, Maryland, was the first site to have the new cells installed.

The Department of Energy and the Army Corps of Engineers project has been underway since November and is one of many projects initiated to improve the energy security of the United States. The technology is

also being considered as an option for stationary power systems, light-duty vehicles, portable electronics, forklifts, and portable lighting equipment.

Shower Water Reuse Systems Employed at Forward Operating Bases in Afghanistan

Since September 2011, the Army has fielded 54 shower water reuse systems (SWRSs) to units in Afghanistan. The SWRS, developed by the Army’s Product Manager Force Sustainment Systems, is designed to drastically reduce the logistics burden on units supplying forward operating bases. SWRSs lower the cost per gallon of water and the time spent transporting water to resupply deployed troops.

Each SWRS costs approximately \$170,000. The technology combines the tactical water purification system and hospital containerized batch laundry capabilities to treat and return to use up to 9,000 gallons of water a day. Using just one system at its full capacity can result in saving potentially 3.2 million gallons of water a year.

Shower water makes up about 75 percent of the potable water used on forward operating bases. Ken Fahy, program executive officer for combat support and combat service support, says that drastically reducing water resupply missions by using SWRS returns more Soldiers to the field and reduces the burden on forces during drawdown operations.

“Within the Army, 70 to 80 percent of our resupply weight or convoy weight is fuel and water,” said Assistant Secretary of the Army for Installations, Energy and



The shower water reuse system is being used at forward operating bases to reduce the need for water resupply.

Environment Katherine Hammack. “We know that our budgets are going to be coming down. . . . But if we can deploy technology that makes us much more efficient, so we don’t need those resources, we’re not only demonstrating fiduciary responsibility, but we’re enhancing the mission.”

At this time, the water used in SWRS has been approved by the surgeon general for shower reuse only. Additional testing at Fort Devens, Massachusetts, is working on using the same system for laundry water reuse.

Inaugural Equipment Innovation Awards Presented by the Army Food Advisor

The Army Food Advisor Equipment Innovation Award Program was established in 2011 to recognize Soldiers for their creativity and innovation in developing field equipment or components that will help shape the Army’s forward field-feeding solutions for the year 2020 and beyond. The first winners of the awards were recognized on 15 November 2011 at the Natick Soldier Research, Development and Engineering Center in Massachusetts.

The individual award winner was Specialist Shaunta Cain of B Battery, 5th Battalion, 7th Air Defense Artillery, in Kaiserslautern, Germany. She was recognized for her design of a compact Army field kitchen.

The organizational award went to Chief Warrant Officer 3 Jeff Lein of the Army Special Forces Command and Chief Warrant Officer 2 William Wencil, Chief Warrant Officer 2 Edgar Walle, and Sergeant First Class Sheldon Tate (posthumously) of the 508th Parachute Infantry Regiment, 4th Brigade Combat Team, 82d Airborne Division, at Fort Bragg, North Carolina. This group designed and fabricated the Spartan field kitchen, which then was operated at a remote site in Kandahar Province, Afghanistan. Sergeant Tate’s operation of the kitchen provided testing results for improvements made to the design.

RECENTLY PUBLISHED

Army Techniques Publication (ATP) 3–90.90, Army Tactical Standard Operating Procedures, published 1 November 2011, is the first ATP published by the Army under the Doctrine 2015 initiative. The publication itself is only three chapters long. Numerous annexes to the document with examples of unclassified standard operating procedures (SOPs) can be accessed through the milSuite website, https://www.milsuite.mil/wiki/Portal:Standard_Operating_Procedures. These examples are designed to facilitate development of unit SOPs. Annex F, Sustainment, outlines sustainment operations and responsibilities.

New Delivery System Provides Fuel and Water to Forward Operating Bases

A new system promises a more reliable, cost-effective way to transport fuel and water to remote outposts. The container unitized bulk equipment (CUBE) system contains 2 fuel blivets, or water bladders, that can hold as much as 500 gallons of liquid apiece for delivery to forward operating bases (FOBs) by helicopter, airplane, or truck. For air transportation, the bags are placed in two plastic crates and moved using a low-cost sling load net.

Traditionally, fuel and water are delivered in 55-gallon drums or 500-gallon blivets that can take up large amounts of space at small FOBs and have to be returned when empty.

The CUBE system removes these challenges. The systems are stackable and collapsible, making their storage and transportation more manageable. Once the liquid products are dispensed, the crates can be repurposed to provide additional storage and transport containers for FOBs.

No new equipment was developed for this system. It is composed of items already in the Government procurement system and commercially available items. The national stock number (NSN) for the fuel CUBE kit is 1670–01–598–5071, and the NSN for the water CUBE kit is 1670–01–598–5067.

The Quick Reaction Cell, Natick Soldier Research, Development and Engineering Center (NSRDEC QRC), and the Soldier Product Support Integration Directorate, Integrated Logistics Support Center, TACOM Life Cycle Management Command, have developed an interim technical document to guide system use until an official technical manual is developed for users to reference.

Dave Roy, an operations analyst with NSRDEC QRC, says the system will be useful to humanitarian missions executed by Government agencies, such as the Department of State, the Department of Homeland Security, and the U.S. Forest Service, in addition to the Department of Defense.

Philip A. Connelly Award Winners Announced for 2012

The winners of the 2012 Philip A. Connelly Award for Excellence in Army Food Service were announced on 28 December. The award program is cosponsored by the International Food Service Executives Association (IFSEA) and the Department of the Army G–4 and is managed by the Army Quartermaster School at Fort Lee, Virginia. It recognizes Army food service excellence through the evaluation of food preparation, taste, nutrition, service, and sanitation practices. The 2012 winners are:

- Military garrison: 1st Battalion, 10th Special Forces Group (Airborne) dining facility, Panzer Kaserne, Stuttgart, Germany.

- Civilian garrison: Dining facility #2, Fort Gordon, Georgia.
- Active Army field kitchen: Headquarters and Headquarters Company, 307th Brigade Support Battalion, 1st Brigade Combat Team, 82d Airborne Division, Fort Bragg, North Carolina.
- Army National Guard field kitchen: 267th Maintenance Company, Lincoln, Nebraska.
- Army Reserve field kitchen: 326th Quartermaster Company, New Castle, Pennsylvania.

The awards ceremony honoring these units will be held at the end of March in San Diego, California, during the IFSEA Conference and Trade Show.

Chemical Stockpile Destruction Completed at Anniston Army Depot

On 22 September 2011, the Anniston Chemical Agent Disposal Facility at Anniston Army Depot, Alabama, completed the disposal of the chemical weapons stockpile stored there and began closure operations.

The facility’s original inventory of chemical weapons included 661,529 nerve agent and mustard agent muni-

tions and 2,254 tons of chemical agent. The destruction of this stockpile began on 9 August 2003.

Facility closure operations will continue through 2013. The Army Chemical Materials Agency has already completed disposal operations and closed chemical weapons facilities at Edgewood, Maryland; Newport, Indiana; and Johnston Atoll, located 800 miles southwest of Hawaii.

Army Greatest Inventions of 2010 Honored

The Army recognized its greatest inventions of 2010 on 11 October 2011. Many of the 2010 winners were developed in the field by Soldiers. The winning technologies are listed below.

40-millimeter infrared illuminant cartridge for M992 field artillery ammunition support vehicle. The cartridge produces infrared light that is only visible through night-vision devices so that Soldiers can see more clearly during nighttime operations.

M855A1 enhanced performance round. This 5.56-millimeter bullet features a larger steel penetrator tip than its predecessor and a copper core. From June to

Last U.S. Brigade Crosses Border From Iraq to Kuwait

On 18 December 2011, Soldiers from the 265th Movement Control Team, 1st Theater Sustainment Command, Third Army, and Kuwaiti border military police closed Khabari Crossing between Iraq and Kuwait, marking the exit of the last U.S. brigade from Iraq. This last troop movement departed from Contingency Operating Base Adder near Nasiriya, Iraq, and consisted of more than 100 vehicles and 500 Soldiers. Operation New Dawn officially ended on 15 December 2011. (Photo by MSG Montigo White)



October 2011, Program Executive Office Ammunition fielded 30 million of these new rounds to U.S. forces in Afghanistan.

Green Eyes (escalation-of-force kit). This system, which has been integrated for use with the Common Remotely Operated Weapons Station, emits a wide band of green light that temporarily disrupts a person's vision, making it hard to drive a vehicle or aim a weapon. At close range, the lasers provide an immediate, nonlethal capability.

Husky Mark III (second generation, 2-seat prototype). This landmine detection vehicle responds immediately to the warfighter's need to mitigate the risks of task overload on its operators. It also increases the ability of the route clearance package (RCP) to find and neutralize improvised explosive devices (IEDs) and provides direct-fire capability for the lead vehicle of the RCP.

Jackal Explosive Hazard Pre-Detonation System. The Jackal is an IED-defeat system that neutralizes threats to Soldiers during route-clearance and convoy-related missions. The Armament Research, Development and Engineering Center developed and fielded the system to Soldiers in 2010.

M240L 7.62-millimeter lightweight medium machinegun. This replacement for the M240B machinegun reduces the weight of the weapon without compromising reliability.

Mobile Care Project (mCare). This cellphone-based, bidirectional messaging system was developed by the Telemedicine and Advanced Technology Research Center, Army Medical Research and Materiel Command. It is designed to connect care-team members with warriors in transition throughout their outpatient recovery process by way of the wounded warrior's personal

cellphone. It was developed by modifying commercial off-the-shelf technology to meet the needs of the Army Medical Department. The mCare system is secure and complies with the Health Insurance Portability and Accountability Act.

Mortar Fire Control System-Dismounted. This new system enhances the responsiveness of the M120A1 Towed Mortar System, enables digital coordination of multiple fire support systems, and reduces the time needed to emplace, fire, and displace the weapon.

RG-31 Robot Deployment System. This technology provides a low-cost, lightweight solution for transporting and deploying route clearance robots in combat. It enables Soldiers to comfortably transport, deploy, and operate road-clearance robots while remaining protected inside their vehicles.

Soldier Wearable Integrated Power Equipment System (SWIPES). SWIPES integrates force protection communications and electronics equipment with an advanced battery power source, allowing for extended mission times without having to replace or recharge a power source.

Army leaders also recognized two 2010 Soldier Greatest Inventions. Staff Sergeant Vincent Winkowski and other members of the 1st Battalion, 133d Infantry Regiment, Iowa Army National Guard, developed the "Ironman" ammunition pack system for small dismounted teams. This high-capacity ammunition carriage system enables a machinegunner to carry and fire 500 rounds of linked ammunition from a rucksack-like carrier.

Corporal Eric DeHart from the 428th Engineer Company also was recognized for designing and building a culvert-denial system to stop the placement of roadside bombs in culverts.

Writing for *Army Sustainment*

If you are interested in submitting an article to *Army Sustainment*, here are a few suggestions. Before you begin writing, review a past issue of *Army Sustainment*; it will be your best guide. Then follow these rules:

- Keep your writing simple and straightforward (try reading it back to yourself or to a colleague).
- Attribute all quotes.
- Identify all acronyms, technical terms, and publications (for example, Field Manual [FM] 4-0, Sustainment).
- Do not assume that those reading your article are necessarily Soldiers or that they have background knowledge of your subject; The *Army Sustainment* readership is broad.
- Submissions should generally be between 800 and 4,000 words. (The word limit does not apply to Spectrum articles. Spectrum is a department of *Army Sustainment* intended to present researched, referenced articles typical of a scholarly journal.)

Instructions for Submitting an Article

- Army Sustainment* publishes only original articles, so please do not send your article to other publications.
- Obtain official clearance for open publication from your public affairs office before submitting your article to *Army Sustainment*. Include the clearance statement from the public affairs office with your submission. Exceptions to the requirement for public affairs clearance include historical articles and those that reflect a personal opinion or contain a personal suggestion.
- Submit the article as a simple Microsoft Word document—not in layout format. We will determine layout for publication.
- Send photos and charts as separate documents. Make sure that all graphics can be opened for editing by the *Army Sustainment* staff.
- Send photos as .jpg or .tif files—at least 300 dpi. Photos may be in color or black and white. Photos embedded in Word or PowerPoint will not be used.
- Include a description of each photo submitted and acronym definitions for charts.
- Submit your article by email to leeaalog@conus.army.mil or by mail to—

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If you mail your article, please include a copy on CD if possible.

If you have questions about these requirements, please contact us at leeaalog@conus.army.mil or (804) 765-4761 or DSN 539-4761. We look forward to hearing from you.

UPCOMING EVENTS

Transportation Corps to Celebrate 70th Birthday

The Army Transportation Corps (TC) will celebrate its 70th birthday at Fort Lee, Virginia, during the TC Symposium, to be held from 25 to 28 July 2012.

All TC Soldiers are invited to attend. Events will include a state of the corps brief by the Chief of Transportation, Colonel (P) Stephen E. Farnen, memorialization of the Army Transportation School building, and ceremonies recognizing TC warriors, fallen heroes, and hall of fame inductees. There will also be a regimental run, a golf scramble, a regimental ball, static equipment displays, and automation systems demonstrations. For more information, visit the Army Transportation School page on Facebook or its website at www.transchool.lee.army.mil.

AUSA Sustainment Symposium and Exposition to Take Place in May

The Association of the United States Army will hold its Institute of Land Warfare Sustainment Symposium and Exposition from 8 to 10 May at the Greater Richmond Convention Center in Richmond, Virginia. This is almost 2 months earlier than last year's event. For more information or to register, visit www.ausea.org.

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- Moving Liquid Gold
- Developing Logistics and Property Accountability in Afghanistan
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- Rethinking the Last Tactical Mile
- Boat to Plane to Foxhole: Seven Steps to Intermodal Operations