ARMY LOGISTICIAN

Supporting a Battlefield Surveillance Brigade

Building an Army for Afghanistan
Ready, Set, Redeploy
Logistics Force Generation for Iraq
Ensuring CLP Success
Low-Cost, Low-Altitude Aerial Resupply

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Cover: The 525th Battlefield Surveillance Brigade (Airborne), the Army's first battlefield surveillance brigade (BfSB), has the critical mission of conducting intelligence, surveillance, and reconnaissance operations in support of the XVIII Airborne Corps. The 29th Brigade Support Company (BSC) is responsible for providing BfSB sustainment. The article beginning on page **26** describes how the 29th BSC used a mission readiness exercise to prepare to support the BfSB during deployment. On the cover, a senior maintenance technician demonstrates how to change a vehicle ball joint.

The Army's New Logistics Branch: An Interview With CASCOM's Commanding General

I n response to a growing need for all logistics officers to be multiskilled logisticians, the Army established the Logistics branch on 1 January 2008. Rather than being singularly focused on one of the existing branches, the new Logistics branch joins Ordnance, Quartermaster, and Transportation officers into one unified branch at the rank of captain. During their advanced officer training, the Combined Logistics Captains Career Course, these officers are trained to anticipate requirements and plan, integrate, and execute all types of deployment and sustainment activities. Major General Mitchell H. Stevenson, the commanding general of the Army Combined Arms Support Command (CASCOM), recently addressed some questions concerning the evolution of the officer logistician and what is in store for the future.

Major General Stevenson, what is the Logistics branch?

The Logistics branch is the newest branch of the Army and is only for logistics officers from the grades of captain through colonel. Logistics branch officers are trained and experienced in supply, maintenance, and transportation—not just a single functional area. However, each officer in the Logistics branch is required to have one functional area of expertise—an aspect of logistics that he is especially good at—and through this means he will retain functional area competence for those jobs that are mostly branch-specific in nature.

Why was it created?

The Logistics branch was created because the Army needs multiskilled logistics officers, starting at the grade of captain. The primary battalion-level organization that provides multifunctional logistics support for the brigade combat team, the brigade support battalion, consists of a mixture of supply, maintenance, and transportation Soldiers. Within the brigade support

The new Logistics branch was inaugurated at an insignia exchange ceremony at Fort Lee, Virginia, on 9 January. Major General Mitchell H. Stevenson, commanding general of the Army Combined Arms Support Command (front, right); Brigadier General James E. Chambers, commanding general of the Army Transportation Center and School (center); and Brigadier General Jesse R. Cross, commanding general of the Army Quartermaster Center and School (back), exchange the current branch insignia of representatives of the three historical branches for their new Logistics branch insignia. Major Jennifer Wesley (front, left) represented the Ordnance Corps, Lieutenant Colonel Charles Moses represented the Transportation Corps, and Captain Brian Cozine represented the Quartermaster Corps. *(Photo by Jorge Gomez, Fort Lee PAO)*

battalion is a unit called the "forward support company," a multifunctional company that provides supply, maintenance, and transportation support to each maneuver battalion in the brigade combat team. As you can see, to be an effective logistician in the new modular, brigade-based Army, logistics officers—starting with the captain who commands the forward support company—must be proficient and knowledgeable in all facets of logistics. We need our logistics captains to focus on becoming experts in multifunctional logistics, rather than just one aspect of logistics. Again, we are not walking away from functional area competence; all logistics branch officers will have a functional area of expertise in which they will concentrate their training and experience throughout their careers.

What does this mean for Soldiers who are already in the Quartermaster, Transportation and Ordnance branches? Have the different branches gone away?

The Quartermaster, Transportation, and Ordnance branches have not gone away. Logistics branch officers in the grades of captain through colonel make up less than 5 percent of the total logistics population in the Army. The other 95 percent of logisticians in the Army, who are functionally focused on a particular logistics specialty, still occupy the traditional Quartermaster, Ordnance, and Transportation branches.

Logistics lieutenants, the most junior of officers, still enter the Army in one of these three traditional branches. Their job is to become proficient in their basic branches. Our lieutenants still lead platoons of Soldiers from one branch. For example, a transportation lieutenant will be platoon leader of a truck platoon that is made up of Soldiers who are trained as truck drivers. An ordnance lieutenant might be platoon leader of a maintenance platoon that is made up of Soldiers who are trained to repair all of the different pieces of equipment we have in the Army. A quartermaster lieutenant will be the platoon leader of a supply platoon that is made up of Soldiers who receive, store, and issue supplies. After lieutenants demonstrate proficiency within their basic branches, they will attend the Combined Logistics Captains Career Course, where they will be trained on how to effectively blend all of these functions to support our Army on the battlefield. Officers in the grades of captain through colonel who have already completed the Combined Logistics Captains Career Course (or an early version of a logistics advanced course) automatically converted to the Logistics branch on 1 January 2008.

How does the creation of the Logistics branch benefit the Army?

Logistics branch officers are trained for, and often assigned to, multifunctional logistics roles as opposed to a single logistics function. Since the birth of our Nation, officers have been primarily functionally focused in a particular field, and that has worked well for us for over 200 years. But it will not work well for us in the future. We have recognized a need to change how we train and employ logistics officers, from captain through colonel, and so, with the creation of the logistics branch, we are accounting for this new need. As a result, Army logistics officers can be better prepared to provide the top notch logistics support to which our Army has become accustomed. Incidentally, we are not the only nation taking this step with our logistics officers, but no other nation is combining supply, transportation, and maintenance as ours has.

Why does the military need multifunctional Army logistics officers?

As Logistics officers progress through their careers, and the more senior they become, the more time they spend planning and executing missions that involve all aspects of logistics. When an officer reaches the field-grade level, from major to colonel, they not only participate in logistics activities at the tactical and operational levels but also at the joint and strategic levels. These joint and strategic levels involve coordination with the Navy, Air Force, Marine Corps, and even other countries. Officers must have a wide range of logistics expertise and knowledge in order to be effective.

Within the Logistics branch, what types of assignments should officers have in order to be successful?

Logistics branch officers should strive to gain as much experience as possible in multifunctional logistics positions throughout the Army, and also remain skilled at their chosen functional area of expertise (for example, petroleum, oils, and lubricants operations). The new Department of the Army Pamphlet (DA Pam) 600–3, Commissioned Officer Professional Development and Career Management, was just published on 30 November 2007 and details the types of assignments that will allow our officers to develop themselves as logisticians. Officers should remember that all assignments are important, and they should do the best they can in whatever assignment they are given.

What are some of the attributes you would look for in a multifunctional logistics officer?

A multifunctional logistics officer must understand the warfighter's concept of support and anticipate their

Quartermaster, Ordnance, and Transportation Soldiers in the ranks of captain through colonel exchange their current branch insignia for the new Logistics branch insignia at the 9 January ceremony at Fort Lee.

needs for sustainment in all situations, at all times, and under all conditions. He must integrate logistics into the commander's plan and respond rapidly to the ever-changing needs of the Soldier. He must be an expert in integrating the various aspects of logistics and, at the same time, use innovation and ingenuity when necessary.

How will the Logistics branch work within the Reserve component?

Within the Reserve component, the Logistics branch functions exactly the same as the Active component, except Reserve officers attend the specially designed Reserve component captains' career course for logisticians. The Reserve captains' career course began teaching and emphasizing multifunctional logistics instruction in October 2007.

Do you have a new branch insignia? Who is eligible to wear the new insignia?

Yes, we have created a new branch insignia. The insignia is a combination of the elements of our historical logistics regiments and demonstrates unity in purpose. Only officers who have graduated from the Combined Logistics Captains Career Course (or an earlier version of a logistics captains' course) wear the new insignia. Lieutenants and warrant officers wear the insignia of the Ordnance, Transportation, or Quartermaster branches.

Please explain how the insignia was created and what it represents.

We decided to let our Soldiers have a voice in the design of this insignia. We advertised in *Army Logistician* that we were looking for designs, and over 115 readers responded with all different kinds of ideas. Although we did not use any one design exactly as it was submitted, we took elements of many of them and, with the help of the Institute of Heraldry, came up with what we have today.

The insignia consists of a diagonally crossed key and cannon, surrounded by a ship's steering wheel with a stylized star in the middle. On the steering wheel is the Logistics branch motto, "Sustinendum Victoriam," which is Latin for "Sustaining Victory." This insignia represents the logisticians' mission of planning, integrating, and executing logistics activities in support of the Soldier. The key represents supply (quartermaster), the cannon represents maintenance and munitions

(ordnance), and the ship's wheel represents movement (transportation). The star in the center represents the unity and integration of all of these functions.

Is the insignia available for purchase through clothing sales? When will it become mandatory to wear the insignia?

The insignia is available for purchase now. Officers have until 31 July 2008 to purchase their new branch insignia. The all Army activities message 286/2007, published on 14 December 2007, further clarifies the rules for wear.

What office is responsible for managing the Logistics branch?

The Logistics Branch Proponency Office here at Fort Lee functions as the executive agent to the commanding general of CASCOM for all personnel proponency matters. The office is responsible for the Logistics branch's personnel life-cycle management functions, including writing the Logistics branch section of DA Pam 600–3. The office also manages the Logistics branch portion of DA Pam 611–21, Military Occupational Classification and Structure, and ensures that personnel management policies, programs, and procedures established at all levels properly support Logistics branch-related requirements and issues.

The Logistics Branch Proponency Office advises and assists the Army Human Resources Command on branch personnel matters other than individual personnel management decisions. The office also works hand in hand with the Army's Ordnance, Quartermaster, and Transportation branch proponency offices to ensure that the branches all stay in synch. The points of contact for the Logistics Branch Proponency Office are Lieutenant Colonel Vickie Stenfors, (804) 734–0315, and Rufus Montgomery, (804) 734–0312.

Where can people get more information about the Logistics branch?

For more information, you can go to the CASCOM website at www.cascom.army.mil and click on Logistics branch at the top of the page. We also have a topic site on LOGNet, which is the logistics section of the Battle Command Knowledge System. You can access this site using an Army Knowledge Online account at https://forums.bcks.army.mil.

MAJOR GENERAL MITCHELL H. STEVENSON IS THE COMMANDING GENERAL OF THE ARMY COMBINED ARMS SUPPORT COMMAND AND FORT LEE, VIRGINIA, AND THE CHAIRMAN OF THE ARMY LOGISTICIAN BOARD OF DIRECTORS.

Building an Army for Afghanistan

BY MAJOR JASON A. CROWE

How do you build an Army? That is the question that the U.S. military continues to grapple with in Afghanistan. The challenges range from the basics of recruiting, training, and equipping Afghan soldiers to establishing the logistics infrastructure to support and sustain them. Accomplishing this for our own military in a peacetime environment is difficult; accomplishing the same feat for a foreign army in a destitute and war-ravaged environment is nearly impossible. Yet that is precisely the mission we have been given. As we continue the Global War on Terrorism, this is a mission we can expect to repeat time and again while we develop our own allies to extend order and stability in remote locations.

For those of us who have been given the opportunity to support the Global War on Terrorism, the experience is both richly rewarding and deeply frustrating. I was given such an opportunity while deployed to Kabul, Afghanistan, throughout 2006 as a member of the Combined Security Transition Command-Afghanistan (CSTC–A). The CSTC–A is an organization chartered to coordinate with the Afghan government to establish both the Afghanistan National Army (ANA) and the Afghanistan National Police. My particular position was to serve as the senior ammunition mentor and ammunition program manager to the ANA.

My role, as I would learn, encompassed a lot more than a simple title. I was in a unique position to

An officer from the Combined Security Transition Command-Afghanistan inspects an ammunition identification training aid built by Afghanistan National Army Soldiers.

observe and participate in establishing a logistics chain from the tactical, strategic, and even political levels. While my focus was in the ammunition arena, many aspects of my experience were directly applicable across the logistics spectrum.

Ammunition Support for the ANA

The initial support and transition plan for providing ammunition for the ANA was relatively simple in concept but difficult to execute. The intent was to use a rough comparison with U.S.-made weapons to determine requirements, capitalize on existing ammunition stockpiles for supply, and obtain resupply through donations and U.S. direct purchases through foreign military sales. U.S. Army trainers would initially manage ammunition stocks while simultaneously training the ANA to assume the role. During this transition period, CSTC–A would supervise and coordinate facility upgrades for security and storage. The objective was an ANA-managed ammunition operation from cradle to grave.

While the initial plan was sound, it attempted to manage drastic changes in doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF). More often than not, changing realities on the ground drove a need for a course correction in midstream. The key lesson learned was to filter our planning according to the cultural environment before implementing the changes.

As a collective Army, it is essential to build on our experiences by sharing our lessons learned. The Army uses the DOTMLPF construct to insert changes into the way it operates. With the benefit of hindsight and by infusing cultural awareness into the DOTMLPF construct, we can better prepare for the challenges ahead.

Doctrine

Our original concept was to build a western-style, distribution-based logistics system. The intent was to manage logistics at the national level using strategically placed depots and distributing stocks based on plans and priorities established by the ANA's army-level staff. The keys to making this work were an effective accountability system to record on-hand quantities and consumption, a method of reporting requirements from the field, and a distribution system to redistribute assets as necessary.

We found that the Afghans' doctrine was based on what they had learned from the Soviet Union. Under Soviet doctrine, staff officers did not prepare staff

Members of the Afghanistan National Army general staff inspect a renovated ammunition bunker at the opening ceremony of the Khairabad Ammunition Depot.

estimates and mission analyses; they merely executed the commander's orders. When the Afghans fought the Soviets, it was on the move, with supplies hidden in caches that were under the direct control of regional tribal leaders. These influences produced ANA commanders with fierce tribal loyalties and passive staff officers. As a result, ANA units were extremely reluctant to cross-level or even report ammunition stocks to ANA units of differing regional or tribal affiliation. In most cases, corps commanders' priorities took precedence over those of the ANA army-level staff.

Further complicating the process was a lack of resources to transport ammunition effectively to remote locations over unsecured lines of communication. Security considerations and sometimes even weather conditions limited resupply missions. Implementing a pure distribution-based logistics system was extremely difficult. In the end, we developed a compromise between a supply-based and a distribution-based logistics system.

Organization

Our original organizational concept was based on five regional corps. Each corps consisted of three infantry battalions, a combat support battalion, and a combat service support battalion. We developed each of these battalions using our own battalions as templates. However, as we staffed logistics organizations, we found a problem arose when faced with end-strength limitations. The Afghans frequently misunderstood the roles of staff officers and the

Afghanistan National Army and coalition Soldiers download a shipment of AK–47 ammunition at Kandahar Air Field.

importance of logistics personnel. Afghan commanders distinctly preferred large contingents of combat soldiers to staff officers and logisticians. This prioritization resulted in a severe shortage of personnel in logistics positions. The leaders were predisposed to this mentality, and a change had to happen at the top level to correct it.

Training

Our training concept initially relied on mobile training teams to conduct hands-on training with the ANA soldiers, noncommissioned officers (NCOs), and staff officers. The intent was to provide the local commander with trained and capable ammunition handlers and staff officers who could receive, store, and issue ammunition safely and accurately. We found that the ANA did not learn well with traditional "platform" instruction. They insisted on printed handouts, and our translator often had to bounce from English to Dari to Pashtun, significantly increasing the time required to teach courses. Furthermore, the ANA generally relied heavily on personal experience and discounted anything that did not conform to what they already knew. When asked to consider doing something new, the typical response was that they had been fighting for generations and did not see the value in adopting new methods.

Another unanticipated challenge was how the ANA viewed the differences between officers and NCOs. In the U.S. Army, NCOs are the most proficient and skilled trainers. In the ANA, NCOs were not given the same respect, and that directly affected how ANA officers interacted with U.S. Army NCO instructors. U.S. trainers modified their training plan to accommodate these perceptions and to incorporate assistant instructors from the ANA when possible. To help the ANA gain interest in training, the trainers tied equipment and facilities funding to a unit's level of proficiency as demonstrated through training.

A final training issue that we did not anticipate was the propensity of the ANA to reassign soldiers between units without regard to the type of position or the training that the soldiers had. Keeping trained ANA soldiers in the right positions to accomplish the ammunition support mission was a constant challenge. Our strategy to counteract this problem was to maintain a detailed list of trained soldiers organized by identification card numbers. We presented this list to the ANA leaders to fill positions as needed.

Materiel

Initially, our intent was to support equipment currently in use by the ANA, primarily Soviet Block-style

weapons, such as AK–47 assault rifles, RPK light machineguns, PKM machineguns, rocket-propelled grenades, and SPG–9 73-millimeter recoilless rifles. The Afghans were familiar with these weapons and had existing stocks of them. New weapons arrived through donations and direct purchases, but we found that the ANA had a distinct preference for weapon systems based on past experience and country of make. If the Afghan soldiers were unfamiliar with a weapon system, or if the system was from a country they considered hostile or inferior, it was difficult to incorporate into their operations, even if it was more effective than what they were using.

This led to a significant challenge to introducing new systems because the ANA would either decline to use them or make false reports of failures to obtain a more favorable weapon system. To mitigate this problem, the U.S. trainers incorporated more training in the different weapon systems to inspire confidence and training on the correct tactical employment of various systems. On a related note, providing or withholding materiel proved to be the key bargaining factor in dealing with the ANA.

Leadership and Education

Leadership was consistently a challenge when adapting the ANA to a western-style logistics system. As noted earlier, ANA commanders are typically selected based on tribal or regional loyalties rather than proficiency or competence. This resulted in significant challenges in gaining a synchronized effort among the ANA leaders. Corps commanders of different tribal backgrounds often refused to agree, and staff officers at the headquarters level were challenged to gain concurrence from officers in the field.

To encourage unity, the CSTC–A encouraged and fostered a more diverse ANA officer corps through incentives to promote officers based on qualification rather than tribal loyalties. The CSTC–A also developed senior staff officer courses to bridge the gap between U.S. Army doctrine and ANA doctrine.

Personnel

A key challenge for the ANA was to recruit and retain qualified personnel to perform logistics functions. Some primary qualifications for ammunition personnel are the abilities to read procedures manuals, properly identify ammunition markings, and calculate net explosive weight.

We found that when we solicited candidates for training, we often had to conduct supplementary training in literacy, computer skills, and general knowledge. While this increased the ANA soldiers' ability to perform their tasks, it also took

up time previously intended for military occupational specialty training. Another unanticipated training issue was language. Occasionally, the ANA soldiers spoke Pashtun and their leaders spoke Dari. This brought about challenges ranging from which language to use when printing training materials to how to communicate among those speaking English, Pashtun, and Dari.

Facilities

Our original intent was to fund the construction of ammunition storage depots and forward ammunition storage points. We expected to build on existing Soviet-era depots and create new facilities to western safety and security standards. The expectation was that the ANA would be grateful for anything we funded. However, the ANA preferred underground, bunker-style facilities and insisted on several changes to the plan based on cultural considerations. They insisted that each location had to have a mosque, they stated a preference for wood over gas stoves, and they wanted specific arrangements for living facilities.

Significant controversy erupted over who was contracted to perform the work. Each local leader sought to provide work for his preferred vendor and excluded contractors from other tribal backgrounds. To mitigate this problem, the CSTC–A developed a lengthy contract bidding process to ensure that only qualified contractors could bid in the process. While this did not totally eliminate the problem, it provided a rationale for selecting contractors that was easy to explain to the ANA leaders.

The mission to establish and implement a fully functioning ammunition logistics system within the ANA is a project that began way before I arrived in theater and continues even now. I was fortunate to be a part of a great team of both U.S. and Afghan Soldiers. We learned through trial and error to adapt and modify our plan to match the realities on the ground. In more cases than not, we U.S. Soldiers had to learn from our ANA counterparts what their expectations were and how to integrate changes incrementally rather than drastically. By recognizing and addressing the cultural differences, we became more efficient as trainers and mentors. Looking back on it, I realize how steep the learning curve truly was. If, by sharing my experiences, I can shorten someone else's learning curve and pass something on, then it was all worthwhile.   **ALOG**

Major Jason A. Crowe is assigned to the Army Sustainment Command at Rock Island Arsenal, Illinois. He has a degree from Alabama A&M University and is a graduate of the Ordnance Officer Basic Course, the Combined Logistics Officers Advanced Course, and the Combined Arms and Services Staff School.

Sustainment Is Our Middle Name

BY CHARLES W. FICK, JR.

The Army Sustainment Command Distribution Management Center ensures that Soldiers have what they need, when and where they need it.

In the past year, the 1st Infantry Division's 3d Brigade at Fort Riley, Kansas, accelerated its transformation to a heavy brigade combat team. At Fort Bliss, Texas, an entirely new 5th Brigade, 1st Armored Division, has been built from the ground up. The Alaska-based 172d Stryker Brigade Combat Team (SBCT), which was reflagged as the 1–25 SBCT after returning from Iraq, reset after its combat tour. Four brigades headed to Iraq sooner than expected. Our Army is in motion everywhere, all the time. For a logistician, it is a target-rich environment, to say the least. Deadlines, headlines, timelines, and frontlines all compete for precious resources and attention.

Enter the Army Sustainment Command's (ASC's) Distribution Management Center (DMC), located at Rock Island Arsenal, Illinois. The DMC is at the heart of an operation that puts the right equipment in the right hands at the right time and place—in the right amounts and right condition. In other words, the DMC is responsible for sustaining our Army. It is a herculean task, compounded by transforming combat units, relocations, battle losses, scarce resources, and persistent conflict.

DMC Mission

Guided by the Army Force Generation (ARFOR-GEN) process, ASC and the Army Materiel Command (AMC) have tackled the task of integrating and applying the combined capabilities of the entire range of materiel and logistics service providers. Lieutenant Colonel Darryl J. Tumbleson, the DMC's officer in charge, described the DMC's role as pivotal, focusing "on the Soldiers who put the 'force' in ARFORGEN." He said that the DMC mission is "ensuring every Soldier has the means to fight and win when the call comes."

Since its activation in September 2006, the DMC has moved rapidly to support the modular, expeditionary Army. With over 100 Soldiers and 5 Army civilians, augmented by several dozen contractors, the DMC is expanding its capabilities daily.

Soldiers, Department of the Army civilians, and contract employees team up in the Distribution Management Center, the hub of the Army Sustainment Command's logistics readiness mission.
(U.S. Army photo by Ted Cavanaugh, E.L. Hamm and Associates, Inc.)

The DMC is connecting combat units with support services in an entirely new way, using a global, holistic approach. A global network of Army field support brigades and battalions, logistics support elements, and brigade logistics support teams connects the DMC at Rock Island with units in the field. With brigades, divisions, and corps going modular, logisticians are adapting. They have to adapt because the traditional, linear logistics organization will not work on today's battlefield.

Less than a year ago, most corps and divisions had their own support commands and materiel management centers and all the Soldiers, civilians, systems, and procedures needed to support them. Today, those functions have been embedded, to some degree, in formations, while ASC has stepped up to apply global solutions. "A 4th Infantry Division brigade combat team might be fighting under the direction of the 1st Armored Division, which may, in turn, be led by the XVIII Airborne Corps," Tumbleson said. "The modular Army demands innovative, responsive, and effective logistics solutions—on a global scale."

Support Readiness

Although the DMC might be described as a continental Unites States theater support command, its reach must connect units at every stage of the ARFORGEN process. "For example, we know a deployed unit will require reset on its return, so planning for this begins long before their return and continues until the unit's back on line for its next mission," said Lieutenant Colonel Robert Godlewski, chief of the DMC's Readiness Division.

Synchronizing support requirements with operational readiness needs is the heart of the DMC mission. DMC's advantage is its ability to identify, analyze, and act on all readiness issues. Tumbleson described the DMC as "logistics scouts, observing and reporting, then shaping the logistics battlespace." DMC's mission is like assembling a puzzle with a thousand pieces that are all in motion. Putting it together takes persistent professionals bringing their skills to bear. "The DMC is an effects-based operation. By looking across the board and synchronizing capabilities with requirements, we can shape the outcome of the readiness battle," Tumbleson asserted.

Materiel Maintenance

While ASC and its DMC are aiming for full operational capability, contractor-operated materiel management teams have been set up at installations across the United States. During the implementation phase of DMC's development, the materiel maintenance teams are on the ground, forging and maintaining links to units and installation-level activities.

A groundbreaking agreement between AMC and the Army Installation Management Command is enabling new visibility of capabilities. AMC is now able to capitalize on directorate of logistics (DOL) maintenance capabilities throughout the continental United States by allocating efficient workloads. "Installation-level directorates of logistics have long provided first-class maintenance, repair, and supply capabilities to their supported units," said Tumbleson. "It's no good to have the DOL at one place working overtime while another facility has excess capacity."

> In other words, the DMC is responsible for sustaining our Army. It is a herculean task, compounded by transforming combat units, relocations, battle losses, scarce resources, and persistent conflict.

Asset Visibility

Another facet of the DMC's operation is its Mobility Division, which provides asset visibility of retrograde and reset equipment and materiel during the shipping process by maintaining a robust array of in-transit visibility systems. The Mobility Division works closely with the U.S. Transportation Command and the Military Surface Deployment and Distribution Command to analyze projected movement of cargo.

Automated logistics systems are used to tie all of the DMC missions together. The number of logistics systems is staggering. If the Army uses a system for property accountability, readiness, supply, maintenance, or any of the myriad logistics considerations, the DMC is involved. Because many of the legacy systems are designed to support a different Army, determined DMC operators must use creative problem-solving to get the systems to provide the information that they need.

The ASC DMC is working to build predictive demand tools that will be able to handle the immense volume of logistics requirements in the ARFORGEN process. Successful materiel management for ARFORGEN includes integrating, coordinating, and synchronizing operational support to readiness. **ALOG**

CHARLES W. FICK, JR., IS THE CHIEF WRITER AND DEPUTY TO THE ARMY SUSTAINMENT COMMAND'S PUBLIC AFFAIRS OFFICER FOR PRINT AND COMMAND INFORMATION. EDUCATED AT OHIO UNIVERSITY AND THE UNIVERSITY OF OKLAHOMA, HE SERVED IN THE AIR FORCE AND ATTENDED A VARIETY OF DEFENSE INFORMATION SCHOOL COURSES.

Ready, Set, Redeploy

BY MAJOR BRANDON GRUBBS, MAJOR BILL HAAS, AND LIEUTENANT COLONEL ROBERT REYNOLDS

The Army Force Generation model provides units with a standardized cycle that allows them to reset and train between deployments.

In January 2006, the 3d Infantry Division redeployed from Operation Iraqi Freedom (OIF) 04–06 and faced the monumental task of having to regenerate its brigade combat teams (BCTs). This article will cover the process that the 3d Infantry Division used to reset the 1st BCT for its subsequent deployment to Iraq in January 2007.

Before 2005, units throughout the Army developed their own methods for regenerating units for redeployment. The problem with these different methods was that they were not conducted to the same standard, the time required to execute them varied from unit to unit, and efforts were duplicated across the Army. To overcome these problems and standardize deployment and redeployment, the Army developed the Army Force Generation (ARFORGEN) model.

To understand the challenges associated with ARFORGEN, it is essential to understand the process. According to an Army Forces Command (FORSCOM) extract, ARFORGEN is a three-phased process that moves a unit from an initial "reset/train" pool (post-deployment) to a "ready" pool (available to conduct mission preparation and training) to an "available" pool (available to conduct missions). ARFORGEN provides a sequential approach that synchronizes capabilities and readiness with equipping and resourcing. It also predicts when forces will be available and decreases the uncertainty of whether or not units will be prepared for future missions. Under ideal conditions, this process can take up to 2 years.

Preparing for Deployment

According to the 2007 Army Posture Statement, the objective rotation schedule for Active component Soldiers is 1 year deployed and 2 years at home station. In the summer of 2006, only about 6 months after redeploying from OIF 04–06, the 1st BCT received notification that it had to be ready to deploy by 1 December. Later, the brigade received an order requiring it to deploy in January 2007. The 3d Infantry Division acknowledged it had less than the optimal time to prepare this BCT for combat operations. Moreover, one of the division commander's primary goals was to ensure that Soldiers had a maximum amount of time to spend with their families. The division had the delicate task of balancing training with family time.

To ensure that the division trained efficiently and effectively while placing families first, the division commander, Major General Rick Lynch, directed that—

• Whenever possible, there would be no weekend training. If weekend training was necessary, it would only take place with his personal approval.

• Soldiers would participate in mandatory family time on Thursdays.

• A leaders' call would be conducted on Fridays to build teamwork.

Not only were there some self-imposed constraints on how the division was going to train the force, but there were numerous other situational constraints. These constraints can be categorized into three areas: personnel, equipment, and training.

Manning the 1st BCT

The constraints caused by personnel shortages proved to be one of the biggest challenges. Even though one of the goals of ARFORGEN is to ensure that units are not "robbing Peter to pay Paul," the 1st BCT was assigned Soldiers from other units to ensure that it was sufficiently manned to begin training on its ready-to-train date (R-day), which was 1 May 2006.

Two issues were major challenges with regards to manning the 1st BCT. First, the division had to finish converting its personnel management system to the new Personnel Services Delivery-Redesign (PSDR). Second, it had to ensure that the 1st BCT was 85-percent manned by R-day and 100-percent manned before the start of its mission rehearsal exercise (MRX).

Because of the enormous personnel shortages within the 1st BCT and the short amount of time the division and BCT had to regenerate the unit, the division was forced to regress from using PSDR and reverted back to centralized strength management for a period of time. The division moved deployable Soldiers from other BCTs to get the 1st BCT to 85 percent of its strength. Although the intent was to get the 1st BCT to sufficient strength, reassigning Soldiers created personnel gaps in the other BCTs. The division ended up having the 1st BCT over 105-percent assigned with 100 percent of the Soldiers available. The other BCTs averaged 87-percent assigned and 81-percent available. Because of these growing inequities,

the division commander decided to cease the cross-leveling of Soldiers from one BCT to fill another unless it was absolutely essential to the mission.

Re-equipping the 1st BCT

Regenerating equipment in time to conduct training was an equally daunting task. Because of in-theater requirements, much of the division's and the 1st BCT's equipment was left in theater for follow-on units as theater-provided equipment. The equipment shortages challenged the division to plan training without having the equipment on hand. The division placed its faith in the Army Materiel Command (AMC) and FORSCOM to deliver the equipment just in time for training.

The 1st BCT received its equipment from a variety of sources and methods, including—

• Equipment reset.

• Lateral transfers from within the division and from external sources, such as FORSCOM.
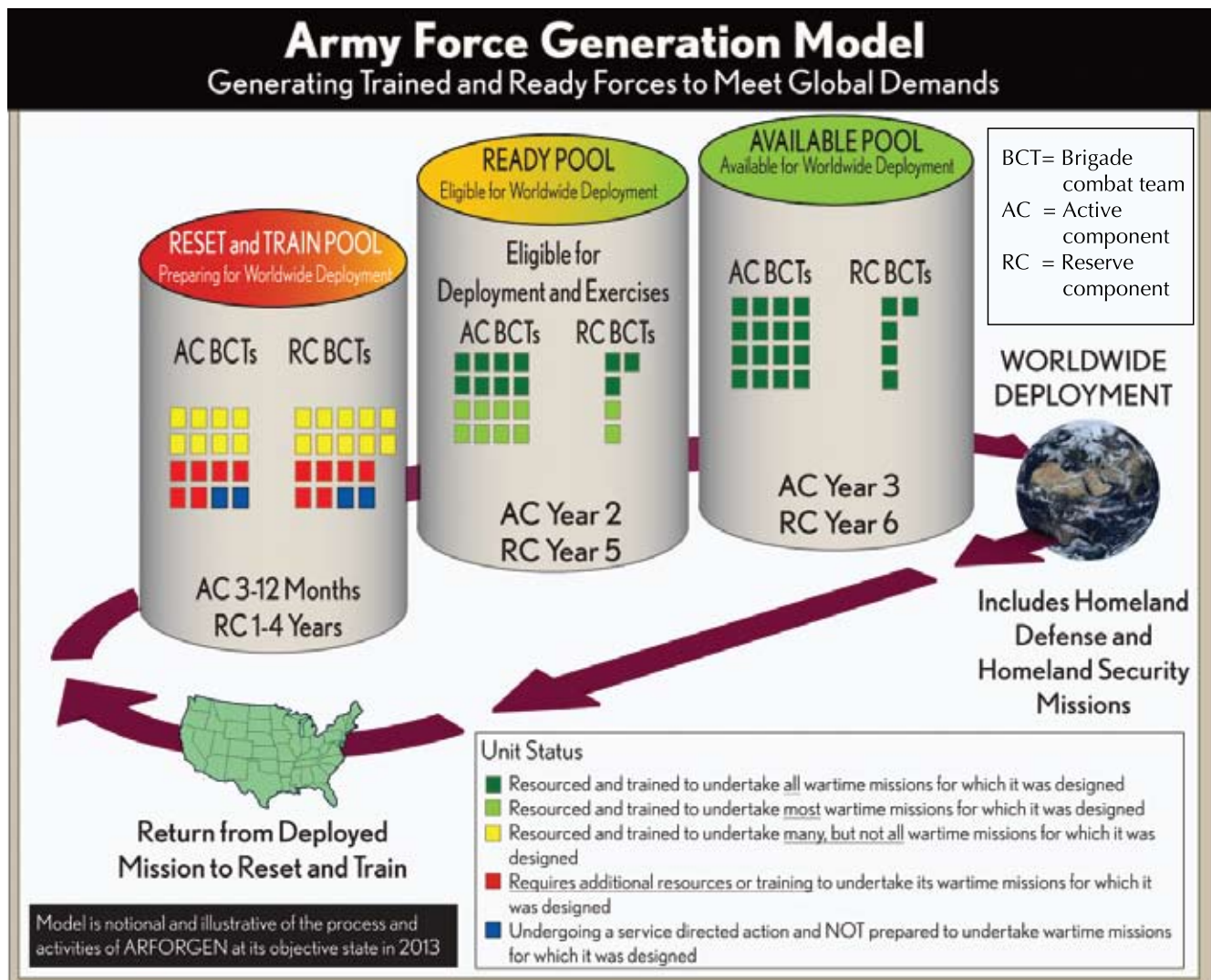
• New equipment fielding.

To manage the influx of equipment, the division established a division reset team, which proved to be

an invaluable resource in managing the reset of the 1st BCT and the division. This team was led by the division G–4 and consisted of Soldier and civilian representatives from the division staff (G–1 through G–9) and representatives from all of the division's brigades, the division's special troops battalion, the installation, the directorate of logistics, AMC, the supporting program manager, and the Army G–8.

Reset facilities. For the 3d Infantry Division, reset was conducted at the national and field levels. An important enabler was the establishment of limited, consolidated, field-level reset facilities at Fort Stewart, Georgia, and some smaller-scale activities at Fort Benning, Georgia. While the majority of the field reset activities took place at Fort Stewart, the division also received a great deal of assistance from AMC and original equipment manufacturers, such as British Aerospace. The division's reset also included equipment that was issued from the national level.

Part of the field-level reset methodology was to create center of excellence (COE) sites that focused on resetting specific types of equipment. The division

Army units proceed through the ARFORGEN cycle to meet operational requirements with increased predictability.
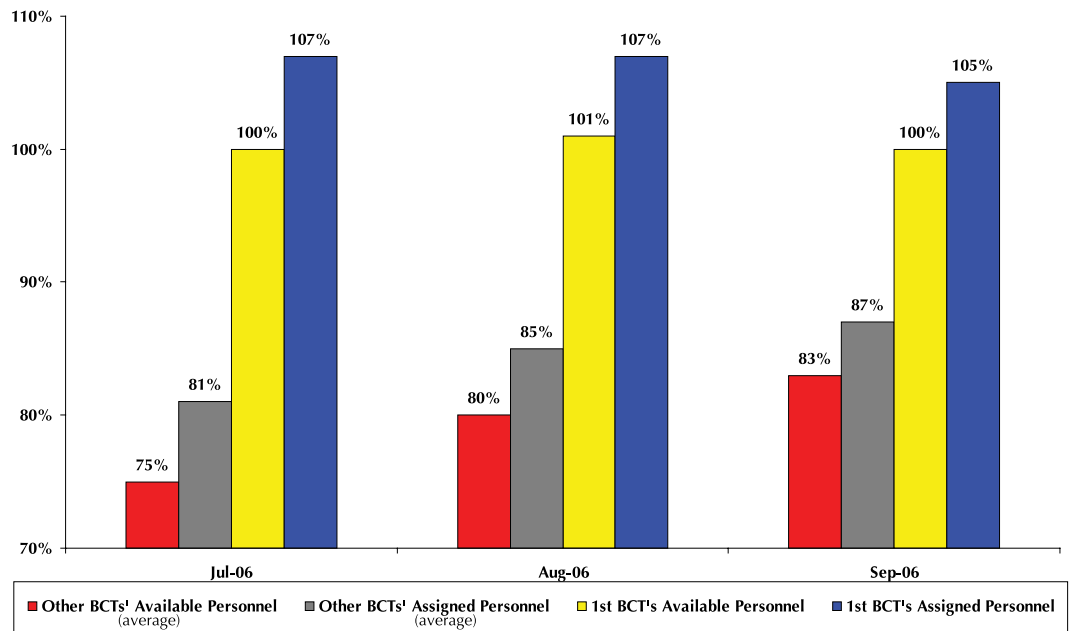

Army Force Generation Model
Generating Trained and Ready Forces to Meet Global Demands

BCT Strength Comparison

established COEs for tracked vehicles; wheeled vehicles; generators; weapons; chemical, biological, radiological, nuclear, and high-yield explosives; communications equipment; and night vision equipment. The benefits of these COEs were creating economy of scale and having equipment repaired to the same standard.

Lateral transfers. Managing the receipt and issue of equipment through the lateral transfer process was as big a challenge—if not bigger—as managing any other inbound equipment because the equipment came from so many different sources and involved so many transactions. Further challenging the division's abilities to track and execute more than 5,000 lateral transfers was the fact that it no longer had a division property book officer or authorization for an asset visibility section within the division G–4 section.

To remedy the problem of not having an authorized asset visibility section, the division established its own, which consisted of 1 chief warrant officer (W–5) property book technician and 11 Department of the Army civilians and contractors. This team's task was to monitor and manage the flow of equipment in and out of the division and provide accurate on-hand equipment status.

Force modernization. The 1st BCT also received equipment through the force modernization process, which enhanced its capabilities through new equipment fielding. Through this process, the 1st BCT received entirely new fleets of M1A1 Abrams integrated management tanks, M2A2ODS–E engineer Bradley fighting vehicles, and many other systems that enhanced its capabilities. Because these systems were new for many of the Soldiers and formations, the division was required to conduct the applicable new equipment training, which further complicated the training plan because the units had to have the equipment in time to conduct the training.

Training the 1st BCT for Combat

Although the 1st BCT may have been the best manned and equipped in the division, all that resourcing would have been a wasted effort if the Soldiers were not trained and ready for war. The cornerstone of effective training is resource management. In the case of the 1st BCT, the biggest challenges were managing the use of training facilities and ranges and training at the appropriate level given the varying skill levels within the brigade.

Because of time constraints, the brigade had to abandon the traditional model that focused on training by echelon. Instead, it developed an aggressive, multi-echelon training approach and executed individual, crew, and collective training simultaneously at all levels. This was a challenge for the BCT, especially when it came to training low-density military occupational specialties and training on critical combat enablers, such as Blue Force Tracker.

The division prioritized the manning and equipping of the 1st BCT to meet critical training goals, but some of the equipment that was fielded for training still did not arrive in time. A lack of equipment could have dramatically reduced the effectiveness of the collective training. To mitigate critical equipment shortfalls and perform collective maneuver training at the highest level possible, the brigade trained using simulations, which allowed junior leaders to rehearse and train collective tasks without the benefit of having their combat systems on hand.

Lessons Learned

The single most important lesson learned is that preparing a unit for deployment is nearly impossible

for a BCT to manage without support from the division staff and the garrison. Here are some suggestions—organized by personnel, equipment, and training—for preparing a unit to deploy.

Personnel. Ensure that BCT S–1s are trained on replacement operations and understand how to work with Army Human Resources Command account managers before and after deployment.

Ensure that division G–1s maintain constant contact with the BCTs to ensure that they are fulfilling their obligations under PSDR.

Identify personnel who will soon retire, move to a new duty position, or end their military service. Ideally, this should be done 120 days before redeployment.

Equipment. Start planning your reset program during your deployment. Planning your reset operations in three key phases can make your planning easier.

During phase I (180 days from scheduled redeployment), establish your reset team under the division G–4 and identify your reset points of contact. Confirm which pieces of equipment are on the automatic reset induction list. During phase II (90 days from scheduled redeployment), key leaders should conduct site surveys for your national- and field-level reset with the AMC reset team that will be assigned to work for you when you return to home station. These surveys should focus on each installation's capability to support equipment transportation, delivery and pick-up, staging, storage, and repairs. Finally, ensure AMC and other support agencies understand your reset plan. During phase III (30 days from your scheduled redeployment), complete the final coordination with each reset installation for the redeployment of equipment from theater and the final integration of the AMC reset team.

Deconflict your various theater-provided equipment orders and directives. During OIF 04–06, redeploying units were directed to leave certain pieces of equipment in theater for follow-on forces. Unfortunately, the various orders conflicted with each other over what equipment was to be left in theater and what equipment was to be returned to home station. Ensure that one set of orders does not contradict another set.

Re-establish property accountability. The time leading up to redeployment is a perfect opportunity to regain property accountability. Use this time to ensure that leaders properly give sub-hand receipts to property users and use automated property systems, such as Property Book Unit Supply-Enhanced. This is also a perfect time to re-energize your command supply discipline program.

Establish a reset team to centrally manage and monitor equipment reset operations. Monitor and manage equipment on-hand status and track lateral transfers. And, finally, maintain close contact with AMC representatives.

Training. To build predictability into your training schedule, develop a matrix that identifies training requirements and synchronizes those requirements with your personnel and equipment information. The real challenge for training is the large number of schools and courses that individual Soldiers and entire units attend to attain combat readiness. If personnel and equipment do not arrive fast enough, it can be hard for units to take advantage of available training before the brigade conducts collective training events.

Use simulations to compensate for equipment, personnel, and training shortfalls. Using the Virtual Combat Convoy Trainer, for example, allowed units to make up for shortages in equipment and provided a realistic training environment.

Conduct simultaneous, multi-echelon training. Because of the limited time available, you must make the best use of what you have. Multi-echelon training will allow you to conduct more training in a shorter amount of time.

Soldiers' ability to overcome obstacles and challenges is amazing. The 3d Infantry Division Soldiers displayed innovation while preparing for deployment and redeployment. The more predictable the road to building a combat-ready force is, the better it is for Soldiers and their families. Any stability and predictability the Army provides will help in these times of uncertainty. However, if the Army routinely executes the 3-year ARFORGEN cycle in 1 year, then perhaps the model needs to be adjusted to reflect the reality of the current situation. **ALOG**

Major Brandon Grubbs is the deputy G–4 for the 3d Infantry Division and Multi-National Division–Center. He has an M.A. degree in management from Webster University and is a graduate of the Ordnance Officer Basic Course, the Combined Logistics Officers Advanced Course, and the Army Command and General Staff College.

Major Bill Haas is the deputy G–1 of the 3d Infantry Division and Multi-National Division–Center. He has a master's degree in human resources management from Webster University. He is a graduate of the Chemical Officer Basic Course, the Human Resources Management Course, and the Army Command and General Staff College.

Lieutenant Colonel Robert Reynolds is the deputy G–3 for the 3d Infantry Division and Multi-National Division–Center. He has a master's degree from the Army Command and General Staff College and is a graduate of the Armor Officer Basic Course and the Infantry Officer Advanced Course.

Logistics Force Generation for Iraq

BY LIEUTENANT COLONEL DAVID BEOUGHER AND SERGEANT FIRST CLASS BRUCE A. HAYNES, USA (RET.)

Many organizations and individuals are involved in employing logistics forces on the battlefield. Requirements must be identified, sourced, and moved to best meet the Army's missions in Iraq.

Deployment orders? How did we get deployment orders? But we're the 123d Mess Kit Repair Company. Where are we going, and what will we be doing? How will we get there?

If you have ever wondered how your unit got tapped for a deployment, this article is for you. Believe it or not, magic is not the primary means of determining who goes where and why, and it is not how they get there, either. The system is not always transparent, but it makes sense when you see the whole picture.

The Whole Picture

The Army has a set process for the employment of brigade combat teams (BCTs) called Army Force Generation (ARFORGEN). This process deals with the management of combat brigade formations; it does not deal with echelons-above-brigade enablers, which include medical, aviation, military police, and logistics units. ARFORGEN manages almost half of the units deployed to the current conflict; the others fall into a sourcing process that, for simplicity, we will call "Logistics Force Generation," or "LOGFORGEN." LOGFORGEN is a three-part process that begins between 15 and 18 months before a unit arrives in theater. Simply put, LOGFORGEN identifies logistics requirements, sources those requirements, and then moves sourced units to their deployment locations.

Before going too deep into the weeds, understand that each phase has a headquarters responsible for its product. The combatant command with regional responsibility for Iraq and Afghanistan is the U.S. Central Command (CENTCOM), which identifies and submits requirements. Sourcing is the overall responsibility of the U.S. Joint Forces Command (JFCOM). Army units are assigned requirements by the Army Forces Command (FORSCOM). Once units are sourced against requirements, the U.S. Transportation Command (TRANSCOM) leads the process of moving the forces. With that overview in mind, the following discussion will hopefully provide a bit more insight into the process.

Identifying the Requirements

Requirements are generated by the commands on the ground and then submitted to CENTCOM for validation and approval. This normally takes place in two week-long conferences, where general officers scrutinize each individual requirement. Each rotation works the requirements differently.

> The organizational integrators take a wide variety of factors into account, focusing on deployment versus dwell time, the unit's suitability for the URF mission, and requested capabilities.

In Operation Iraqi Freedom (OIF) 05–07, the Multi-National Corps-Iraq C–4, in coordination with the 3d Corps Support Command (COSCOM), submitted the logistics unit requirements for units that would deploy two rotations in the future. The 3d COSCOM's involvement was crucial since it owned and employed over 90 percent of the logistics units in Iraq. To ensure that it provided quality input to the requirements conference and captured updated information, the 3d COSCOM reviewed the force structure quarterly with its subordinate brigade headquarters. These reviews identified mission and location changes and determined if units could be redeployed or curtailed without replacement. The 3d COSCOM and the brigades and groups discussed

each unit thoroughly and candidly; disagreements and reallocation disputes were resolved by the COSCOM commander.

Validating the missions was only the first step in preparing for the CENTCOM requirements conferences. The 3d COSCOM also had to ensure that the administrative data for each company and detachment were accurate. Surprisingly, this proved very difficult. The Secretary of Defense's policy stated that a unit could only serve boots-on-ground (BOG) for 365 days. A unit is considered BOG when over half of the unit is on the ground and in theater. It took nearly 3 months to get the correct arrival information from the brigades, battalions, companies, and detachments.

The 3d COSCOM also had to cross-check with the Coalition Forces Land Component Command on flight arrivals. Not all units arrived when planned, and policing the battlefield to get the exact dates gave an accurate view of when the replacements were needed on the ground. Eventually, a 3d COSCOM liaison officer in Kuwait had each commander sign a memorandum as part of his arrival processing. This has since become the standard practice at the aerial port of debarkation before units even move to the logistics support area to bed down for the first night.

CENTCOM validates force requirements using a database called the Force Requirements Enhanced Database. Each mission has a unique unit requirement form (URF) that contains the administrative data for the requirement, the mission, the capabilities, and any additional clarifying information, such as whether or not a joint solution could work or specific training guidance. The URF, which is also linked to previous and future rotations, establishes the unit's initial mission requirements and important point of contact information for when it arrives in theater.

Sourcing the Requirements

CENTCOM forwards its list of validated requirements to JFCOM so units can be assigned to missions. JFCOM sends the Army requirements to FORSCOM for sourcing. The FORSCOM experts for each branch, called organizational integrators, work to match requirements with available units. The organizational integrators take a wide variety of factors into account, focusing on deployment versus dwell time, the unit's suitability for the URF mission, and requested capabilities. They also identify requirements that they cannot fill with ready units that would habitually perform that mission. For example, CENTCOM might request 10 truck companies, but FORSCOM only has 8 with

enough dwell time to be ready in time. Thus, an initial sourcing shortfall of two companies exists. FORSCOM planners then roll up their sleeves and work on alternative solutions.

Since the demand for some resources is lower than for others, one sourcing solution that is becoming more common is to use another type of unit in lieu of the kind requested by CENTCOM. Those units are called "in lieu of" units, or ILO units. In OIF 05–07, the 3d COSCOM had 22 field artillery units serving as truck companies. FORSCOM determined that, with the proper training, field artillery units that had adequate dwell time could perform the truck missions. That would enable high-demand, low-density units (like palletized load system and heavy equipment transporter truck companies) to reset and not have to return with only 6 to 9 months of dwell time before their second and third rotations. The ILO units that served in the 3d COSCOM were tremendously successful.

> Since the demand for some resources is lower than for others, one sourcing solution that is becoming more common is to use another type of unit in lieu of the kind requested by CENTCOM.

If FORSCOM cannot fill a requirement after going through its inventories and working on ILO solutions, it sends the shortfalls back to JFCOM. JFCOM then looks to the Navy and Air Force to see if they possess the skill sets to fill an Army requirement. These joint solutions necessitate intensive coordination and discussion. Logistics success stories include Navy Seabees working as Army cargo transfer companies and Air Force units working as Army truck companies and movement control teams.

For all of these sourcing solutions, the original mission and capabilities detailed in the URF prove crucial. Capabilities are matched to needs to best support the war effort. Once all of the known requirements for the rotation have sourcing solutions, JFCOM will prepare an execution order for the Secretary of Defense to sign. Once signed, units are notified of their pending deployments and begin the process of moving to the theater.

Moving the Sourced Requirements

Movement is a stressful period for unit personnel. The equipment they have cleaned and packed will travel to the theater, and airplanes will arrive to carry passengers to the deployed location. The

overall process is a fairly simple concept, but the mechanics of execution are complex. The unit movement officer and noncommissioned officer use a program called the Transportation Coordinators' Automated Information for Movement System II (TC–AIMS II) to capture a list of all of the deploying unit's equipment and personnel. The file containing this information is called a unit deployment list (UDL).

> ### The reality is that the mission in theater comes first and the system responds as requirements and guidance change.

At the same time, TRANSCOM will direct the building of a deployment plan identification with unit line numbers (ULNs) for each requirement in the execution order. These ULNs will have the latest arrival dates and destinations from the execution order. First, with a bit of help from higher headquarters and the unit's installation, the UDL is married up with the ULN. These records are consolidated in the deployment plan identification so that TRANSCOM can see how much equipment and how many personnel need to travel from various locations. They then build the plan and coordinate for transportation of all of those requirements. Discovering inaccurate data late in this process creates significant turbulence and potentially means that a unit will not arrive on time.

Planning

What can you do at the tactical level to influence what is really a strategic process? First, if you are already on the ground, make sure that your BOG date is correct. This date drives the requirement and the sourcing, and inaccurate dates will cause confusion for the Soldiers coming in as your replacements. Inaccurate data can also cause you to stay a bit longer. You also must ensure that you have an accurate mission essential equipment list and a good list of what equipment is staying. Be sure to begin communicating with your replacements early; that will enable them to prepare and have their information ready. You are the expert on your mission.

If you are deploying, get your unit equipment list in TC–AIMS II updated. Having everything correctly entered makes adjusting the UDL much simpler for you. Contact the unit that you think you are replacing and ask about the mission and the area; missions change in theater as commanders reallocate

their available forces to meet the current missions. The reason you are deploying may not be the same as why the previous unit deployed 12 months ago.

Make a plan and build in some leeway. Flexibility will ease the stress of the final weeks before the deployment. Remember to plan for block leave, certification exercises, equipment shipment, inventories, and training with enough time to be able to adjust. Train as comprehensively as possible so that your Soldiers are ready to flex and adapt. Once in theater, the transfer of authority is the time to learn the absolute latest information and adjust the tactics, techniques, and procedures and standing operating procedures that you have developed along the way.

Now that you have seen how the process works and what it entails, we hope you have a better understanding of how the 123d Messkit Repair Company got selected to deploy for its mission. The process is fluid, and it is certainly not perfect. The reality is that the mission in theater comes first and the system responds as requirements and guidance change. Dedicated Soldiers at all levels work diligently to ensure trained and ready units are deployed. In 1914, Count Helmuth von Moltke said, "The advance of armies formed of millions of men . . . was the result of years of painstaking work. Once planned, it could not possibly be changed." Unlike the Moltke plan that began World War I, LOGFORGEN represents an attempt at flexibility and responsiveness that puts the mission at the forefront. **ALOG**

LIEUTENANT COLONEL DAVID BEOUGHER WAS THE CHIEF OF FORCE GENERATION FOR THE 3D CORPS SUPPORT COMMAND IN OPERATION IRAQI FREEDOM 05–07. HE IS CURRENTLY THE PROFESSOR OF MILITARY SCIENCE FOR THE EASTERN MICHIGAN UNIVERSITY ARMY RESERVE OFFICER TRAINING CORPS. HE IS A GRADUATE OF THE AIR DEFENSE OFFICER BASIC COURSE, THE TRANSPORTATION OFFICER BASIC QUALIFICATION COURSE, THE COMBINED LOGISTICS OFFICERS ADVANCED COURSE, AND THE ARMY COMMAND AND GENERAL STAFF COLLEGE.

SERGEANT FIRST CLASS BRUCE A. HAYNES, USA (RET.), WORKS FOR THE LOGISTICS EXERCISE AND SIMULATION DIRECTORATE AT FORT LEE, VIRGINIA. HE WAS THE NONCOMMISSIONED OFFICER IN CHARGE OF FORCE GENERATION FOR THE 3D CORPS SUPPORT COMMAND IN OPERATION IRAQI FREEDOM 05–07. HE HAS AN ASSOCIATE'S DEGREE IN GENERAL STUDIES AND IS A GRADUATE OF THE BASIC NONCOMMISSIONED OFFICER COURSE, THE ADVANCED NONCOMMISSIONED OFFICER COURSE, AND DRILL SERGEANT SCHOOL.

Preparing for the Big Chill

A haze of dark, coarse dust hung thickly in the air in Paktika Province, Afghanistan, coating the workers as they labored in the golden glow of the late afternoon sun. They had been digging dirt to fill sandbags since dawn, even though they had only arrived at the isolated base late the night before after a grinding, 15-hour trip. "Just 300 more sandbags," someone called out. It was already almost dusk, and the real work for the week had not even started.

Paktika's harsh winter was on the way, and it was not stopping for anyone. The paratroopers of the "Market Garden" combat logistics patrol (CLP), 782d Brigade Support Battalion (BSB), 4th Brigade Combat Team, 82d Airborne Division, had arrived to stock the 173d Airborne Brigade "Sky Soldiers," based at the remote Bandar Command Observation Post (COP), with enough food, fuel, and supplies to make it through the next few months. Once snow came, Paktika would be closed off except by air.

They had been told that the mission to winterize the Bandar COP was going to be difficult, but the team had heard that before. It was Wednesday, 10 October 2007,

and the list of tasks was daunting. They had to build and fill a 50,000-gallon fuel farm, install a trailer-sized refrigeration unit, and, using excavation vehicles, extend the outpost's helicopter landing zone. They also had to stock the COP's supply of food and water for the next few months using one of the largest air supply drops in the history of Operation Enduring Freedom. All of this had to be completed in just 6 to 8 days.

"We're going to get it done in 3," Staff Sergeant Gerald Mickelson, the CLP platoon sergeant, said confidently. As the dust finally began to settle and the first day's laborious sandbag filling came to a close, it was easy to see how.

"These guys are breaking their backs doing this," said Army Master Sergeant Stephen Widener, the 782d BSB's force protection noncommissioned officer-in-charge, as he helped shovel the dirt that was beginning to shape the sides of the rectangular pit of the fuel farm. They would be able to lay down a liner and start getting the giant fuel bag in place the following day.

A team had already left to survey the drop zone for the next day's airdrop in the valley below. "It's going

The "Market Garden" combat logistics patrol from the 782d Brigade Support Battalion, 4th Brigade Combat Team, 82d Airborne Division, travels through an extremely difficult route after completing its mission at the Bandar Command Observation Post.

At right, a Soldier pushes a heavy pile of parachutes off a truck to be loaded into a waiting helicopter after an air supply drop.
Far right, paratroopers fill sandbags that will be used to stabilize a 50,000-gallon fuel farm.
Below, a paratrooper directs an excavation vehicle to dump earth that will be used in the construction of a 50,000-gallon fuel farm in Afghanistan.

A Soldier sits on top of a fuel truck watching a newly constructed fuel farm being filled.

materials. "Everything we do involves manual labor," Sergeant Mickelson commented, his face caked with powdered sand from the many helicopter passes. "It always does—every time. It's just part of our day's work, and when we go out to a mission, we expect to work our backs off."

When the CLP vehicles returned to Bandar COP, the recovery team was amazed to find that the fuel farm was mostly constructed by the team members who were left behind. With the help of the paratroopers of the 173d, they also had unloaded the supply bundles brought by the helicopters and stored the packages of meals, ready-to-eat; bottled water; fruit; and other food and drink items. The sizeable refrigeration unit had already been lifted over the walls of the post by a crane they had escorted there.

It was again well after dark by the time everyone was able to call it quits for the day, eat dinner, shower, and go to bed. Many went right to sleep.

The next day started with another early morning. Part of the team finished setting up the fuel farm, stabilized it with the hundreds of sandbags, and started filling it with fuel. Others used their small excavation vehicles to move earth to expand the landing zone for helicopters bearing supplies and personnel to land. By midday, all tasks were completed.

Looking at the Bandar COP's dining facility packed with food and water, the 50,000 gallons of fuel, and a freshly up-sized helicopter landing zone, the 782d paratroopers were very proud of themselves. They had supplied the COP for the whole winter, so the Soldiers would have what they needed to keep fighting the enemy. **ALOG**

to be quite a show," said Air Force Captain Brian Beisheim, a C–130 pilot who was acting as the air mobility liaison officer for the drop. He hoped everything would go smoothly. "This is an exceptionally big drop," Captain Beisheim explained. "I've never actually heard of anything like this."

The first vehicles rolled down the steep road into the valley at 0600 on Thursday. It was brisk at first, but as the sun cast long shadows across the nearby ruins, the valley warmed up and the CLP's larger vehicles made their way into a waiting formation.

Hours later, two C–17 Globemasters could be heard high overhead making their first pass over the landing zone. On their third pass, a thick trail of combat delivery system bundles came pouring out of the aircraft's open cargo doors. The emerald green parachutes furled open—a sharp contrast against the clear blue sky—bringing all but one of bundles safely to the ground. The trucks on the ground immediately roared to life and drove into the mess of tangled risers and billowing chutes, where the 782d paratroopers laboriously spent the next 4 hours collecting parachutes and recovering boxes. Sling-loaders used cranes to hoist the bundles up off the ground onto the backs of their heavy trucks. Helicopters came from a nearby base to airlift them back up to the COP, nestled high up on the plateau.

After the bundles were all cleared from the drop zone, the team moved the collected parachutes into the helicopters for transport back to Forward Operating Base Salerno.

The team had collectively muscled more than 15 tons of water, food, parachutes, and packing

Low-Cost, Low-Altitude Aerial Resupply

BY NICHOLAS C. ZELLO AND COLONEL DANIEL L. LABIN, USA (RET.)

An Army project to resupply units by airdrop developed from a concept to a valued combat operational capability in the hands of our Soldiers in just 16 months.

Picture your dismounted patrol or small unit navigating an extremely difficult stretch of harsh, mountainous terrain in Afghanistan. Your location cannot be reached by ground transportation, and no airfields or landing strips can be found for miles. It has been 3 days since you were last resupplied, and you are eagerly awaiting an airdrop of needed cargo at a very small clearing near your position so you can continue your mission.

You arrive at the grid coordinates that were provided the night before by your commander. Just over the horizon, you see an aircraft approaching the small clearing to airdrop cargo from an altitude of about 150 feet. Four bundles containing configured loads of ammunition, rations, water, and medical supplies are dropped from the aircraft on one pass and land within 25 meters of your covered and concealed position. Without the use of materials-handling equipment (MHE), you and your dismounted patrol quickly and easily recover the cargo bundles from the small drop zone (DZ) and move out to your designated assembly area in a matter of minutes, without leaving a single trace of your existence at the DZ. After securing the assembly area, you and your team break open the bundles and find that all of the cargo has survived the airdrop. Of special significance, mail for you and your team is included with the other critical supplies.

Precise as clockwork and right on time and on target, you and your Soldiers have been resupplied without a hitch and your mail has been delivered to you some 200 miles from the nearest forward operating base. At this point, you smile and wonder why you didn't have such a low-cost, low-altitude aerial supply capability before. But you and your Soldiers are very thankful that you have it now.

Based on feedback from our forces in the field, the Army determined that a clear and growing need existed for a "one-time use," or disposable, parachute system to be used for conducting low-altitude aerial resupply operations. This need was particularly great for sustaining small units in operational environments like Afghanistan and Iraq.

The routine experiences of our combatant commanders and forces demonstrated that the Army required a much simpler and far-less-costly aerial resupply capability than that offered by expensive and complex precision high-altitude airdrop systems like the Joint Precision Airdrop System (JPADS). What was needed was a system that can reliably provide rapid, precise, low-cost delivery of supplies when resupply by ground transportation was not possible or desirable.

In response, the Department of the Army G–4's Logistics Innovation Agency and the Army Natick Soldier Research, Development, and Engineering Center initiated the low-cost, low-altitude (LCLA) aerial resupply project in November 2005. Other project team members and stakeholders that supported and contributed to the successful completion of the project included the Product Manager for Force Sustainment Systems (PM FSS); the Army Combined Arms Support Command (CASCOM); the Army Test and Evaluation Command (ATEC); the Integrated Logistics Support Center (ILSC) at the Army Soldier Systems Center; the 4th Brigade Combat Team (BCT), 82d Airborne Division, at Fort Bragg, North Carolina; the Army Forces Command; the Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana; and the Oklahoma Army National Guard.

This article describes the LCLA project and summarizes the significant progress made to date.

. . . we see this type of system [LCLA] as not only a critical component of current distribution but also as a view into the future of logistics. A system that can provide capability to a dismounted/mounted unit over 200+ miles from base, with the correct stuff, all of the supplies surviving the drop, to a DZ that changed at ramp side, all disposable, and delivered with pinpoint accuracy.

—782d BSB Commander with Task Force Fury
Afghanistan, 2 May 2007

The Growing Operational Requirement for LCLA

Although other parachute systems meet some requirements in certain scenarios, the LCLA project team identified a clear "capability gap" that needed to be filled to better support expanding operational needs in the new and challenging operational environments of the 21st century. In short, to meet pressing and growing operational requirements for conducting very low-altitude operations and to accomplish their combat missions in theater, our commanders required LCLA to fill a capability gap that JPADS and other airdrop systems are simply not designed to fill.

As the acronym "LCLA" indicates, the goal of the project was focused specifically on developing very low-cost parachutes for airdropping supplies at altitudes from 500 feet down to 150 feet above ground level (AGL). Such parachutes can support forces that are operating—

- Substantial distances from forward operating bases (FOBs).
- In remote, austere locations that are hard to reach by ground transportation.
- With limited or no MHE to conduct recovery or retrograde operations.
- In locations with no usable airfields or airstrips to conduct air-land operations.

LCLA is one of several key integrated logistics aerial resupply delivery systems that the Army and joint communities are developing in synchronization with surface distribution operations to provide the combatant commander with the aerial resupply capabilities and enablers needed to meet the requirements of full-spectrum operations.

The primary objective of the LCLA capability is to improve tactical logistics support by enabling rapid and precise delivery and distribution of small, tailored support packages of configured loads to small units, with no operational pauses and with a much smaller logistics footprint.

Both the goal and objective of the project have been achieved in record time.

Performance Metrics

As a key first step in meeting the project goal and objective, the LCLA project team immediately established a clear set of design performance metrics to guide and focus the project. The team geared the entire developmental process and demonstration plan to develop an LCLA parachute system (or systems) that—

- Performs as well or better than fielded systems in meeting the key performance parameters established by CASCOM and PM FSS.
- Costs less than the currently approved low-altitude airdrop systems, with a goal of costing no more than $375 per delivery system (not including supplies).
- Is flexible and simple enough to be quickly rigged by Soldiers who have minimal or no rigger or loadmaster training.
- Can be airdropped from fixed-wing airplanes, helicopters, or unmanned aerial vehicles.
- Can deliver 350-pound loads of supplies from altitudes below 500 feet and can be clustered to increase weight capacity as needed.
- Can deliver loads within 75 meters of a predesignated DZ impact point, with no damage to supplies and in a condition that allows recovery by three Soldiers operating without MHE in less than 5 minutes per load.
- Facilitates and enhances joint interoperability.

LCLA Project Downselect Systems

Triple Cross—150-300 lbs.

Forest Service—30-80 lbs.

T10 Cargo—100-350 lbs.

LCLA Operational Partners

These LCLA systems were used to support the 782nd BSB, 4th BCT FTX at Fort Bragg in Sep 06 and 4th BCT MRE at the JRTC in Nov 06. They are now being used to support OEF combat operations in Afghanistan.

T10 Reserve– 80-300 lbs.

Single Cross—80-125 lbs.

All 5 of these parachutes can be dropped from altitudes between 150 and 500 ft.

C23 Cargo Aircraft

These LCLA systems were used to support the 782d Brigade Support Battalion, 4th Brigade Combat Team (BCT), field training exercise at Fort Bragg, North Carolina, in September 2006 and the 4th BCT mission readiness exercise at the Joint Readiness Training Center at Fort Polk, Louisiana, in November 2006. They are now being used to support Operation Enduring Freedom combat operations.

LCLA Testing and Safety Confirmation

As part of the LCLA testing and evaluation process, in July 2006, ATEC's Developmental Test Command (DTC) subjected the project team's five LCLA selected systems (see the chart on page 21) to a very rigorous technical feasibility test at the Yuma Test Center in Arizona. After completing 116 test airdrops of LCLA parachutes from the Oklahoma Army National Guard's C–23 Sherpa cargo airplanes at 150 feet AGL with no system failures, the DTC concluded that LCLA parachutes, under specified operating parameters, met safety standards for use by Soldiers.

Based on the technical feasibility test's results and an approved recommendation for a safety confirmation from the Yuma Test Center, the DTC on 10 October 2006 approved a safety release to support Soldier operational use of the LCLA family of parachute systems from a C–23 during the 4th BCT's JRTC mission rehearsal exercise in early November. After this exercise, DTC provided a safety confirmation in support of using the systems in theater and an ATEC capabilities and limitations report documenting LCLA system parameters.

Following the initial testing and approved safety confirmation, LCLA parachutes were tested successfully from CH–47 Chinook and UH–60 Black Hawk helicopters by ATEC's Operational Test Command Airborne and Special Operations Test Directorate at Fort Bragg in February and May 2007. Based on these test results, a second safety confirmation was issued by DTC for rotary-wing operational use of the LCLA capability. As a result, our commanders and combat forces now have the additional option of deploying LCLA parachute systems from their organic helicopters to support mission requirements in theater.

Follow-on testing of the LCLA parachute systems from the CASA–212 aircraft were successfully completed by the DTC at Yuma in July 2007 and resulted in an amendment to the C–23 safety release to include the CASA–212.

LCLA Project Progress and Results

In just 16 months, the LCLA project team moved from an idea on paper to a capability that is sustaining and supporting combat operations in Afghanistan in support of Operation Enduring Freedom (OEF). As forces down range have demonstrated over the last several months, increased stealth, reduced vulnerability, and lower cost are all achievable by using the LCLA family of parachutes. Extreme low-altitude delivery significantly reduces aircraft vulnerability in nonpermissive airdrop environments where small arms, light anti-aircraft artillery, and man-portable missiles are prevalent threats.

Using LCLA also increases Soldier survivability by reducing the number of ground convoys exposed to hostile enemy actions. Airdropping from lower altitudes significantly increases delivery accuracy, which permits the use of much smaller DZs and reduces load dispersion at DZs. This method of airdrop also reduces the force size needed to secure DZs.

Across the board, LCLA parachute systems have far exceeded all established performance metrics. In most cases, LCLA systems perform significantly better than existing fielded systems. These systems have fared far better in all established key performance parameters, including rate of descent, payload range, altitude capabilities, and load survivability. Through the use of LCLA parachute systems, supply loads are routinely landing less than 50 meters from a predesignated DZ impact point, with no damage to supplies (100-percent survivability of cargo) and in a condition that enables the easy recovery of loads without MHE by only two Soldiers in less than 2 minutes per load.

LCLA parachute systems are proving ideal for operations in remote areas where recovery and retrograde of parachutes are difficult, not feasible, or not desirable for safety and operational reasons—areas where "one-time use" is needed. LCLA parachutes also cost about 75-percent less to produce than fielded systems—about $128 per parachute system versus $535. To illustrate the significant cost savings, a current 200-pound door bundle costs $535 and consists of three G–12 static lines ($35 each), three 68-inch pilot parachutes ($125 each), and one A–7A airdrop cargo sling assembly ($55). An LCLA double-clustered cross parachute system, which can deliver over 200 pounds, costs just $128 and consists of two single cross parachutes with static lines ($55 each) and one LCLA low-cost container (LCC) or modified A–7A drums ($18). [A cross parachute looks like a round parachute with four slices cut out, thus forming a cross shape.] Most importantly, the LCLA attains 100-percent survivability of cargo at 150 feet AGL, which provides the combatant commander with another viable alternative

for conducting very low-altitude airdrop operations to complement and supplement already fielded systems.

As for supporting our combat forces training for war at key collective training locations like the JRTC and fighting terrorists in places like Afghanistan, LCLA parachute systems continue to demonstrate their operational value, simplicity, responsiveness, resourcefulness, and reliability. The 782d Brigade Support Battalion (BSB) commander made the following comments on LCLA performance in a report to the 4th BCT's commander a few days after using LCLA parachutes to support a major field training exercise at Fort Bragg—

> The low-cost, low-altitude (LCLA) aerial delivery system was a real winner last week. The 4th BCT has an operational need for this system for resupplying small units by fixed wing and rotary-wing assets when we deploy to OEF . . . 4th BCT has a further need to refine our TTPs [tactics, techniques, and procedures] and validate our use of the system at JRTC. We could use this system to deliver everything from ammo and batteries to water and rations . . .; we are literally limited only by our imaginations.

Based on the remarkable success of the LCLA capability during the 782d BSB's exercise, the 4th BCT formally requested that the LCLA project team not only support its mission rehearsal exercise at the JRTC but also provide LCLA parachute systems to support the BCT as part of Task Force (TF) Fury while it is deployed to Afghanistan.

Meeting the Growing Demand for LCLA

To make the LCLA capability immediately accessible to our forces, the LCLA cross parachute and the LCC have recently been assigned national stock numbers by the ILSC and can be ordered through the standard supply system prepacked and ready for use by our deployed forces.

Key LCLA stakeholders initially began the process of manufacturing and providing LCLA parachute systems to meet the growing operational requirements of our forces in Afghanistan. The LCLA project team delivered 600 LCLA parachute systems to our forces in theater to support OEF requirements while simultaneously working to institute contracts to manufacture and deliver an additional 5,000 LCLA parachutes that were requested by TF Fury. All 5,000 were delivered by Federal Express to TF Fury, with a turnaround per LCLA shipment of 4 to 6 days. The LCLA project team is currently delivering 110 LCLA parachute systems per week, with the goal of ramping up to 150 per week.

To formally institutionalize the process to meet the long-term demand for LCLA, the ILSC recently awarded a multiyear, indefinite delivery/indefinite quantity contract to allow production of LCLA cross parachutes

by several manufacturers, which has led to much greater production rates. The contract basically picks up where the LCLA project team's production efforts dropped off. The contract allows the Army to requisition up to 20,000 cross systems if the demand from the field requires them.

Led by the efforts of PM FSS and ILSC, the LCLA project team fulfilled the TF Fury requirement of 5,000 LCLA systems with a mix of 2,800 LCLA cross parachutes, 2,200 LCLA T–10 and T–10R parachutes modified for cargo delivery, and 5,000 LCLA LCCs.

As of 7 December 2007, TF Fury had conducted 1,092 LCLA airdrops with all critical classes of supplies, accounting for over 1 million pounds of supplies in support of OEF operations and mission requirements. Of special significance, by "clustering" LCLA parachutes for individual cargo loads (using three or more LCLA parachutes per load), the TF has been able to increase the payload range to an average weight of 600 to 700 pounds per bundle while maintaining an airdrop altitude of only 150 feet AGL and achieving almost pinpoint accuracy. As one senior noncommissioned officer of TF Fury put it in a report on the LCLA capability—

> In my opinion, this program [LCLA] is a complete success and the guys on the ground cannot get enough of it. Realistically, if commanders can receive supplies that are dropped on target and exactly where they are needed, it outweighs their use of [ground combat logistics patrols] and keeps personnel off the road.

The LCLA method of delivering supplies at the operational and tactical levels substantially enhances operational response, improves load survivability, reduces the logistics footprint, hastens DZ recovery operations, and, of critical significance, improves safety and force protection. Clearly, LCLA parachute systems are meeting operational requirements that no other capability can meet.   **ALOG**

Nicholas C. Zello is a logistics management specialist at the Army G–4 Logistics Innovation Agency. He has a bachelor's degree in environmental business administration from Saint Vincent College in Pennsylvania and is pursuing an M.B.A. degree at Pennsylvania State University with a focus on logistics and supply chain management. He is a graduate of the Army Transportation Intern program.

Colonel Daniel L. Labin, USA (Ret.), is a senior logistics specialist with Pacific Northwest National Laboratory supporting the Army G–4 Logistics Innovation Agency. He has a bachelor's degree from West Virginia University and M.S. degrees from the University of Southern California and Florida Institute of Technology.

SAAS–MOD Training Challenges

by Captain Martin Caban

Despite the problems being faced by those using SAAS–MOD,
the system has transformed ammunition management across the Army.

During our deployment to Operation Iraqi Freedom, the 13th Sustainment Command (Expeditionary) and units across the entire theater faced some significant challenges in working with the Standard Army Ammunition System-Modernization (SAAS–MOD). Most of those challenges were related to network configuration and lack of operator training.

SAAS–MOD is an automated ammunition management system that combines the functionality of theater and corps materiel management centers (MMCs), ammunition supply points (ASPs), ammunition transfer holding points (ATHPs), and a division ammunition office into two baselines. One baseline, SAAS MMC, is used for management functions, and the other, SAAS ASP, is used for storage functions.

The 8th software version of SAAS–MOD enabled secure file transfer protocol (SFTP) communication by means of either the Unclassified but Sensitive Internet Protocol Routing Network (NIPRNet) or a very small aperture terminal (VSAT) satellite dish. Most of the SAAS MMC computers were connected to the NIPRNET, and most of the SAAS ASP computers were connected to a VSAT. However, the mixture of these two networks, coupled with the unstable communications conditions in theater and lack of basic network knowledge by combat service support automation management officers (CSSAMOs) and users, resulted in several communications challenges throughout our deployment.

Communications Across Networks

The most common problem we encountered was getting computers that were on the NIPRNet to communicate with computers that were on the VSAT network. NIPRNet computers operate under much more intensive network security conditions, consisting of additional firewalls, intrusion detection systems, and closed ports on perimeter routers. The firewalls, in particular, make it hard for any computer outside the local network to connect to a computer inside the local NIPRNet. Most local network computers are set up with "private" Internet protocol (IP) addresses inside the firewall and a different "public" IP address on the outside. In order to connect two different computers, each must have a permanent public IP address and know the public IP address of the other machine. Some VSAT networks use a local mini-router that also has internal private IP addresses.

We discovered that many CSSAMOs do not know how to determine the public IP address of a machine. Some websites, such as http://whatismyip.com, can help determine your public IP address, but computers on a VSAT network are restricted from accessing "http" websites and can access only secure websites ("https"). Our logistics automation division chief coordinated with whatismyip.com to create a secure version of that webpage at https://whatismyip.com, allowing VSAT users to identify their public IP addresses. This measure significantly helped with the troubleshooting processes.

Once the public IP addresses are known, firewall exceptions must be submitted at both locations, each allowing the other public IP address to connect using bidirectional traffic, FTP on port 21 and SFTP on port 22. For computers on VSAT, the "local" directorate of information management (DOIM) is located at Fort Belvoir, Virginia. They must coordinate with their "local" DOIM and the network operations center to get intermediary firewalls cleared.

Configuring the ComSetup

The biggest training issue we found was that operators did not understand how to create accounts or how to configure their communications setup (ComSetup) to send and receive transactions. Having to set up two different accounts for each two-way data transfer is very confusing to most SAAS–MOD operators. First, in order to receive files from someone else, an account has to be created as a local user account in the Computer Management section of the Windows operating system, and this information (the user name and password) must be sent to all remote organizations that should be passing data to the operator. The remote organizations must enter that information in their ComSetups. In order for the operator to send data to someone else, the operator must get the user name and password from the remote organization (for the account that they create for the operator) and then enter that information in the operator's

The SAAS–MOD ComSetup window allows the operator to make the changes needed to allow the system to share information with a system on another type of network.

own ComSetup along with their Department of Defense activity address code (DODAAC) and IP address.

Interfacing With TAMIS

The last challenge we faced caught us unaware. It was initially unclear to CSSAMOs that ammunition requests flow up through a different system than SAAS–MOD. The Total Ammunition Management Information System (TAMIS) is the interface that allows SAAS–MOD to electronically request ammunition, reconcile and close out electronic documents, and provide accurate expenditure reports for Army ammunition managers. Because requests are electronically routed to designated ASPs and ATHPs, each ASP and ATHP must be electronically identified in TAMIS. In order for SAAS–MOD to correctly interface with TAMIS, entries must be made in the ComSetup window (see above) and the special four-character ASP identification code must be entered in the ASP profile. This is very confusing for operators who are not intimately familiar with the peculiarities of SAAS–MOD.

SAAS–MOD Configuration Guide

In an effort to solve these confusing training issues, the 13th Sustainment Command (Expeditionary) CSSAMO put together a comprehensive configuration guide, complete with screen shots and step-by-step instructions for units to properly configure their computers to send and receive data. The Ordnance Munitions and Electronic Maintenance School at Redstone Arsenal, Alabama, reviewed the guide and stated that it was the best guide on SAAS–MOD software change package 9 that they

had seen. Anyone with an Army Knowledge Online account can obtain a copy of the guide at https://www.us.army.mil/suite/folder/7718450.

The guide, aimed at users in ASPs and ATHPs, walks the user through configuring entries in ComSetup so that they can send transaction data to the various SAAS MMC boxes above them. The graphic above shows the key boxes that must be filled in to configure SFTP correctly. (The information displayed is only an example.)

Although it has its challenges, SAAS–MOD has automated and transformed ammunition management across the Army. Nevertheless, a lack of understanding of the system can adversely affect the unit's ammunition readiness and capability to fight. As leaders, we must understand the importance of logistics automation training in today's modular Army. The SAAS–MOD configuration guide that the 13th Sustainment Command (Expeditionary) created has proven to be beneficial to units both in Iraq and across the Army. **ALOG**

CAPTAIN MARTIN CABAN WAS THE COMBAT SERVICE SUPPORT AUTOMATION MANAGEMENT OFFICER FOR THE 13TH SUSTAINMENT COMMAND (EXPEDITIONARY) DURING OPERATION IRAQI FREEDOM 06–08. HE HOLDS A BACHELOR'S DEGREE IN ELECTRONIC ENGINEERING AND IS A GRADUATE OF THE SIGNAL OFFICER BASIC AND ADVANCED COURSES.

The FSC company commander assists a Soldier as he fires his crew-served weapon. At right, FSC Soldiers receive a safety briefing before firing a crew-served weapon.

Supporting the Army's First Battlefield Surveillance Brigade

BY FIRST LIEUTENANT ORNA T. BRADLEY

Throughout the history of warfare, Soldiers have needed to know who and where the enemy is. In order to address that need in the context of the 21st century threat, the 525th Military Intelligence Brigade transformed in 2007 to the 525th Battlefield Surveillance Brigade (Airborne). Headquartered at Fort Bragg, North Carolina, the 525th is the first battlefield surveillance brigade (BfSB) conducting intelligence, surveillance, and reconnaissance operations. However, gathering information is only half the challenge it faces. Along with the transformation of its structure and intelligence capabilities, the sustainment capabilities of the brigade also changed. The 525th BfSB increased its operational sustainment capabilities with the creation of the 29th Forward Support Company (FSC). (The 29th FSC is now the 29th Brigade Support Company.)

The 29th FSC is a multifunctional logistics company that was activated on 26 October 2006. Its primary mission is to provide quality field maintenance and to distribute all classes of supply, except medical, to the 525th BfSB. Within 9 months of its activation, the 29th FSC was ready to perform its multifunctional logistics mission when it participated in a brigade 9-day mission readiness exercise at Fort Bragg.

Throughout the long, tedious hours of nonstop support to two battalions, a network support company, a long-range surveillance company, and the brigade headquarters and headquarters company, the 29th FSC Soldiers enthusiastically performed their mission. Each Soldier knew the importance of his individual

contribution, which was reinforced by the company commander and the first sergeant, who routinely praised their Soldiers on a job well done.

The company's leaders used the mission readiness exercise not only as a training or refresher tool for basic soldiering skills but also as an opportunity to encourage initiative, improve teamwork, and enhance morale among the Soldiers. Because of the high standards, values, and expectations that the leaders established within the 29th FSC, the Soldiers displayed an uncompromising sense of pride in their company and an undeniable dedication to the mission.

The 29th FSC is task-organized into three platoons: headquarters, maintenance, and distribution. The maintenance platoon's mission is to provide quality field maintenance on all ground equipment, maintenance management, and recovery for the 525th BfSB. The platoon can generate two maintenance support teams (MSTs) capable of supporting automotive and power-generation equipment forward. The maintenance platoon also has a base maintenance shop that not only has the same capabilities as the MSTs but also can provide limited fabrication and fix weapon systems' communications equipment, special devices, and intelligence electronic warfare equipment. The maintenance platoon maintained vehicle dispatch; repaired and recovered human intelligence

At left, a Soldier reseals the lip seal of an oil pan. Below, Soldiers cheer on their command team as they negotiate the obstacle course to build esprit de corps and unit cohesion.

Soldiers test their protective gear at the nuclear, biological, and chemical chamber.

collection team vehicles, multifunctional team systems, and Triton II systems; and trained on critical warfighting tasks.

The distribution platoon's mission is to receive and distribute supplies in support of the 525th BfSB's sustainment packages. Every day, during the mission readiness exercise, the platoon's distribution section provided the brigade with its operational requirements of ammunition and fuel. The platoon warehouse section requisitioned, received, and issued classes I (subsistence), IIIB (bulk petroleum, oils, and lubricants), VII (major end items), and IX (repair parts) for the brigade. Over 9 days, the distribution platoon distributed 2,160 gallons of fuel, issued 396 meals, ready to eat (MREs), and provided 800 gallons of water to the brigade's main training area. The 29th FSC executed this mission while participating in 36 combat logistics patrols (an average of 4 per day), which included reacting to improvised explosive devices and ambushes, thus testing the soldiering skills of unit members. The ease with which the 525th BfSB received its replenishment was among the top discussions within the brigade's command group.

The 29th FSC demonstrated its outstanding logistics versatility throughout the brigade's 9-day mission readiness exercise and surpassed many of the command's expectations. Many who thought a company that had only been activated a few months earlier would not be ready to undertake the huge task of supporting the entire brigade were proven wrong. By the end of the mission readiness exercise on 10 May 2007, the 29th FSC had validated its mission and proven that it was ready to support intelligence, surveillance, and reconnaissance operations during the brigade's pending deployment. **ALOG**

FIRST LIEUTENANT ORNA T. BRADLEY IS THE EXECUTIVE OFFICER OF THE 29TH BRIGADE SUPPORT COMPANY (FORMERLY THE 29TH FORWARD SUPPORT COMPANY), WHICH IS DEPLOYED TO IRAQ. SHE HOLDS A BACHELOR'S DEGREE IN HEALTH SCIENCE FROM CAMPBELL UNIVERSITY AND IS A GRADUATE OF THE QUARTERMASTER OFFICER BASIC COURSE.

Ensuring CLP Success

BY CAPTAIN AMY E. CRONIN AND FIRST LIEUTENANT GREGORY STERLEY

The 15th Brigade Support Battalion (BSB) conducts nightly combat logistics patrols (CLPs), delivering supplies to the 2d Brigade Combat Team (BCT), 1st Cavalry Division, within the Baghdad area of operations. The battalion conducted an in-depth train-up for CLP procedures before deploying to Operation Iraqi Freedom (OIF) 06–08, to include company lanes training, convoy live fire, and a rotation to the National Training Center at Fort Irwin, California. Within the first 2 months of deployment, the battalion refined its procedures to become more efficient at supplying the 2d BCT. Currently, the battalion supports customers at two separate forward operating bases (FOBs).

CLP Commander Certification

Every CLP commander in the 15th BSB must be certified by the battalion commander before leading a CLP. The CLP commander undergoes a thorough question-and-answer session with the battalion commander during his CLP brief. The CLP commander gives his operation order (OPORD) to all CLP personnel in the presence of the battalion commander, and the battalion commander conducts an OPORD after-action review (AAR) with the CLP commander. The battalion commander rides with the CLP commander during the execution of the CLP and determines certification after the CLP returns to home station. The battalion commander conducts these certifications to ensure uniformity of standards among all of his CLP commanders.

Synchronization

Before a CLP ever leaves the gate, the battalion staff plans, synchronizes, and coordinates to ensure smooth operations once the CLP reaches its destination. The support operations office (SPO) uses its reporting tools to predict CLP loads 72 hours out and locks CLP loads in 24 hours out in order to allocate haul assets. The SPO and S–3 conduct a synchronization meeting daily with the A Company truck master, gun truck platoon leader, supply support activity (SSA) platoon leader, CLP commanders, and an executive officer from each company. During this meeting, haul assets are identified, gun trucks are allocated based on CLP length, and start times are determined by the S–2, based on enemy activity patterns. The SPO then informs the company commander of the mission requirements, and he selects the CLP commander. Once a CLP commander is selected, he selects his assistant CLP commander, and they usually have 72 hours to plan for the mission.

Plan Development

Once the CLP and assistant CLP commanders are identified, the CLP commander gives the assistant a warning order that includes the mission, destination, quantity and type of vehicles needed, and start time. The assistant coordinates with the gun truck platoon and other battalion sections to complete the mission manifest. He determines which gun truck squad is assigned to the mission, the vehicle bumper numbers, weapon serial numbers, battle roster numbers, and other pertinent information.

The CLP commander analyzes the route and recent significant activities (SIGACTS) with the S–2. He also coordinates with the S–3 and SPO on points of contact, materials-handling equipment required, and grids for equipment pickup. Once the CLP commander has completed gathering information from the staff, he can complete the plan.

First, he focuses on developing the timeline that includes battalion mandatory times for the operation. To develop a daily battle rhythm for CLPs, the 15th BSB set mandatory hard times for issue of the OPORD and precombat checks and inspections.

Second, he should develop a thorough understanding of the route by using previous CLP back briefs, satellite imagery, and map reconnaissance. The S–2 shop can provide the CLP commander with satellite imagery of the route. The brigade's goal for the 15th BSB is to push understanding of the route down to the lowest level so that any Soldier in the CLP can successfully complete the mission.

Finally, the CLP commander must develop an order of march. This is important because counter remote-controlled IED (improvised explosive device) electronic warfare (CREW) systems have to be emplaced to ensure that maximum coverage is provided to every convoy vehicle. Placement of CREW systems becomes extremely critical as the number of vehicles in the CLP increases.

After the CLP commander has completed these three steps, he develops the OPORD. He is also responsible for completing the risk assessment and an OPORD brief. By this time, the assistant CLP commander has a completed manifest identifying which vehicles have CREW systems. The CLP commander identifies ground commanders for separate missions at the destination and ensures that one noncommissioned officer (NCO) is in every vehicle.

The CLP commander, assistant CLP commander, and gun truck NCO in charge analyze the plan and

make improvements where needed. For example, the CLP commander ensures that the aid and litter team, recovery team, and landing zone team are identified and located at optimal points in the CLP. They also ensure that Duke and self-screening vehicle jamming systems are placed in the most beneficial locations within the convoy and identify which vehicles would separate from the CLP if it were necessary to evacuate the combat surgical hospital (CSH). After this meeting of the CLP leadership, the plan is finalized and ready to be briefed to the battalion commander. All of these steps are usually completed within 24 hours of the mission start time.

Final Approval

On the morning of the mission, the CLP commander, accompanied by his company commander, briefs the battalion commander. The battalion commander requires four items: a risk assessment, OPORD, CLP OPORD brief, and mission manifest. Once he approves the plan, no changes may be made to add vehicles or Soldiers without his approval.

During the briefing, the CLP commander also briefs the battalion commander on his planned actions once he arrives at his destination (actions on the objective), the location of the designated staging area, and the route the CLP will use when departing. With the approval of the battalion commander, the CLP commander is ready to brief his plan to all CLP personnel.

OPORD Issue

Designating a briefing room with aerial maps and a projector is essential so that the CLP commander has the tools he needs to brief his personnel. CLP briefs are conducted at 1500 hours daily. Every Soldier who participates in the CLP must attend this briefing, or he is not permitted on the CLP. The S–2 begins by providing detailed information on the most recent enemy SIGACTS and current enemy tactics, techniques, and procedures (TTP) and how they may affect the mission. Next, the CLP commander issues his OPORD. This briefing covers the mission, route, order of march, timeline, medical and recovery plans, battle drills, and communications. After the briefing, all CLP personnel are turned over to the assistant CLP commander to conduct vehicle staging and rehearsals.

Rehearsals and Battalion Checks

During rehearsals, Soldiers line up on foot in the order of march and walk through actions on contact, actions during breakdown, vehicle recovery, and casualty evacuations. Soldiers backbrief their specific missions during this time to ensure that all personnel understand the mission at the release point. After rehearsals, the battalion staff conducts mission checks at 1800.

During battalion checks, the S–1, S–3, S–6, electronic warfare officer (EWO) (an attached Navy officer), B Company maintenance, and SPO conduct precombat inspections. The S–1 checks the manifest, identification cards and dog tags, weapon serial numbers, vehicle bumper numbers, and any other sensitive items. The S–6 checks for proper operation of the Force XXI Battle Command Brigade and Below (FBCB2) and Blue Force Tracker (BFT) systems and single channel ground and airborne radio system (SINGCARS) radios.

During this time, the CLP commander plots his route on his FBCB2 screen. The EWO ensures that all CREW systems are functioning and every vehicle is within the 50-meter radius of the Duke coverage. The B Company automotive shop conducts a final walkthrough to check quality assurance and quality control on all trucks. The SPO shop ensures that secondary loads are correct and secured properly.

While battalion checks are taking place, the assistant CLP commander inspects every Soldier's uniform for the proper equipment. He also ensures that each vehicle has a combat lifesaver bag and a proper vehicle dispatch. After all checks are completed, convoy personnel are told when to return and released for rest time.

Start Point Minus 1

CLP personnel report to the staging area 1 hour before start point (SP) and conduct guard mount—an open-ranks inspection of the full combat uniform. The assistant CLP commander inspects weapons for cleanliness, ensures that Soldiers have eye protection and earplugs on hand, and ensures that each Soldier is in complete combat uniform. All personnel complete one last check on their FBCB2 or BFT and call a radio check in to the CLP commander. Once the CLP commander has made radio contact with all vehicles, CLP personnel gather for the most recent S–2 update. This briefing is short and covers events that have occurred since the briefing at 1500, route status, and the enemy's most likely course of action. Finally, the chaplain delivers a prayer, and Soldiers return to their vehicles.

All personnel then mount up and the CLP commander can call in for route and air status and begin movement to the designated departure gate. Once near the gate, the CLP commander calls for an SP time. An SP time is given, and the lead vehicle commander informs the FOB gate guards of the unit departing and the number of vehicles and personnel on the mission.

The lead vehicle commander then escorts the convoy to the loading area, and all crews begin to arm their Rhino, CREW systems, and crew-served and individual weapons. The mission begins as soon as all vehicles report their four statuses to the CLP commander.

Reports sound like, "Gun truck one is red, red, red, amber." This means that every vehicle has turned on their Rhino and Warlock force protection systems, gunners have locked and loaded their M240B or M2 machineguns, and all individual weapons have one magazine loaded but no round chambered.

Mission Execution

The 15th BSB's convoys are required to travel at 20 miles per hour and maintain 25-meter intervals. This TTP is used to counter the current explosively formed projectiles (EFP) threat and ensure the ability of CREW systems to cover all vehicles in the convoy. The best countermeasure against EFP is the human eye spotting the explosive before it is detonated. Crews of fast-traveling vehicles are unable to spot and react to threats.

Once a CLP arrives at its destination, each truck commander ensures that all weapons in the vehicle, including crew-served and individual weapons, are clear. After the senior occupant ensures that the crew-served weapon is clear, all occupants clear their individual weapons at the clearing barrel. The senior occupant observes and checks the chamber of each weapon as Soldiers conduct clearing procedures. Once all vehicles have cleared their weapons, they report their status back to the CLP commander. Reports sound like, "Gun 2 is green, green, green, green." This means that the Rhino and CREW systems have been disarmed and crew-served and individual weapons are clear.

After the CLP reaches its destination, it is imperative that the time-on-ground is as short as possible. The 15th BSB travels during the Baghdad curfew hours, and, if time is wasted at the destination, the CLP may be forced to drive with local traffic during heightened enemy activity times. For this reason, a ground commander is identified for each mission at the destination. Each ground commander is responsible for the safety of the operation at his sight. He is also responsible for reporting to the CLP commander any problems he encounters and when the mission is completed. An efficient operation usually takes the 15th BSB from 40 minutes to 7 hours on ground, depending on its complexity.

After completing the mission, all vehicles proceed to a designated staging area for consolidation and reorganization. Reorganization can be difficult, given the size of the vehicles and the operating space. To alleviate confusion and mitigate risk, rehearsals are conducted to ensure that every Soldier knows his task, purpose, and location on the battlefield. Once all vehicles have merged at the staging area, the assistant CLP commander ensures that the CLP is in the correct order and conducts a radio check with every vehicle.

When reorganization is complete, the CLP proceeds to the gate and requests route and air status and an SP time. Once the CLP is cleared for SP, the CLP exits the FOB and again conducts arming reporting. When the CLP returns to home station, it proceeds to the gate and its personnel clear weapons and head to the briefing room to be debriefed by the battalion S–2. The SPO has representatives on the ground to receive a mission debrief also. After these debriefs, the CLP commander conducts an AAR. The AAR is critical because it shapes the TTP for future operations and allows each Soldier to provide feedback. After the AAR, repair parts are downloaded at the SSA, bulk fuel is downloaded into the fuel system supply point bags, trucks are refueled, and any maintenance issues are addressed by the standby maintenance crew.

CLP Council

In addition to daily CLP AARs, the 15th BSB conducts biweekly CLP councils. This is a forum for discussing TTP to counter the current and emerging enemy TTP. The participants include the battalion commander, CLP and assistant CLP commanders, gun truck platoon personnel, company commanders, and the battalion S–3 and SPO. During the council, the EWO provides updated information about CREW systems and the group discusses ways of improving CLP efficiency. The 15th BSB refines its CLP standing operating procedure based on the outcome of the CLP council.

When this article was written, the 15th BSB was 6 months into a yearlong deployment. It had traveled over 50,000 miles and conducted 250 CLPs through the Baghdad area of operations, and it had not suffered injuries or vehicle loss of capability. The hallmark of the 15th BSB's success is the deliberate troop-leading procedures outlined in this article. The battalion staff hopes that this article offers their fellow logisticians a way to conduct resupply missions in a combat environment. **ALOG**

CAPTAIN AMY E. CRONIN IS THE DEPUTY FOR SUPPORT OPERATIONS OF THE 2D BRIGADE COMBAT TEAM, 1ST CAVALRY DIVISION, WHICH WAS DEPLOYED TO IRAQ WHEN SHE WROTE THE ARTICLE. SHE WAS THE COMMANDER OF A COMPANY, 15TH BRIGADE SUPPORT BATTALION, FROM OCTOBER 2005 TO APRIL 2007. SHE HOLDS A BACHELOR'S DEGREE IN ENGINEERING PSYCHOLOGY FROM THE U.S. MILITARY ACADEMY AND IS A GRADUATE OF THE QUARTERMASTER OFFICER BASIC COURSE.

FIRST LIEUTENANT GREGORY STERLEY IS THE GUN TRUCK PLATOON LEADER FOR B COMPANY, 15TH BRIGADE SUPPORT BATTALION. HE HOLDS A BACHELOR'S DEGREE FROM BOWLING GREEN STATE UNIVERSITY AND IS A GRADUATE OF THE ORDNANCE OFFICER BASIC COURSE.

Defeating the Threat to Sustainment Operations

BY COLONEL BRADFORD K. NELSON

Beyond the present combat operations in Iraq and Afghanistan, our Nation is engaged in what is likely to be a much longer conflict. For now, we call it the "Global War on Terrorism." Using the experience of the past 5 years as a benchmark, this conflict will take all the energy, ingenuity, and commitment we have to achieve victory. Moreover, if history is any indicator of the future, other conflicts and challenges are apt to arise that will require a call to arms. In all of these, we must be victorious. Everything we believe, everything we stand for, and everything we protect depends on our ability to deter or win wars.

General Dwight D. Eisenhower noted, "You will not find it difficult to prove that battles, campaigns, and even wars have been won or lost primarily because of logistics." Accordingly, it remains critical to examine some of the present threats, both internal and external, to our logistics and sustainment operations, systems, Soldiers, and doctrine. It is also important to look at the relationship of the threat to the logistics system and all that it must support. This is a fundamental prerequisite to being prepared to address current and future fights.

The Place of Logistics in Combat

As noted by Mark Thompson in his April 2007 *Time* article, "Broken Down"—

> [Lieutenant General] Stephen Speakes, the Army's top planner, recently recalled the shock Army leaders felt when Private Jessica Lynch and the 507th Maintenance Company stumbled into an ambush in Nasiriyah [Iraq] that left 11 of her comrades dead in the war's opening days. "We found to our horror that this was a logistics unit that had no . . . [major] weapons, no night vision, none of the modern enablers for war," he said. "And we said, 'Well, they were never supposed to fight.'"

In light of what we have experienced in Southwest Asia over the past few years, it is difficult to imagine that we ever thought or planned in such a conventional or seemingly naïve manner. And maybe we did not think that we had done so. Although a number of other circumstances contributed to the ill-fated 507th Maintenance Company tragedy, the illuminating and relevant observation is (apparently in someone's mind) "they were never supposed to fight." That notion seems to fly in the face of our Soldier's Creed. After all, doesn't Army doctrine say that we are all supposed to be Soldiers first and prepared to fight?

At a broader level, if we examine the place of logistics on the battlefield, the Army clearly has certain preconceived ideas of how things should be changed. Now, after several Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) rotations, we realize that the largely unanticipated mission of protecting the logistics supply lines has become an important theater combat operation.

Training for a Linear Battlefield

Throughout the Cold War era and up until the year 2000, the Army, with few exceptions, practiced fighting a primarily conventional enemy on a primarily linear battlefield. We sparred against a number of opposing force (OPFOR) variants, such as the infamous "Krasnovians" at the National Training Center (NTC) at Fort Irwin, California, depending on the region and imagination of the exercise designers. However, most OPFOR variants were modeled on what we believed to be our primary nemeses, the Soviet Union and North Korea. Soviet-style equipment and tactics dominated OPFOR models because of the Soviet Union's position as the most dominant supplier and tactical doctrine influence among our potential rival nation-states. Conventional battlefield geometry, with clearly defined lines and areas, determined where everyone was supposed to operate.

In training and in planning, we apparently became fixed upon the idea of a linear battlefield with a distinct "rear area," where sustainment operations took place in a somewhat protected environment. However, the lessons from the World War II eastern front, Korea, and Vietnam all suggested that force protection considerations for logistics would remain critical and that a determined enemy would seek out and disrupt our sustainment efforts and supporting infrastructure, regardless of their location on the battlefield.

Contemporary Operational Environment

Even after the demise of the Soviet Union, in our training we still held to our former notions of whom, where, and how we might fight. However, toward the end of 2000, a new concept began to appear—first as a white paper and eventually as draft field manuals—for a new OPFOR training model, the contemporary operational environment (COE).

The COE was formally adopted by the Army Training and Doctrine Command, and hence a new model emerged in terms of whom we fought and how they would fight us. Drawing from both the past and more contemporary conflicts, the concepts of a nonlinear battlefield and asymmetric warfare were injected into the training environment.

The basic premise of a nonlinear fight and the use of asymmetric tactics is not new, and numerous historical examples, to include our own Revolutionary War, have highlighted the reality and successful application of both. However, outside of the Special Operations community, the Army, especially the logistics community, got lost in the notion of a conventional and linear fight as we held on to tactical doctrine gained from years of concentration on our Soviet nemesis during the Cold War. The relatively conventional nature and one-sided outcome of Operations Desert Shield and Desert Storm did little to change that mindset.

As the COE made its way into training venues, such as the Battle Command Training Program (BCTP) at Fort Leavenworth, Kansas, and the NTC, we began to grapple with different sets of battlefield geometry and operational dynamics. This shift to the COE initially presented a significant challenge to the existing tactical and operational mindset of warfighters and logisticians alike. Unfortunately, we were not far enough into this mindset transition before duty called.

Changed Expectations

After 5 years of fighting in Iraq and Afghanistan, we are all "believers" in the need to train, teach, and adjust to a nonlinear battlefield and an enemy that fights with a mix of modern weaponry, maneuver warfare, and asymmetric tactics. Since 9–11, we have witnessed the strategic application of asymmetric warfare on a heretofore unimaginable scale; in the larger Global War on Terrorism, we are now locked in mortal combat with a new kind of enemy and doctrine.

Since 9–11, we have moved from the training battlefields of the Mohave Desert and BCTP simulations to combat operations in Afghanistan and Iraq. We have experienced the full measure of a nonlinear battlefield and asymmetric warfare in a relentless and deadly new "battle lab." Necessity, survival, and experience have spawned a plethora of lessons learned. We have rediscovered that the depth and breadth of real war and combat go beyond fires and maneuver and include dealing with ambiguous intelligence, a thinking enemy, and the critical Achilles' heel of battlefield logistics. But, why did we need to rediscover what we had already learned through lessons of history? And, more importantly, have we not yet realized all that we should be learning for the future?

Logistics Training Shortfalls

In 23 years of military experience, I would estimate that I have spent at least 20 years exclusively in the training mode. While the ratio may differ from Soldier to Soldier, we do spend more time preparing and training than we do conducting actual operations. Given that scenario, we need to look at our past typical training focus before we can understand the root of the problems experienced in a combat environment.

Too often, in our efforts to maximize the "training value" for the combat arms, we emphasized maneuver and all the supporting battlefield operating systems such as fires, mobility, and intelligence. In training, especially simulations-based training, if you were not specifically in a logistics unit, sustainment operations were represented as a function without much regard to how it was accomplished. This critical function, which included everything from the movement and resupply of food, fuel, and ammunition to the repair or retrograde of damaged equipment to medical evacuations, was often relegated to a timetable driven by a set of algorithms rather than the realistic simulated movement of logistics vehicles, Soldiers, contractors, equipment, and supplies through a hostile environment.

Although logisticians worked hard during their linear battlefield training years, the emphasis on maneuver and logistics considerations seldom influenced the maneuver scheme or tempo. Perhaps logistics was often overlooked in training because it seemed to be one of the easier parts of war. However, Major General Carl von Clausewitz points out in the following statement that the friction caused by the actual execution of war will make the simplest tasks exponentially more difficult—

> Everything is very simple in war, but the simplest thing is difficult. These difficulties accumulate and produce a friction, which no man can imagine exactly who has not seen war. . . . Friction is the only conception which, in a general way, corresponds to that which distinguishes real war from war on paper. . . . Activity in war is movement in a resistant medium. . . . It is, therefore, this friction, or what is so termed here, which makes that which appears easy in war difficult in reality.

Another shortfall of the simulations-based training focus, especially at division level and higher, was that we still maneuvered icons and not real vehicles and Soldiers. In the computer simulations, unit icons representing scores of cargo, fuel, and other support vehicles moved—not actual convoys.

Another important dimension of tactical operations that seldom received more than a cursory mention

> Logistic security, including the physical protection of logistic personnel, installations, facilities, and equipment was one of the more critical aspects of the logistic effort in Vietnam. Ambushes, sapper and rocket attacks and pilferage caused logistics commanders to be constantly aware of the necessity for strict security measures.
>
> —Lieutenant General Joseph M. Heiser,
> *Vietnam Studies: Logistic Support*

during a "road to war" scenario brief was time. Unit train-ups focused on repetitive training of short-duration events to perfect certain battle drills or command and control. We addressed time in the short sense of hours, not time in the sense of sustained operations over weeks and months. More often than not, our training events lasted no more than a week, and consequently they never truly exercised the sustainment aspects of the war machine.

Since our training focus was on combat arms, the "rear area threat" was assumed to be minimal, so our logisticians were not trained in combat operations. Even at the Army's premier tactical training venue, the NTC, usually the only time the major logistics node was engaged was when the forward line of the linear battle collapsed and the OPFOR broke through to do a "drive by" destruction of the brigade support area. Besides the occasional scripted harassment from "Spetznaz," the only OPFOR operating in the rear area was intelligence-related, with the mission to find and call in artillery strikes on force concentrations.

Whether in force-on-force or computer-simulated command post exercises, our primary emphasis remained maneuver-focused for both the enemy and friendly force. Even the "deep fights" were focused on the hunt for reserves, artillery, and attack aviation. That is not to say that logistics went unchallenged. Scripted events often were injected into a rear-area scenario to challenge the logisticians. Usually, however, logistics nodes were either ignored or suffered only superficial effects from enemy action, or the consequences of any attack were effectively minimized because of the short training duration or the fact that supply algorithms kept running during the exercise regardless of what happened on the battlefield.

Up-Armoring Vehicles

Taken out of the training environment and thrust into Iraq and Afghanistan, logistics Soldiers driving their supply trucks in a combat environment rediscovered another lesson from Vietnam—the need for gun trucks and armored escorts.

Units, especially logistics units, deployed to combat environments in Iraq and elsewhere with light-skinned cargo and tanker trucks and soft-sided high-mobility multipurpose wheeled vehicles (HMMWVs).

Crew-served weapons were almost as scarce as communications equipment. Clearly, planners neither expected nor envisioned the hostile environment that awaited our logistics system.

When the reality of roadside improvised explosive devices (IEDs) and rocket-propelled grenade ambushes took hold, Soldiers quickly began to up-armor with anything they could find. Early versions of gun trucks were very reminiscent of Vietnam. Now, when one looks at an OIF 1-era HMMWV compared to one presently in theater, the contrast is as striking as a plow horse is to a rhinoceros.

In the fight, we had no choice but to adapt and protect in stride. Up-armoring was largely a great success story of creative innovation on many levels, achieving a better level of protection. However, the second-order impact has been a marked decrease in vehicle mobility, stability, and lifespan because the applied armor was not included in the designs of our wheeled fleet.

The Way Ahead

Now, after more than 4 years of OIF, what have we learned about the real threat to logistics and, consequently, the sustainment of combat operations?

First, the concept of a linear battlefield with a clearly defined front and rear is obviously erroneous. The present battlespace in both Iraq and Afghanistan is made up of a number of forward operating bases (FOBs) connected by a series of air and ground lines of communication (LOCs). On the ground, these LOCs manifest themselves as the main supply routes and alternate supply routes. From FOBs, combat units launch everything from routine patrols to major offensive operations within their respective areas of responsibility (AORs). These FOBs or objectives are not positioned in any sort of linear arrangement. Within these AORs, the threat environment along the LOCs connecting FOBs ranges from hostile to benign as the enemy responds to the dynamics of combat operations.

Next, the demands of sustained combat operations require that a logistics supply train, in the form of hundreds of cargo- and fuel-carrying convoys, must traverse these LOCs daily to keep the force fed, fueled, armed, and functioning. No magic algorithms push computer icons and reconstitute units; these are real trucks, driven

by real Soldiers and contract civilians. These trucks and personnel are subject to attack, interdiction, and destruction as much as any other combatant on the battlefield.

The shared use of the theater LOCs by maneuver forces, logistics convoys, contractors, local nationals, and our enemy have made these critical roadways the operational movement avenues, the sustainment lifelines, and, often, the tactical battleground. Insurgent forces looking to avoid contact with combat units instead seek softer targets such as logistics convoys. Maneuver units' use of these routes occasionally creates conflicting priorities and requirements for movement through the battlefield. This reality has pushed logistics units at all levels directly into the operational fight, ready or not. We can no longer look at battlespace as compartmentalized into front and rear areas.

Combat statistics show that the enemy is aware of the criticality of the logistics lifeline to our combat forces. Insurgent forces in Iraq and Afghanistan appear to recognize two critical facts. First, compared to a Bradley- or Stryker-equipped combat unit, logistics convoys (sometimes referred to as combat logistics patrols) are relatively "soft" targets, and a 5,000-gallon fuel tanker truck makes a large and spectacular target. Second, our enemy has recognized that to constrain or cut supply lines (be they ground, air, or sea) is to undermine sustained combat operations. This lesson, borne out by military history, appears to be one we needed to relearn.

Over a period of 10 days in April 2004, insurgent forces in Iraq destroyed several bridges along the critical main supply route and alternate supply routes and ambushed a number of logistics convoys. The net effect all but shut down sustainment support for a number of days until bridges could be repaired and the force protection efforts could be expanded. Given perhaps cursory attention before, the protection of LOCs took on new meaning in the Iraqi theater of operations.

Commanders often must reallocate combat power to clear, patrol, and secure LOCs. The mission of keeping LOCs protected requires a considerable amount of combat power. And although we cannot afford to let the protection of the "tail" consume the "teeth," planners must determine what resources need to be dedicated to keeping LOCs secure to ensure the flow of logistics support without compromising the amount of combat power needed to accomplish other missions. There may even be intelligence or operationally driven reasons to allocate extraordinary force protection resources to certain routes, convoys, or logistics nodes from time to time. That consideration must remain an integral part of the planning process and not become a reaction-based afterthought.

Contractors

Another, perhaps largely unforeseen dynamic of sustained combat operations of the scope and scale of OIF and OEF is the prominent role of contractors on the battlefield. The Logistics Civil Augmentation Program (LOGCAP) support required to sustain an active combat theater of operations is tremendous in scope and has expanded beyond what most people probably imagined it would ever become. The effect of time, the Active and Reserve component mix, force availability, continuity, and the scope and scale of sustainment operations resulted in a dependence on contracted sustainment support. Much of what once was done by logistics Soldiers is now contracted to local and international agents. As the conflict has continued, and in many cases intensified, contracted operators have found themselves as much a target as the Soldiers conducting combat logistics patrols. Moreover, since contract drivers and operators cannot carry weapons, this reality has placed an even greater burden on combat forces designated to protect theater sustainment.

Changed Tactics

The new battlefield realities have forced our units to be spread thinner, to accept risk, to assess the scope of combat operations, and, ultimately, to request more forces, all to meet the very real requirement of sustaining combat operations and protecting sustainment enablers. Nothing suggests that the present nonlinear battlespace is going to change in the foreseeable future. And, arguably, because of the insurgent forces' asymmetric success, the tactics of interdicting logistics convoys and cutting LOCs have been noted by our other enemies to the point of becoming doctrinally integrated into their future planning. It is evident that the proliferation of IED attacks and direct-fire ambushes from Iraq to Afghanistan (and other conflicts such as that between Israel and Hizballah in Lebanon as well as Russia's conflict in Chechnya) demonstrates both the resolve and solidification of LOC interdiction as an "enemy doctrine" we should anticipate for the foreseeable future.

Are we adapting to the threat? Absolutely. Through tactical modifications to our vehicles and tactics, we are attempting to address and mitigate the threat to logistics operations. The design and application of a number of "frag kit" modifications to tactical vehicles are evidence of that, as are new vehicle designs, such as those in the mine resistant ambush protected (MRAP) vehicle program lauded by the Marine Corps. We have placed renewed emphasis on route-clearing systems that have spawned a number of prototype systems, such as the Buffalo, and new tactics, techniques, and procedures (TTP). Tremendous

resources and energy have also gone into counter-IED systems and tactics.

Will it be enough? Absolutely not. As with previous conflicts, we must assume that each new development will be examined and challenged by our enemy (present and future), resulting in an ever-evolving and -adapting pattern of warfare. Another residual effect of this evolutionary process is that, in the process of adapting, some of our vehicles, units, and Soldier duties have morphed into something they were never intended to be. This has created training challenges for Soldiers, unforeseen maintenance problems for equipment, and engineering challenges for systems designers.

More Change Needed

We can only fix this piecemeal approach if we step back and embrace the protection of sustainment assets and LOCs as an enduring operational mission for which we plan, allocate, equip, and train. As we learn, adapt, and engineer solutions, we need to anticipate that our present and future enemies will likewise study and adapt, as is evident by the myriad of IED initiation devices and the improvements in IED design, notably the explosively formed projectile.

Beyond the equipment modifications and tactics lies a larger, perhaps just as critical, lesson. We would be foolish to expect our future adversaries not to recognize our arterial LOCs and the CLPs that must traverse them as a critical target focus. Without a major increase in organic modification table of organization and equipment (MTOE) logistics units, we will likely continue to rely on LOGCAP support, which will depend on a military element for protection.

Although we cannot afford to resign ourselves to diluting combat power to protect LOCs and sustainment missions and logistics units, we cannot ignore this critical force protection requirement; nor can we tell logistics units to wholly protect themselves and LOCs. Certainly, to a larger degree, logistics units must assume the mission of self-protection, but, for them to do this, we must organically train and equip logistics units to fight as they move. And, as a part of our planning, we must build into our calculus the time and resources needed to protect theater sustainment as an integral part of the operational mission. We cannot afford to discover a fatal disconnect between the conduct of operations and the protection of logistics, as we did in April 2004. And we need to train against the dynamics of an enemy bent on sustainment interdiction.

Mitigating the Threat

Mitigating the threat to sustainment operations will require a number of actions, which must be taken together. It will take more than a search for a better vehicle or a new convoy TTP; it will require a holistic approach that addresses tactical, operational, and doctrinal problems. Planners should—

• Add viable force protection assets to the MTOEs and doctrine of logistics units. These assets should include escort vehicles, weapon systems, communications equipment, Soldiers, medical support, and training to address the combat environment that CLPs should anticipate.

• Incorporate realistic force protection and threat scenarios into training simulations, including the resultant effects and constraints on both logistics and maneuver units.

• Recognize in the deliberate planning process that the protection of all aspects of the sustainment system is an operational mission from the very beginning and must be considered and allocated sufficient combat resources.

• Force the integration and interoperability of the Force XXI Battle Command—Brigade and Below system (FBCB2), Blue Force Tracker (BFT), and Movement Tracking System (MTS) so that maneuver and logistics units can share common situational awareness of shared battlespace, synchronize movements, and communicate with each other as the situation dictates.

• Synchronize the theater sustainment plan with operations, so that maneuver and logistics planners and commanders take into consideration the effect that operations have on sustainment, including movement along LOCs, critical route patrolling and clearing, and force protection requirements.

We may not have sufficient time to conduct a wholesale restructuring of the way we protect logistics support before the next conflict, but we must at least acknowledge and address the challenge we face holistically. A change in perspective and mindset, along with the incorporation of today's and yesterday's lessons learned, will go a long way toward defeating the threat to sustainment operations and identifying the type of equipment, TTP, and operational planning and doctrinal perspectives needed. For the sake of lives, materiel, and combat efficiency, we must take ownership or be doomed to repeat history. **ALOG**

COLONEL BRADFORD K. NELSON IS THE ASSISTANT CHIEF OF STAFF, G–2, FOR THE ARMY SUSTAINMENT COMMAND AT ROCK ISLAND ARSENAL, ILLINOIS. HE HOLDS A BACHELOR'S DEGREE IN POLITICAL SCIENCE FROM THE UNIVERSITY OF UTAH, A MASTER'S DEGREE IN STRATEGIC INTELLIGENCE FROM THE JOINT INTELLIGENCE COLLEGE, AND A MASTER'S DEGREE IN ADULT AND CONTINUING EDUCATION FROM KANSAS STATE UNIVERSITY. HE IS A GRADUATE OF THE ARMY COMMAND AND GENERAL STAFF COLLEGE.

The Iron Mountains of Post-Cold War Interventions

BY COLONEL KENNETH E. KING

Two weeks before the start of Operation Desert Storm's ground war, I was pulled from my battalion's intelligence and operations staff officer position and placed in command of a company in the 530th Supply and Services Battalion, 46th Support Group, 1st Corps Support Command (COSCOM), XVIII Airborne Corps. My predecessor had lost the confidence of the command, so, brand new in the saddle, I faced the challenge of trying to secure the critical unit equipment and supplies needed for combat support operations.

During the weeks that we were posturing troops and supplies for ground operations, the logistics system was unresponsive. Part of our problem was that the bulk of the equipment and supplies we were seeking had been shipped from Fort Bragg, North Carolina, and were somewhere in theater. Due to poor in-transit visibility (ITV), total asset visibility (TAV), and logistics intelligence, the company's shipping containers were lost in the disorder and confusion of overcrowded ports. This condition, which affected many units, was caused by poor force structuring decisions and an infrastructure that lacked sufficient logisticians and equipment to move the materiel from the ports. My situation as a company commander was common throughout the theater. As an interim fix, many units at all levels and of all types reordered the items using high-priority requests and scrounged what they could through other, nonstandard means.

Not having a theater distribution plan (TDP) early on in the process, inadequate automation platforms that resulted in a poor logistics intelligence picture, and a shortage of logisticians caused Soldiers to look for countermeasures to offset the gaps in the operations. At the strategic level, the interim fix was to push tons of nonrequisitioned supplies and equipment into theater. Granted, some of this was welcomed and needed, but too much anticipatory (or "push") logistics eventually became counterproductive. As a result, stockpiles quickly turned into "iron mountains"

with little useful identity. Developing a TDP is one of the first steps that should have been taken at the onset to guide logistics efforts. One finally surfaced well after the ground war had started, but it was too late to make much of a difference.

Historians cite Operations Desert Shield and Desert Storm (DS/DS), which commenced in August 1990 and January 1991, respectively, as one of America's most successful wars because of the superb demonstration of joint, combined, and coalition operations. Skilled and swift maneuvers toppled the Iraqi military in what is fondly termed as the "Hundred-Hour War." Army logisticians accomplished three things: They built the theater infrastructure, sustained a victorious military campaign, and closed out the theater of war by bringing personnel and materiel home.[1] Lieutenant General Frederick Franks, the VII Corps commander, summarized the logistics effort of DS/DS as "brute force logistics." This was an awesome tribute to logisticians from a seasoned tactician. Yet, we must keep in mind that the war only lasted 100 hours. Could brute force logistics have sustained a 200-hour war, or perhaps a 300-hour war?

The intent of this article is to analyze the U.S. Army's logistics infrastructure and validate the hypothesis that demand-generated logistics support is essential to establishing the seamless and transparent distribution system necessary to sustain the deployed force. In DS/DS, the Army used push logistics, which resulted in an overwhelmed logistics pipeline, poor ITV and TAV, and, ultimately, the loss of customer confidence. Anticipatory logistics is a good thing, but too much of it, as seen in DS/DS, quickly becomes counterproductive. Again, make no mistake, the logisticians of DS/DS made it happen. Yet, they executed it in a way that was contrary to the Army's logistics doctrine and theories.

The bottom line is that ingenuity, initiative, and hard work by many dedicated men and women—rather than consistently applied logistics practices—saved the day.[2] To validate

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[1] William G. Pagonis, Lieutenant General, USA, and Michael D. Krause, "Operational Logistics and the Gulf War," *The Land Warfare Papers*, Number 13 (October 1992), p.1.

[2] Yves J. Fountaine, Major General, USA, "Strategic Logistics for Intervention Forces," *Parameters Online*, Winter 1997-1998; available at http://carlisle-www.army.mil/usawc/parameters/; Internet; accessed 8 November 2006.

this hypothesis, we must examine the gaps in the operation: force structure, distribution management, logistics intelligence, and customer confidence. Logistics intelligence is broken down into automation platforms and databases, manual procedures, ITV, TAV, and joint total asset visibility (JTAV).

First, let us get an understanding of the magnitude of logistics muscle that went into the Gulf War. The discussion that follows assumes that readers are familiar with the DS/DS campaign and, therefore, includes minimum details of the tactical operations.

Logistics in DS/DS

DS/DS represented the largest U.S. military deployment effort since Vietnam. During these operations, the Army's depot supply and transportation systems moved over 519,000 tons of Army supplies to Southwest Asia. Two of the Army's major depots—New Cumberland Army Depot, Pennsylvania, and Red River Army Depot, Texas—processed many of the supplies.[3] This account of the numbers of vehicles and the amount of equipment that were sent to DS/DS provides an idea of the challenge that logisticians faced—

> More than 117,000 wheeled vehicles and 12,000 tanks and armored vehicles deployed and redeployed. More than 1,700 helicopters, 41,000 cargo containers and 350,000 tons of unexpended ammunition went to the theater and returned in over 500 ships and 10,000 aircraft sorties. Over 95 million meals served and 2.5 billion gallons of fuel consumed. Mail for 540,000 Soldiers, Airmen, Marines, and Sailors reached staggering proportions—38,000 tons, enough to cover 21 football fields 8 feet high. More than 5,000 department and contractor civilians also deployed.[4]

The Army supported military logistics bases that stretched as far as 600 miles from the main supply bases at the Ad Dammam and Al Jubail seaports in Kuwait, while the Marine Corps' supply line stretched 250 miles from its main supply source.[5] These numbers are incredible and, in many ways, unbelievable. The ensuing massive push of logistics quickly overwhelmed the theater infrastructure.

The immature logistics infrastructure was a direct result of poor initial force structuring decisions that slashed logisticians from the early deployment schedule.

Force Structure

The U.S. Central Command (CENTCOM) was responsible for logistics management in the theater of operations. CENTCOM tasked the Army component command with the in-theater management of seaports, common-user land transportation, and airport operations and the distribution of common items, such as food, clothing, lubricants, and conventional munitions, to all services. The Army's headquarters in the region, the Army Central Command, planned for the ground operation, managed the theater communications zone, and was responsible for coordinating joint, combined, and coalition operations that included host nation support activities.[6] Combat troops and large quantities of supplies arrived before the logistics personnel and equipment that were needed to physically handle and manage the shipments.

In mid-November 1990, two key logistics organizations arrived from the continental United States: the 321st Theater Army Materiel Management Center (TAMMC), which was doctrinally capable of providing centralized materiel management for the theater, and the 988th Repair Parts Supply Company (General Support). The 988th deployed to provide repair parts support to echelons-above-corps units, but it arrived without its authorized stockage list (ASL) and could not issue parts to customers. The 321st TAMMC requisitioned a replacement ASL, but the parts were slow to arrive, further compounding the problem. In addition, a system for distributing the limited class IX (repair parts) in Saudi Arabia did not exist and resulted in a significant amount of frustrated cargo at the ports and elsewhere.[7]

As more units arrived in theater, the demand for repair parts increased and caused a snowball effect. Supply personnel quickly became overwhelmed and frustrated. This and other issues set the stage for logistics challenges from the beginning. Lieutenant General William G. Pagonis, the 22d Support Command's commanding general from August 1990

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[3] U.S. General Accounting Office, *Operation Desert Storm, Increased Work Loads at Army Depots Created Supply Backlogs*: Report to the Chairman, Subcommittee on Oversight of Government Management, Committee on Governmental Affairs, U.S. Senate (Washington, D.C.: U.S. General Accounting Office, April 1992), p. 2.

[4] Pagonis and Krause, p. 13.

[5] U.S. General Accounting Office, *Operation Desert Storm, Transportation and Distribution of Equipment and Supplies in Southwest Asia*: Report to the Chairman, Subcommittee on Oversight of Government Management, Committee on Governmental Affairs, U.S. Senate (Washington, D.C.: U.S. General Accounting Office, December 1991), p. 10.

[6] Fountaine, p. 3.

[7] Glenn M. Melton, Colonel, USA, *Materiel Management Challenges During the Persian Gulf War*, Executive Research Project (National Defense University: Fort McNair, Washington, D.C., 12 April 1993), p. 12.

to January 1992, stated, "Because of the simultaneous deployment of combat and combat support forces, material management assets did not deploy early in the process. Automated recordkeeping of items in the theater suffered, and it was plain tough to keep accurate records on time-sensitive arrivals and departures."[8] The problems with force structuring eventually affected distribution efforts, and the iron mountains of supplies kept growing.

Distribution Management

Distribution management problems included an ineffective theater tracking system to provide for ITV of assets. Supply support activities (SSAs) poorly aligned with their supported customers, and the use of container shipments with multiple consignees overloaded the break bulk points (BBPs). Cargo was often misrouted, frustrated, and delayed.[9] The Army had no reliable materiel tracking systems, used sloppy documentation procedures, and lacked sufficient materials-handling equipment to move the containerized cargo to appropriate distribution centers. Identification documents would often separate from the containers, or the containers were shipped without the proper documents, so at least half of the containers that arrived in theater had to be opened to determine their contents. An effective logistics intelligence system would have eliminated this.

Units abused the procedures for assigning priorities to requisitions. For class IX alone, high priority (issue priority designator 01–08) requisitions made up between 65 and 85 percent of the total requisitions that were submitted to the wholesale system on a daily basis.[10] This caused delays in the shipment of other critical supplies. By December 1990, 7,000 tons of cargo—at least six times the total Department of Defense (DOD) airlift capability—were on the ground at Dover Air Force Base, Delaware, awaiting shipment to Saudi Arabia. That meant that every aircraft in our inventory would have to make six flights in order to get all the supplies on the ground at Dover into theater. And Dover was not the only exporting hub supporting the operation. Again, did we think this through completely?

As an interim fix, the U.S. Transportation Command (TRANSCOM) established Operations Desert Express and Desert European Express with the mission to deliver repair parts into theater overnight from the United States and Europe. This helped tremendously and made sense, but it was a reaction to a larger problem of poor logistics intelligence.

Logistics Intelligence

What is logistics intelligence? Logistics intelligence is having real-time updates on the movement of supplies, equipment, and personnel. The center of gravity of logistics intelligence is compatible automation platforms and databases and an infrastructure that uses them according to their designs. From a customer's perspective, a more common product of logistics intelligence is receiving legitimate and consistent requisition status updates—where is my stuff, and when will I receive it? Logistics intelligence was marginal at best in DS/DS and caused problems like duplicate requisitions, an abused priority system, overloaded supply systems and ports, overextended air assets, and, ultimately, the loss of customer confidence.

DS/DS occurred at a time when the Army was transitioning its automation architecture. To provide adequate logistics intelligence, the infrastructure must have compatible automation platforms and databases to make it work effectively. One could argue that logistics automation was the systemic problem plaguing the theater logistics infrastructure. The root cause was the use of many nonstandard, ad hoc automation platforms and inadequate tactical communications devices. At one time, approximately 26 different stovepiped logistics automation databases were in use. These systems ranged from manual and batch processing systems to the state-of-the-art online systems of that time.

Several units deployed intending to use manual procedures throughout the operation. Others speculated that they would receive automation platforms once they were in theater. The reason many units deployed without automation systems was that they lacked confidence in the systems' capabilities and considered them "for garrison use only."[11] In many cases, they also lacked the trained operators needed to employ these systems to their fullest capabilities. Their reliance on manual procedures limited logistics synchronization and caused a distorted view of the commander's logistics capabilities.[12]

This distorted view affected the entire infrastructure and sent a false logistics posture to all levels. If the picture was inaccurate at the theater level, it was just as inaccurate at the Department of the Army and DOD levels, where leaders made major decisions based on this information or the lack thereof. The Army recognized

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8 Ibid., p. 9.
9 Office of the Deputy Chief of Staff for Logistics, *Operation Desert Storm Sustainment* (Washington, D.C.: Pentagon, 22 July 1992), p. 53.
10 Ibid., p. 56.
11 Greg R. Gustafson, Colonel, USA, *Logistics Management Systems in Desert Shield/Desert Storm – How Well did they Do?*, Strategy Research Project (Carlisle Barracks: U.S. Army War College, 7 April 1992), pp. 12-13.
12 Melton, p. 24.

> **In DS/DS, the lack of visibility perpetuated nonstandard behavior. Units resorting to facsimile messages and telephone calls resulted in an inordinate amount of offline requisitioning. Operating a logistics system in the "by exception" mode is contrary to its design.**

the criticality of automation and took the necessary steps to capitalize on its capability.

The system at that time was based on manually preparing requisitions and submitting them for batch processing. The new system processed requisitions and provided status from the company through the division, corps, theater, and national inventory control point (NICP) levels by means of electronic data transfer.[13] Because they lacked the tactical communication infrastructure for logistics automation, units below the division level passed information through hand-carried media, such as floppy diskettes or magnetic tapes. This was termed the "sneaker net." Missing a disk drop was a significant, sometimes emotional, event for any unit within the 1st COSCOM. One would rather lose a critical item than miss a disk drop.

We were truly trying to make the system work despite regular system crashes and data loss. "The sheer volume of DS/DS requisitions resulted in long computer run times, processing backlogs, and hard disk overload. The transmission of a requisition from the company level to the wholesale system averaged between 5 and 15 days."[14] That timeframe seemed like an eternity, especially in a hostile environment. Once a requisition was submitted, customers often did not receive confirmation that the requisition was valid and in the system, and they rarely received updates on its status. Logisticians were unable to provide reliable logistics intelligence.

ITV, TAV, and JTAV

Everyone talks about ITV, TAV, and JTAV, so what are they? First, ITV is not the same thing as TAV. They are similar, but different. ITV is the term used to define the reporting and management of what is moving within the Defense Transportation System and DOD's operational theaters. ITV is the ability to track the identity, status, and location of unit equipment and nonunit cargo from origin to destination. ITV is also knowledge management. It gives logisticians the

ability to plan and predict requirements based on the information they have.

TAV is the capability to provide users with timely and accurate information on the location, movement, status, and identity of units, personnel, equipment, materiel, and supplies.[15] ITV focuses on the item and its shipment mode, whereas TAV just focuses on the particular item. Both types of visibility must be accurate, timely, and available at the point of initial interface. While the data may be similar, we must be cautious and avoid using the terms interchangeably.[16] Some may argue that ITV is actually a subcomponent of TAV.

In DS/DS, the lack of visibility perpetuated nonstandard behavior. Units resorting to facsimile messages and telephone calls resulted in an inordinate amount of offline requisitioning. Operating a logistics system in the "by exception" mode is contrary to its design. These nonstandard methods of requisitioning also bypassed the supporting SSAs and often perpetuated the lack of visibility problem that had generated the duplication requirement in the first place. Rather than expediting delivery of required items, this circumvention resulted in numerous delays because the nonstandard actions required manager intervention.[17]

JTAV offers much hope in solving this problem. According to Major William L. Taylor, U.S. Marine Corps, "JTAV is the ability to provide DOD users with timely and accurate information on the location, movement, status, and identity of units, personnel, equipment, and supplies. JTAV also makes it possible to use that information to improve the overall performance of DOD logistics practices."[18] This means that common-use items, such as food, medical supplies, fuel, ammunition, and repair parts, will no longer be a distinct service initiative. JTAV is a streamlined DOD venture that saves time and money and lessens the strain on DOD transportation assets. During DS/DS, Soldiers did not have this luxury and, as a result, customers' and logisticians' confidence in the supply system plummeted to an alltime low.

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[13] Office of the Deputy Chief of Staff for Logistics, p. 94.
[14] Ibid.
[15] David J. Kolleda, Colonel, USA, *Achieving In-Transit Visibility (ITV): A Study of Technology on ITV in The Department of Defense*, Strategic Research Project (Carlisle Barracks: U.S. Army War College, 18 March 2005), p. 1.
[16] Gustafson, p. 21.
[17] Ibid., p. 19.
[18] William L. Taylor, Major, USMC, "Joint Total Asset Visibility: Foundation of Focused Logistics," *Army Logistician*, May-June 2000; available at www.almc.army.mil/ALOG/issues/MayJun00/MS537.htm; Internet; accessed 12 January 2007.

Customer Confidence

Users of any system must have confidence in that system's ability to accomplish an expected outcome. When a system fails to provide the desired result, a Soldier will use exceptional means to reach that endstate because he knows that his leaders have little tolerance for excuses. We are a results-oriented military, and a lack of confidence in a system will only cause the user to circumvent the system in hopes of finding a suitable workaround. In DS/DS, units submitted new requisitions for items that had already been ordered because it was easier and faster to reorder the items than it was to try to locate them. This affected the entire wholesale system, increasing workloads and backlogs at the depots.[19] Everyone paid the price in terms of frustration and additional effort.

Colonel Greg R. Gustafson puts the importance of logistics confidence into perspective. He states—

> The impact of the lack of confidence by the supported customer should not be underestimated. It is inherently obvious that the customer goes to his source of supply to satisfy a requirement. The customer must leave that point with the item in hand or confidence that the requirement is valid and the unit will receive the item. Subsequent visits should reinforce this confidence by providing visibility as the item comes closer to receipt. Failure to focus asset visibility on this interface will simply perpetuate a lack of confidence in the logistics system and generate priority abuse, hoarding, and crisis management. The credibility of the logistics system resides at this interface and resources must be allocated accordingly.[20]

The daily number of transactions performed on the Corps Theater Army Data Processing Service Center-Phase II system often exceeded the recommended maximum daily capacity of about 60,000 transactions. The daily transaction volume ranged from 20,000 to 266,000 and included requisitions, status inquiries, modification to requisitions, substitutions, and cancellations, just to name a few. In late December 1990, the Army Deputy Chief of Staff for Logistics directed his Supply Policy Division to establish and standardize management practices and procedures to ensure supply discipline, reduce overall transaction volumes, and enhance support.[21]

There were so many requisitions with excessive quantities that the NICPs started to cancel them arbitrarily without notifying the servicing materiel management centers (MMCs). As a result, subordinate MMCs began screening and cancelling requisitions. Between 65 and 85 percent of these requests were labeled "high priority," and many of them were duplicates. Considering that the equipment and supplies that were originally ordered were already somewhere in theater, imagine the unnecessary workload, wasted time, equipment wear and tear, and frustration the duplicate requests caused.

Logistics intelligence is just as important for real-time visibility on unit locations as it is for the location of supplies and equipment. Units often move to new locations. What would happen if you ordered several items for delivery to your home, but you moved before they arrived and did not notify the merchant or carrier of your new address? The parcels would eventually find their way back to the sender. During DS/DS, the items could not be returned to the sender, so iron mountains of materiel accumulated at the SSAs and aerial and sea ports of debarkation.

The intensity of the operation and the rapid movement of deployed units and personnel in theater made overcoming the backlog extremely difficult and greatly increased the frustration of the supported customers. As units arrived in theater, their peacetime support relationships changed. So, supplies would arrive at an SSA that no longer supported the unit for which the supplies were destined. [22]

At the conclusion of the ground war, units finally located thousands of containers and hundreds of pallets—many containing class IX items. Knowing where those class IX items were would have kept TRANSCOM from having to establish Operations Desert Express and Desert European Express to deliver repair parts overnight. The logistics system, in most cases, was capable of delivering the requested supplies and equipment. However, moving them from the ports of debarkation to their final destinations proved to be difficult.

Learning From the Mistakes

As professionals of arms and, more importantly, sustainers of an Army, we have to look beyond our overall success and dig into the details of why logistics operations did not go as planned.[23] Too often, we think, "We won. Isn't winning all that matters?" This type of mindset will surely posture us for future disappointments. "As professionals we must critically appraise our victories as well as our losses to maintain the winning edge."[24]

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[19] U.S. General Accounting Office, *Operation Desert Storm, Increased Work Loads at Army Depots Created Supply Backlogs*, p. 16.
[20] Gustafson, pp. 20-21.
[21] Office of the Deputy Chief of Staff for Logistics, p. 97.
[22] Gustafson, p. 9.
[23] Ibid.
[24] Gustafson, p. 3.

The Army was the primary victor in DS/DS, as it made up the bulk of the ground force. Combat and combat support forces won the war, but their hard work would have been in vain without the dedicated efforts of logisticians. General Norman H. Schwarzkopf, the theater commander, lauded their superb accomplishments by stating that logisticians overcame what he called a "daunting task" in an extraordinary way. The overwhelming victory made people forget the pain and not take the actions necessary to resolve the problems. The proof of this is in the subsequent operations. By looking at post-Cold War operational logistics trends, we can see if the logistics problems that Soldiers faced in DS/DS were isolated occurrences or if the Army ignored the lessons it learned.

Operation Restore Hope

In April 1992, United Nations (UN) Security Council Resolution 751 established a UN operation in Somalia called Operation Restore Hope. The deployment of forces and equipment to Somalia caused logistics problems comparable to those that plagued operations in DS/DS in 1990 and 1991. Strategic planners did not anticipate the large number of logistics personnel needed to support logistics operations, especially at the sea and air ports. The time-phased force deployment data (TPFDD) database lacked the flexibility to support a contingency operation. CENTCOM created a deployment plan, but subordinate units made uncoordinated changes. Problems with automation systems caused significant troubles with asset visibility.

Pushed supplies and equipment continued to arrive and overwhelm the infrastructure. Inaccurate data on the arriving supplies were as much of a problem as they were during DS/DS. During Operation Restore Hope, units used email and telephones to pass requests directly to colleagues, bypassing local logistics centers and, once again, showing a lack of confidence in the system. Since their ability to track shipments was greatly hindered, Soldiers called depots and NICPs directly. Units tapped into UN systems to obtain common-use items, while action officers and senior officers used the direct request system, triggering the movement of supplies without the logistics personnel in theater even knowing it.

The Army did not designate a senior theater logistician with the necessary authority to make critical logistics decisions. As a result, non-standard supply procedures surfaced as they did during DS/DS. In addition, no centralized theater MMC (TMMC) existed to maintain visibility over supply operations. Lacking this capability, logisticians missed the opportunity to cross-level supplies and stockpiles started to appear everywhere.

Operation Support Hope

On 4 July 1994, Kigali, the capital of Rwanda, fell to the Tutsi-dominated Rwandan Patriotic Front. This triggered a U.S. military intervention to support humanitarian relief operations. As in DS/DS and Restore Hope, the TPFDD was overwhelmed with input from several different commands and agencies, making it difficult to identify the appropriate force structure for the mission. Requirements for personnel and supplies from international relief and nongovernmental organizations added to an already confusing deployment plan. These logistics problems resulted in a backlog at ports of embarkation, unnecessary movement delays, and the loss of asset visibility.

Once again, combat forces preceded logisticians and units did not use standard cargo documentation and manifesting procedures. Problems also arose with automated logistics management systems. A new tactical requisition system was released ahead of schedule in an effort to overcome problems identified in previous interventions, but the system was ineffective because of delays in establishing the required communications infrastructure. For several days, the Army was unable to transmit supply and materiel requisitions to the appropriate agencies in the United States and the joint task force commander was unable to influence logistics operations.

Operation Joint Endeavor

The objective of Operation Joint Endeavor in Bosnia was to implement the Dayton Agreement of December 1995. The North Atlantic Treaty Organization took on the mission, and the 1st Armored Division executed the intervention assignment. Similar types of problems plagued the operation as in DS/DS. Combat forces once again preceded logistics units, resulting in an unsynchronized deployment plan and a logistics footprint that initially could not adequately support the force. Planners adjusted the TPFDD multiple times and ended up reverting back to using manual procedures instead of the automated system. Logisticians lost visibility of personnel, equipment, and supplies within the logistics pipeline.

On a brighter note, and perhaps a lesson both learned and implemented, logisticians did attempt to correct the visibility problem by the use of radio frequency tags, detection devices, and computer systems. Yet, their use did not provide the intelligence the logisticians were hoping to gain. Later in the deployment, the system became marginally operational and provided a limited amount of knowledge. Operation Joint Endeavor was a marked improvement over earlier operations because a prudent step was taken to correct a previously cited problem.

> The first step to correcting this deficiency is ensuring that the logistics intelligence infrastructure is fully functional well before the first item or troop arrives in theater. With logistics visibility, we can properly focus on the TPFDD, ensuring that it has the appropriate mixture of combat forces and logisticians to develop the theater tactically and logistically. Visibility can solve the distribution management problem, but it is easier to write about it than to execute it.

This shows that at least one lesson was painful enough to bring action in an effort to fill a deficiency.

Applying the Lessons Learned

Five years and three deployments after DS/DS, problems remained the same. The Army was still plagued with force structure and distribution management issues, the use of nonstandard requisition procedures, and automation compatibility problems that resulted in low customer confidence. We did not perform any better during subsequent post-Cold War interventions than we did in DS/DS.

Do we really use our lessons learned to improve operations, or do we just continue to learn the same lessons over and over again? Major General Yves J. Fountaine did a superb job evaluating the three post-DS/DS campaigns and recommending the designation of a single joint task force (JTF) logistics commander—a role filled by Lieutenant General Pagonis in DS/DS.

We can no longer ignore these lessons if we truly intend to maintain customer confidence in our products and create a seamless, transparent, and responsive distribution system. The facts are what they are, and it does not require a logistician to see, interpret, and digest the issues that call for action. Army logisticians must learn from past mistakes and apply them to improve force structure, distribution management, logistics intelligence, and customer confidence.

Force Structure Lessons

Force structuring is arranging forces, supplies, and equipment so that they are well prepared to deploy to an area of operations. Force structuring is the initial planning stage of an operation and probably the most critical. Logisticians must be included in early troop deployments into the theater. When combat forces deploy without logistics assets, the results can be devastating to a maturing theater and the incoming logistics infrastructure. Logisticians must be on the ground early and in adequate numbers. They must be postured with the proper equipment and supplies to support deploying forces, onward movement, and employment.

Distribution Management Lessons

In each of the post-DS/DS operations that were analyzed, logisticians were able get supplies and equipment to the ports. However, the last tactical mile leading to the customer was the problem. The first step to correcting this deficiency is ensuring that the logistics intelligence infrastructure is fully functional well before the first item or troop arrives in theater. With logistics visibility, we can properly focus on the TPFDD, ensuring that it has the appropriate mixture of combat forces and logisticians to develop the theater tactically and logistically. Visibility can solve the distribution management problem, but it is easier to write about it than to execute it.

Logistics Intelligence Lessons

Improving logistics intelligence is critical to our future success. Automated logistics systems, including the TPFDD, are necessary for logisticians to do their jobs effectively. The Army must have an adequate number of capable platforms, compatible software, and a communications infrastructure that allows easy data transmission. Deploying without automation, using 26 different systems, or lacking trained operators can lead to disaster. The TPFDD is not agile enough to deal with contingency deployments, and it remains linked to the Army's Cold War logistics theories. It must be more responsive and accept input from multiple agencies while providing real-time results.

Ultimately, the TPFDD must provide commanders with visibility of all their assets and allow staffs to manipulate those assets throughout an operation. Using JTAV will allow the military services to forecast, procure, and use supplies collectively instead of individually and will result in more efficiently used resources and cost savings across the board. In particular, the services will be able use food, fuel, ammunition, lubricants, medical supplies, and repair parts more efficiently. Over time, the cost savings and benefits will surface, especially once customer confidence in logistics intelligence has been restored.

Customer Confidence Lessons

Failure of the system to perform as expected for any reason will affect customer confidence. Users of a system will create workarounds to offset the system's failures. The key to counteracting this problem is to ensure the system functions as designed. A functioning logistics infrastructure with solid, pipeline intelligence will ensure that each user remains informed of the status of supplies and equipment entering, within, and departing the theater. A customer should be able to order a widget, regularly check its status, and have the item arrive when the system says it will—nothing more, nothing less. Once we achieve this level of fidelity, customer confidence in the system will no longer be a problem.

A Single JTF Logistics Commander

The designation of a single JTF logistics commander with a strong logistics intelligence capability and trained personnel is essential for adequately supporting future operations. The JTF logistics commander is the sole point of contact and is responsible for all facets of logistics operations within the theater. He must be on the ground early to assess the situation and have the authority to make strategic-level decisions on personnel and equipment flow. The JTF logistics commander also must have logistics muscle early on to make a difference. Placing the commander and his staff on the ground without the proper capabilities will set him up for failure. Lieutenant General Pagonis was the go-to person for logistics during DS/DS. But he was not postured properly for success, even though he achieved it.

The proper force structure and JTAV will make the JTF logistics commander and staff successful and will enable them to make decisions regarding incoming troops, supplies, and equipment. Of course, the JTF logistics commander would operate within strict guidelines when making decisions concerning logistics automation databases. Automation changes likely will affect other commands, units, and organizations and must be carefully coordinated.

Establishing a TMMC will assist the JTF logistics commander in providing effective logistics support to the theater. The TMMC is the single, sole, and distinct MMC for the theater—there may be subordinate MMCs, but there is none higher in theater than the TMMC. All supply requisitions must process through the TMMC before they are transmitted to the NICP or another SSA. This way, the JTF logistics commander maintains visibility and has his fingers on the logistics pulse.

Final Thoughts

Again, we must ask ourselves these questions: If DS/DS had lasted longer than 100 hours, could we have sustained the effort? Would there have been enough logistics muscle and brute force left? Smoothing out or eliminating the logistics problems we experienced during post-Cold War operations will certainly posture us for demand-generated support and enhanced visibility of personnel, equipment, and supplies. The Army must focus on fostering customer confidence in the supply system and avoid overwhelming the logistics pipeline. History has shown that we quickly detour from established procedures during military operations and default to being reactive instead of proactive. Logisticians will always get the job done, but straying from established procedures can be a waste of time and effort.

The need to push logistics into theater will subside if logisticians are properly postured for success at the onset of hostilities. Anticipatory logistics is a good thing to a certain degree, but too much of it is counterproductive, especially if logisticians receiving the supplies do not have the proper force structure to receive and move the items quickly to customer units. The iron mountains of supplies and equipment are a firm reminder of this fact.

Each of the problems is correctable if we actually react to the logistics lessons we have learned over the years. Logisticians and combat arms Soldiers must work together at the onset of hostilities to best synchronize response efforts. Consider a spear: Logistics is the shank and combat arms is the tip. For the tip to be most effective, it must have the leverage and weight of the shank behind it. If we think in these terms, logisticians and other players will have equal say in the planning and execution of operations. The ideal end-state is for logisticians to be postured to provide demand-generated logistics support with a seamless and transparent distribution system that has the confidence of all who use it.

ALOG

COLONEL KENNETH E. KING IS A SUPPORT OPERATIONS OFFICER IN THE 13TH SUSTAINMENT COMMAND (EXPEDITIONARY). HE HAS A BACHELOR'S DEGREE IN MANAGEMENT FROM NORTHERN MICHIGAN UNIVERSITY AND A MASTER'S DEGREE IN COMPUTER INFORMATION SYSTEMS MANAGEMENT FROM WEBSTER UNIVERSITY. HE IS A GRADUATE OF THE AIR DEFENSE ARTILLERY OFFICER BASIC COURSE, THE QUARTERMASTER OFFICER ADVANCED COURSE, THE COMBINED ARMS AND SERVICES STAFF SCHOOL, THE ARMY COMMAND AND GENERAL STAFF COLLEGE, AND THE ARMY WAR COLLEGE. COLONEL KING WROTE THIS ESSAY AS PART OF HIS MASTER'S DEGREE AT THE ARMY WAR COLLEGE.

The Battlefield Contracting Community of Practice

BY PATRICK CONWAY

A LOGNet forum permits members of the contracting community to share knowledge, expertise, and experience between the institutional and operational forces.

In its October 2007 independent assessment, *Urgent Reform Required: Army Expeditionary Contracting,* the Commission on Army Acquisition and Program Management in Expeditionary Operations (also known as the Gansler Commission) presented the Secretary of the Army with a number of findings and recommendations for achieving "timely and efficient contracting for materiel, supplies, and services in support of expeditionary operations." The assessment included, but was not limited to, the following major weaknesses—

• "Contracting should be a core capability of the Army, but it currently is treated as an operational and institutional side issue."

• "[There is a] Lack of planning and training for expeditionary contracting and contract management."

• "[There is a] Lack of recognition (by operators) of the impact of contracting and contractors in expeditionary operations (yet approximately 50[percent] of 'force' in Iraq is contractors)."

Certainly this study may drive a variety of much needed "big Army" transformational efforts, ranging from enhancing the quantity and development of contracting personnel to revamping regulatory policies and procedures. But many of these initiatives will take time. Obtaining and developing contract professionals requires a long-term investment. Restructuring the acquisition and contracting community to facilitate both continental United States and expeditionary operations will take years. Likewise, achieving the necessary legislative, regulatory, and policy support is a lengthy, laborious process. Clearly, these and other shortfalls identified must be acted on, but how long and what form implementation of any commission recommendations may take remains to be seen.

So what can we do now? More specifically, what immediate steps can be taken to improve contracting management and support within the current operational environment? Several Army organizations are now answering this call by capitalizing on the expertise within the Army Sustainment Command, Army field support brigades, and the acquisition, logistics, and technology community and by improving on the contracting-related training and education provided at Army Training and Doctrine Command centers and schools.

However, this article focuses on a parallel initiative launched by the Army Combined Arms Support Command (CASCOM) to leverage the expertise and experience of the aforementioned organizations through a "battlefield contracting" community of practice (CoP).

The "Battlefield Contracting" CoP is a globally accessible discussion forum, where anyone with Army Knowledge Online (AKO) credentials can submit inquiries, initiate discussions, contribute content, and otherwise share questions, experience, and knowledge on the subject of contracting. It functions as an online workspace, where "virtual teaming" occurs between experts and novices and contracting professionals and customers (requiring agencies) converse about operational issues and concerns in the realm of contracting.

This forum provides three primary benefits. First, as opposed to individual email inquiries, questions asked and answered within the CoP are shared and viewed by all participants. This produces a "knowledge compounding" effect, resulting in subsequent group discussions that are of a higher caliber. Second, the CoP is more than a traditional website; it not only acts as a means to find "what" you need to know, but more importantly, "who" you need to know. Finally, the forum is powered by two-way dialogue, allowing members to disseminate institutional knowledge and gather relevant operational insights and observations. Coupled with other initiatives, the "Battlefield Contracting" CoP will provide a vital link between the institutional and operational Army and assist in correcting some of the shortcomings identified by the Gansler Commission.

As part of CASCOM's Sustainment Knowledge Management (SKM) program, the "Battlefield Contracting" CoP (as well as many other sustainment and logistics communities) can be found on LOGNet, a subset of the Battle Command Knowledge System (BCKS). The forum currently includes topics on

ALOG NEWS

LOGISTICS BRANCH BECOMES REALITY

The establishment of the Logistics branch became effective 1 January. The new branch unites commissioned officers in the grades of captain through colonel.

According to the Army's Deputy Chief of Staff, G–4, Lieutenant General Ann E. Dunwoody, "The establishment of the Logistics branch . . . promotes the development of multiskilled logisticians, capable of anticipating requirements, planning, integrating, and executing all types of deployment and sustainment activities that enable our Nation's forces to initiate and sustain full-spectrum operations. As a result of Army transformation and modularity, Army logistics has shifted from a functional to a multifunctional focus. The reduction of functional logistics commands and the increase of multifunctional logistics commands at all levels make this a natural evolution for Army logisticians."

Major General Mitchell H. Stevenson, the commanding general of the Army Combined Arms Support Command, observed, "In the 21st century, we need logistics officers who are multifunctional—officers not just focused on particular fields in logistics, but who are competent in all those fields.

"No longer is it enough to be skilled in one particular area. We have got to be good across the board. And the more senior you get, the more we are going to focus you on enterprise organizations—where you are thinking not in terms of what is going on in your particular area of operation, but knowing how the entire supply chain works. You'll need to understand the effects of one part of the chain on another part of the chain."

The Army decided to begin multifunctional training at the grade of captain because that is the level at which their assignments require them to have broader capabilities than provided by their functional branch training. "What we find is that by the time you make full colonel, about 75 percent of the positions in the Army call for multifunctional expertise," said Major General Stevenson. "At the grade of captain, that number is already at about 50 percent."

Training for officers in the Logistics Branch will take place at Fort Lee, Virginia. Under the base realignment and closure process, the Ordnance Schools at Aberdeen Proving Ground, Maryland, and Redstone Arsenal, Alabama, and the Transportation School at Fort Eustis, Virginia, will relocate to Fort Lee, which is already home of the Quartermaster School.

For more information on the Logistics branch, see the interview with Major General Stevenson on page 1 and the July–August 2007 issue of *Army Logistician.*

NEW ARMY RESERVE UNIT WILL PROVIDE AMC-ASAALT-DCMA SUPPORT TO THE FIELD

A new Army Reserve unit is being created to provide the expertise available from three Department of Defense organizations to support sustained contingency operations. The Army Reserve Sustainment Command Troop Program Unit (ARSC TPU) will consist of Army Reserve Soldiers drawn from the Army Materiel Command (AMC); the Office of the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASAALT); and the Defense Contract Management Agency (DCMA). They will constitute a cross-trained, modular unit that

contingency contracting, field ordering officers, contracting officer's representatives, and other important subjects related to operational contracting practices and procedures. Launched in November 2007, the community is led by a growing team of contracting subject-matter experts who are standing by to share and support others engaged directly or indirectly in contracting.

Those who wish to further explore this important capability should follow these instructions. If you are new to LOGNet, you must (1) sign in with your AKO credentials at https://forums.bcks.army.mil/secure/communitybrowser.aspx?id=239599; (2) click on "Become a Member" to fill out required information; (3) activate your "Subscription"; and (4) click on the "Battlefield Contracting" folder. You then should follow instructions within the site for initiating discussions, finding resources, and making contributions. If you are already a LOGNet member, you can directly access the "Battlefield Contracting" CoP at https://forums.bcks.army.mil/secure/CommunityBrowser.aspx?id=456816&lang=en-US. **ALOG**

PATRICK CONWAY IS THE CHIEF KNOWLEDGE OFFICER AT THE ARMY COMBINED ARMS SUPPORT COMMAND AT FORT LEE, VIRGINIA.

will be able to deploy or mobilize as needed to support troops in the field.

The establishment of the ARSC TPU will further the Army's goal of transforming the Army Reserve from a strategic reserve to an operational force. At the stand-up ceremony for the ARSC TPU in November, Major General Harry J. Phillips, the commander of the 377th Theater Sustainment Command, stated that the ARSC TPU will "capture AMC support along with DCMA support and ASAALT support in one unique organization, all focused on providing sustainment support to the warfighter, [which] is in perfect keeping with the mission we have to transform the Army Reserve into an operational, functional reserve . . ."

The ARSC TPU, headquartered in Birmingham, Alabama, will consist of 383 Soldiers under the operational control of AMC headquarters at Fort Belvoir, Virginia, and the administrative control of the 377th Theater Sustainment Command at Belle Chasse, Louisiana. It will have subordinate elements stationed at various AMC, ASAALT, and DCMA locations throughout the United States.

The unit will be fully activated by September 2009.

ARMY ANNOUNCES STATIONING DECISIONS

In December, the Army announced stationing and force structure plans geared to meet the President's plan to increase the Army's strength by 74,200 Soldiers, 65,000 of whom will be active-duty Soldiers, by 2010. Based on the Base Realignment and Closure (BRAC) Act of 2005 decisions, the plan ensures growth capacity not only for the additional Soldiers but also for possible future Army expansion. It takes

The 5th Quartermaster Company, a unit of the 21st Theater Sustainment Command (TSC), hosted the first jumpmaster's course held in the U.S. European Command at Rhine Ordnance Barracks last July. Conducting the course in Europe allowed the Army to train units, including the 21st TSC, the 10th Special Forces Group, and the Air Force's 786th Security Forces Squadron, without the cost of having to send them back to the United States. In the photo, Soldiers mark a drop zone. *(Photo by PFC Stephen Decatur, 21st Theater Sustainment Command PAO)*

into account rail, air, and port systems needed to move troops.

The stationing plan includes six infantry brigade combat teams (BCTs), eight active-component support brigades, and other, variously sized combat support (CS) and combat service support (CSS) units. Support brigade plans include—

• Activating an expeditionary sustainment command headquarters at Fort Lewis, Washington, and a sustainment brigade at Fort Hood, Texas, in fiscal year (FY) 2011.

• Activating a maneuver enhancement brigade at Fort Leonard Wood, Missouri, in FY 2009.

• Moving a maneuver enhancement brigade to Fort Richardson, Alaska, in FY 2010.

• Restationing a maneuver enhancement brigade to Fort Drum, New York, in FY 2013.

Approximately 30,000 CS and CSS Soldiers will be stationed throughout the United States and overseas to support the six BCTs and eight support brigades.

The plan will enable construction of new facilities, limit the use of temporary relocatable facilities, and permit necessary maintenance and repair of existing facilities. The goal of the plan is to bring the Army's stretched forces back into balance. It will greatly aid in improving Soldier and family readiness during this era of constant conflict.

AMC CREATES A NEW ORGANIZATION TO SUPPORT CHEMICAL DEMILITARIZATION

The Army Materiel Command (AMC) has activated a new organization to support the Department of Defense's Assembled Chemical Weapons Alternatives (ACWA) program. The U.S. Army Element, Assembled Chemical Weapons Alternatives, is structured as an AMC separate reporting activity. The AWCA program formerly was aligned with the Army Chemical Materials Agency.

The AWCA program was created by Congress to develop alternatives to incineration technology for destroying assembled chemical weapons. Successful demonstration of alternatives has shifted the program's focus to managing the design and construction of neutralization pilot plants at Pueblo Chemical Depot, Colorado, and Blue Grass Army Depot, Kentucky.

NEW PBUSE GUIDES RELEASED

Revised Property Book Unit Supply Enhanced (PBUSE) Survival Guides have been prepared by students in Warrant Officer Advanced Course 001–2008. The new guides have a new format that provides easier reading, including "Chief's helpful hints" and changes from the recent PBUSE software update (1CP 6.2, September 2007), and have new sections such as "An Overview of the Requisition Process."

The guides are not designed to replace regulations and software end-user manuals but to provide a tool, which is based on the experience of those who have used it before, to help the user use the system and the regulations that guide it. The guides can be accessed on line as follows—

• Unit Supply-Enhanced Survival Guide for the New Commander and Primary Hand Receipt Holder: https://forums.bcks.army.mil/secure/Community-Browser.aspx?id=425831.

• Unit Supply-Enhanced Survival Guide for the New Unit Supply Sergeant: https://forums.bcks.army.mil/secure/CommunityBrowser.aspx?id=425830.

• Property Book-Enhanced Survival Guide for the New Property Book Officer: https://forums.bcks.army.mil/secure/CommunityBrowser.aspx?id=426355.

COMMANDER OPENS ARAP DEBRIEF TO ENTIRE BATTALION STAFF

The commander of the 78th Signal Battalion at Camp Zama, Japan, invited all Soldiers, Department of the Army civilians, contractors, and local national employees to participate in the battalion's Army Readiness Assessment Program (ARAP) debriefing in 2007. This marked the first time that an entire battalion was included in this process, which was conducted by video teleconference.

The ARAP is a 63-question assessment that captures a unit's posture on command and control, standards of performance, accountability, and risk management. This process gives unit members and employees the opportunity to inform the battalion commander about what is happening within the organization. The information gathered there allows battalion commanders to address the root causes of accidental loss by focusing on the organization's safety climate and culture.

Since the inception of the ARAP, more than 2,690 battalion commanders (1,837 Active Army, 180 Army National Guard, and 673Army Reserve) have registered for the assessment. Assessments involved 853,321 service members, with 343,482 (40 percent) completing assessments.

ARMY SAFETY OFFICIALS WARN SOLDIERS ABOUT UNEXPLODED ORDNANCE

Following a recent unexploded ordnance (UXO) accident that claimed the life of a Soldier, the Defense Environmental and Information Exchange has reminded Soldiers to be cautious when encountering unidentified objects, as they could be U.S. or foreign military munitions. Munitions, including small-arms ammunition, projectiles, cartridges, bombs, rockets, pyrotechnics, grenades, blasting caps, fuzes, simulators, and raw explosives, may not be easily recognized as UXO. The BLU–97/B combined effects bomb, for example, resembles a caulk tube or a soda can.

When encountering UXO, always follow the "3Rs" of explosive safety—

• Recognize the munition.

• Retreat from the munition. Do not touch or disturb it, but move carefully away, walking out of the area by the same path that it was entered.

• Report the munition and its location.

For more information on UXO safety, visit the Defense Environmental Network and Information Exchange's UXO Safety Education Program website at www.denix.osd.mil/uxosafety.

NEW SYSTEMS INCREASE CONTAINER SHIP MILITARY CARGO CAPACITY

International Transport Logistics (ITL) Technologies, Inc., of Jacksonville, Florida, has developed two systems—the Sain Beam System (SBS) and CONTRAIL—that will allow the Department of Defense (DOD) to expand its use of American-flag container ships for transporting roll-on/roll-off equipment. With these systems, container ships will be able to transport much more of the equipment normally associated with a DOD force package than can be transported now.

Many of DOD's items, such as Strykers, high-mobility multipurpose wheeled vehicles, and mine resistant ambush protected vehicles, will not fit in the standard 96-inch-wide container; they require a 102-inch-wide container. The SBS enables container vessels to transport 102-inch containers in a more space- and cost-efficient manner. To allow stacking of 102-inch containers atop 96-inch containers, SBS beams are placed athwart a layer of 96-inch-wide containers. Twist locks secure the beams to the 96-inch containers, and similar twist locks secure the 102-inch containers to the beams, which are placed side by side.

Items too large for the 102-inch container can be placed into a CONTRAIL. A CONTRAIL is an easy-to-load and easy-to-handle heavy-duty platform that enables over-sized and over-height equipment to be

The CONTRAIL is used to transport equipment too large to fit into a container.

ARDEC designers check the fit of gunner protection kits at the Armament Research, Development, and Engineering Center at Picatinny Arsenal, New Jersey. *(Photo by Picatinny Arsenal Public Affairs Office)*

placed in a container-like envelope. CONTRAILs can be 10, 12, 14, and 16 feet wide and 40, 45, and 48 feet long. The 40-foot CONTRAIL was designed to stow below decks. All others can be stowed on deck using SBS beams. Most military equipment will fit in the standard 12-foot by 40-foot CONTRAIL. Vehicles are driven into the CONTRAIL using a built-in ramp. Once the vehicle is secured, the CONTRAIL is loaded aboard the ship using standard gantry cranes. With collapsible end posts, the CONTRAILs can be folded when empty for compact storage.

One distinct characteristic of this program is that DOD will not purchase, account for, or maintain these systems. Their use will be requested of the carrier as a part of the liner service contract.

ARMAMENT CENTER AT PICATINNY WINS BALDRIDGE AWARD FOR QUALITY

The Army Materiel Command's Armament Research, Development, and Engineering Center (ARDEC) at Picatinny Arsenal, New Jersey, has become the first Federal Government organization to receive the Malcolm Baldrige National Quality Award.

The Baldrige Award, named for a former Secretary of Commerce, recognizes small and large businesses and healthcare, educational, and nonprofit organizations that have achieved excellence in organizational performance. Organizations are evaluated in the areas of leadership; strategic planning; customer and market focus; measurement, analysis, and knowledge management; workforce focus; process management; and results. The addition of a new award category for nonprofit organizations this year allowed Government agencies to compete for the award.

ARDEC is 1 of 5 recipients of the award for 2007, chosen from among 84 candidates, and 1 of 72 organizations that have received the award since its creation in 1988.

ARDEC is the Army's principal researcher, developer, and sustainer of current and future military armaments systems.

TOOELE IMPROVES SUPPORT CAPABILITY BY MOVING MUNITIONS TO DESERET

Tooele Army Depot, Utah, is moving low-demand munitions to former chemical storage sites at nearby Deseret Chemical Depot in order to free storage space at Tooele for high-demand training and warfighting materials. Tooele has had the highest occupancy rate of any ammunition storage site in the country. Storage constraints have limited Tooele's ability to store and ship items in high demand for combat operations.

The movement of munitions from Tooele to Deseret will continue in tandem with the ongoing destruction of chemical munitions at Deseret until all Deseret sites are filled with conventional ammunition. The chemical demilitarization effort should be completed in about 6 years.

Welders from the 27th Brigade Support Battalion, 4th Brigade Combat Team, 1st Cavalry Division, deployed to Forward Operating Base Marez, Iraq, fabricated the first up-armored pickup truck for the Iraqi police. The truck provides security for Iraqi policemen manning checkpoints. The welders' success led to a tasking to create four more up-armored pickups for the police. (Photo by PFC Bradley J. Clark, 4th Infantry Division PAO)

RECENTLY PUBLISHED DOCTRINE

Field Manual (FM) 4–90.7, Stryker Brigade Combat Team Logistics (10 September 2007), provides doctrinal guidance for the organization and operation of a Stryker brigade combat team's (SBCT's) brigade support battalion. SBCT logistics support is unique because the SBCT lacks forward support companies, which are employed in all of the other types of brigade combat teams. The field manual details the operation of the maintenance, medical, and distribution companies and discusses augmentation from other units, an important aspect of SBCT logistics.

FM 4–20.108, Airdrop of Supplies and Equipment: Rigging Military Utility Vehicles (10 September 2007), provides instructions for rigging the following configurations for airdrop: one 80-centimeter minibike, one or two 250- to 300-cubic centimeter motorcycles, one 350-cubic centimeter Yamaha four-wheeled quad-runner on a combat expendable platform, and one 500-cublic centimeter Polaris four-wheeled quad-runner on a combat expendable platform. This FM supersedes FM 4–20.108 (7 May 2004) and FM 10–500–77 (1 February 2000).

FM 4–20.121, Airdrop of Supplies and Equipment: Rigging Tractors and Tractor Dozers (6 September 2007), presents doctrine for rigging D5B tractor-dozers, John Deere 450G LT full-tracked commercial bulldozers, deployable universal combat earthmovers, T200 Bobcat compact track loaders, 420D and 410 backhoe loaders, small emplacement excavators, 277 multi-terrain loaders, and A/S 37U3 all-purpose remote transporters. This FM supersedes FM 4–20.121 (20 March 2003) and FM 10–539 (29 May 1984).

FM 4–20.142, Airdrop of Supplies and Equipment: Rigging Loads for Special Operations (19 September 2007), describes rigging procedures for the high-speed low-level aerial delivery system (HSLLADS), the inflated combat rubber raiding craft, the rigging alternate method zodiac (RAMZ) in an A–22 container for low-velocity airdrop, Naval special warfare rigid inflatable boat for low-velocity airdrop, advanced rescue crafts rigged on a combat expendable platform for low-velocity airdrop, and wind-supported aerial delivery system Snow Goose unmanned aerial vehicle. This FM supersedes FM 10–542 (7 October 1987).

FM 4–20.152, Airdrop of Supplies and Equipment: Rigging Dragon and Javelin Missiles (6 September 2007), provides rigging instructions that cover Dragon and Javelin antitank and assault missiles for low-velocity airdrop. This FM supersedes FM 1–552 (1982).

FM 3–34.214, Explosives and Demolitions (11 July 2007), describes explosive and demolition procedures that support combat operations and provides instructions for charge placement, bridge demolition, and demolition training and safety.

Writing for *Army Logistician*

If you are interested in submitting an article to *Army Logistician*, here are a few suggestions that may be helpful. Before you begin writing, review a past issue of *Army Logistician*; it will be your best guide. Keep your writing simple and straightforward (try reading it back to yourself); attribute all quotes; avoid footnotes (*Army Logistician* is not an academic journal); and identify all acronyms and technical terms. *Army Logistician's* readership is broad; do not assume that those reading your article are necessarily Soldiers or that they have background knowledge of your subject.

Do not worry too much about length; just tell your story, and we will work with you if length is a problem. However, if your article is more than 4,000 words, you can expect some cutting.

Do not submit your article in a layout format. A simple Word document is best. Do not embed photos, charts, or other graphics in your text. Any graphics you think will work well in illustrating your article should be submitted as separate files. Make sure that all graphics can be opened for editing by the *Army Logistician* staff.

Photos are a great asset for most articles, so we strongly encourage them. Photos may be in color or black and white. Photos submitted electronically must have a resolution of at least 300 dpi (.jpg or .tif). Photo prints may be submitted by mail. Please try to minimize use of PowerPoint charts; they usually do not reproduce well, and we seldom have the space to make them as large as they should be.

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Coming in Future Issues—

- **Army Reserve Centennial, 1908–2008**

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