JANUARY–FEBRUARY 2012

ARMY SUSTAINMENT

WWW.ALU.ARMY.MIL/ALOG

Joint Task Force–Port Opening

Leveraging Sustainment Organizations in CONUS
Sustainment Warrant Officers' Expanded Roles
Developing a Logistics Major's 5-Year Plan

PB 700–12–01 Headquarters, Department of the Army
Approved for public release; distribution is unlimited.

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
FEB 2012		**00-01-2012 to 00-02-2012**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Army Sustainment. Volume 44, Issue 1. January-Fenruary 2012	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Army Logistics University,Army Sustainment,2401 Quarters Road,Fort Lee,VA,23801?1705**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

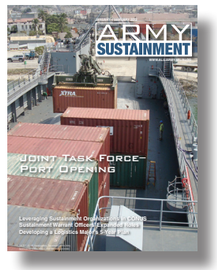
14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**37**	

PAGE 6

Cover: After Haiti experienced a 7.0-magnitude earthquake that caused extensive destruction and displaced citizens, the Army sent Soldiers to execute a joint task force–port opening (JTF–PO) mission in support of the enormous humanitarian effort. The unit's ability to provide rapid port opening, set up accurate in-transit visibility, and establish a robust distribution network in Haiti provided a proof of concept for the JTF–PO, which is discussed in the article beginning on page **3**. On the cover, a logistics support vessel from the 335th Transportation Detachment from Fort Eustis, Virginia, downloads containers of World Food Program rice at Haiti's main port in support of relief operations. *(Photo by MSG Adam McKinney)*



ARMY SUSTAINMENT

PB 700–12–01
VOLUME 44, ISSUE 1
JANUARY–FEBRUARY
2012
www.alu.army.mil/alog
leeealog@conus.army.mil

PAGE 14

Army Sustainment (ISSN 2153–5973) is a bimonthly professional bulletin published by the Army Logistics University, 2401 Quarters Road, Fort Lee, Virginia 23801–1705. Periodicals postage is paid at Petersburg, VA 23804–9998, and at additional mailing offices.

Mission: *Army Sustainment* is the Department of the Army's official professional bulletin on sustainment. Its mission is to publish timely, authoritative information on Army and Defense sustainment plans, programs, policies, operations, procedures, and doctrine for the benefit of all sustainment personnel. Its purpose is to provide a forum for the exchange of information and expression of original, creative, innovative thought on sustainment functions.

Disclaimer: Articles express opinions of authors, not the Department of Defense or any of its agencies, and do not change or supersede official Army publications. The masculine pronoun may refer to either gender.

Reprints: Articles may be reprinted with credit to *Army Sustainment* and the author(s), except when copyright is indicated.

Distribution: Units may obtain copies through the initial distribution system (DA Form 12 series). Private domestic subscriptions are available at $30.00 per year by writing to the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250–7954, or by visiting http://bookstore.gpo.gov on the Web. For credit card orders, call (866) 512–1800. Subscribers should submit address changes directly to *Army Sustainment* (see address below). *Army Sustainment* also is available on the World Wide Web at http://www.alu.army.mil/alog.

Postmaster: Send address changes to:
EDITOR ARMY SUSTAINMENT/ALU/2401 QUARTERS RD/FT LEE VA 23801–1705.

FOCUS

Every Soldier Is an Energy Manager

BY MAJOR GENERAL JAMES L. HODGE

Every day, we all make energy-conscious decisions. As gasoline prices increase, we change our driving habits or we buy fuel-efficient vehicles. When we are shocked by our monthly electric bill, we rush out to buy energy-efficient appliances and light bulbs. To further decrease energy expenses, we combine trips to the store, turn off unneeded lights, and better insulate our homes. In short, we make prudent energy conservation decisions every day so that our paychecks are not depleted at the gas station or by electric bills. The cumulative effect of these minor changes is that we can better provide for our families while at the same time reducing our reliance on ever decreasing and more expensive resources.

The energy utilization decisions faced by the Army are not much different from those we face in our homes, and the solutions are similar. The risks, however, if we fail to react to our ever increasing reliance on limited energy resources are significantly greater in the Army.

Energy, in the forms with which we are most familiar, became a critical factor during many of the major battles and campaigns of World War II. In the decades since, we have become ever more dependent on traditional carbon-based energy resources like oil and coal. Despite the obvious strategic impact of this reliance on a single commodity, we frequently take those resources for granted and often squander them.

Army vehicles consume unprecedented amounts of fuel to enable mobility and onboard power, while generators provide electricity for everything from tactical information systems and environmental control units to coffeemakers and iPods. The average fuel demand per Soldier has increased from about 1 gallon per day in World War II to over 20 gallons today, roughly half of which is consumed generating electrical power. In addition, a significant number of our Soldiers carry large quantities of batteries to complete their mission.

Our dependence on energy to operate successfully creates a vulnerability, and our enemies know it. Consequently, a significant proportion of the casualties we suffer occur during sustainment operations. Our growing demand for energy is becoming increasingly dangerous to meet and too expensive to fund. We all must work together to reduce the demand for energy on the battlefield.

To tackle these operational energy challenges, the Army Training and Doctrine Command (TRADOC) designated the Combined Arms Support Command (CASCOM) as its proponent for aligning concepts, requirements, capabilities, policies, training, research, and acquisition in order to ensure the Army's long-term sustainability for energy use and conservation. In turn, I established the CASCOM Operational Energy Office within the Materiel Systems Directorate to serve in this role. Although this is an enormous task, we work as part of a larger enterprise to develop the tools needed to manage power and energy, identify relevant metrics, and integrate those metrics into equipment design and training.

CASCOM is aggressively pursuing new and innovative ways to maximize our utilization of precious energy resources to reduce energy distribution requirements on the battlefield, thus keeping our sustainment Soldiers off the road. By leveraging technology, we will further reduce cost, weight, and fuel requirements, making our Soldiers more agile, effective, and lethal while significantly improving our overall operational energy posture. This is extraordinarily beneficial for the sustainment community at large.

What does this mean to the average Soldier? In the simplest terms, we must ensure current energy resources are used efficiently to progress toward reducing overall demand for energy. In reducing demand, we will realize a reduction in the number of Soldiers placed in harm's way while delivering, securing, and distributing energy across the battlefield. Looking at it another way, for every gallon of fuel or pound of batteries not used, we achieve an actual savings equivalent to at least 1½ times that amount as a result of the savings gained by the reduced distribution requirements.

I have also directed the pursuit of other advanced technologies, such as higher energy density and rechargeable batteries, that will help us further reduce individual Soldier loads. ("Energy density" refers to the amount of energy stored in a system or space by unit volume.) These innovations will decrease the number of batteries Soldiers need to carry to accomplish their missions.

Reduced energy consumption, coupled with efficient use of energy, will also free resources for use in other missions, capabilities, and programs. In essence, reduc-

Continued on page 29

Joint Task Force–Port Opening Comes to the Pacific

BY LIEUTENANT COLONEL KENNETH WALKER, CAPTAIN ALETHIA REYNOLDS, AND AVIANA GUTIERREZ

During a training mission in Thailand, a joint task force–port opening unit demonstrated its ability to establish a port of debarkation, conduct cargo-handling operations, and facilitate throughput.

The deployment in support of Operation Desert Storm in 1990 and 1991 was a monumental undertaking that demonstrated the strategic reach of U.S. military power. More than 148 million cubic feet of dry cargo and 3.1 million tons of petroleum products were moved over a 7-month period. This was an incredible accomplishment by any measure.

As impressive as this movement was, it revealed several gaps in the Army's ability to provide expeditionary rapid port-opening and distribution support to its forces. Specifically, it highlighted the Army's need to develop a more effective means of keeping track of shipped cargo (in-transit visibility) and distributing it to end users in a timely manner.

Developing the Joint Task Force–Port Opening

The U.S. Transportation Command (TRANSCOM) filled this need in 2005 when it developed a plan to address the backlog of cargo at aerial ports. The Air Force Air Mobility Command's tactical airlift control element combined with a newly developed Military Surface Deployment and Distribution Command (SDDC) rapid port-opening element (RPOE) to form a joint task force–port opening (JTF–PO). This joint expeditionary organization can rapidly establish and initially operate a port of debarkation, conduct cargo-handling and movement operations to a forward node, and facilitate throughput. It has been tested several times and has proven very successful over the years.

After the JTF–PO was successfully employed at air ports of debarkation (APODs), TRANSCOM examined using the new concept to fill the gaps in logistics support that existed at sea ports of debarkation (SPODs). The idea for the JTF–PO (SPOD) was developed in 2008 using the JTF–PO (APOD) as a model.

The capabilities of SDDC's deployment and distribution support team (DDST) and RPOE were combined with the Military Sealift Command's expeditionary port unit (EPU) to form a JTF–PO (SPOD). The addition of the EPU gave the organization the ability to conduct port assessments, provide ship movement control and husbandry, and act as the port liaison between ships and port support facilities.

A very essential element that the JTF–PO (SPOD) brings is a contracting component that significantly expands the overall capability of the JTF–PO. The contracting component provides cargo handling, cargo transfer, and port clearance through the use of contracted stevedore support and materials-handling equipment from the supported country.

A JTF–PO (SPOD) was effectively employed during a humanitarian mission in Haiti. On 12 January 2010, Haiti experienced a 7.0-magnitude earthquake that caused incredible destruction and displaced more than 200,000 people. In response, the 832d Transportation Battalion's DDST combined with the 689th RPOE to execute the JTF–PO (SPOD) mission in support of this enormous humanitarian effort. The unit's ability to provide rapid port opening, set up accurate in-transit visibility (ITV), and establish a robust distribution network in Haiti provided a proof of concept for the JTF–PO (SPOD).

Employing the JTF–PO in the Pacific

Operating in the U.S. Pacific Command area of responsibility (AOR), the 599th Transportation Brigade uses three transportation battalions to support roughly 53 percent of the world's geographical area. The Pacific AOR provides a unique opportunity for a JTF–PO (SPOD) to demonstrate its ability to deploy a great distance to an area that has seen more than 80 natural disasters since 2000.

Until 2010, only two transportation battalions had experience with the JTF–PO (SPOD). The 832d Transportation Battalion from Cape Canaveral, Florida, and the 833d Transportation Battalion from Seattle, Washington, received extensive training at Fort Eustis, Virginia. Soldiers from the 832d Transportation Battalion provided support during the Haiti humanitarian civil assistance mission as well.

The terminal operations chief for the 835th Transportation Battalion assists a forklift driver as he lifts a high-mobility multipurpose wheeled vehicle onto a truck at the forward node during the joint task force–port opening exercise in Laem Chabang, Thailand. *(Photo by the 835th Transportation Battalion)*

The 599th Transportation Brigade identified the need for its battalions to conduct joint integration training that included "crawl, walk, and run" phases. All battalions under the 599th Transportation Brigade conducted the "crawl" phase of training in May 2010. The 835th Transportation Battalion was designated to conduct the "walk" phase of the training. This training was conducted in conjunction with the execution of reception and onward movement of humanitarian civil assistance cargo in support of Cobra Gold 2011, an annual joint exercise that takes place in Thailand.

The following objectives were derived from the joint mission essential task list and established with the assistance of TRANSCOM for the training exercise:

- ❑ Familiarize all stakeholders with JTF–PO operations.
- ❑ Establish the 835th Transportation Battalion commander as the JTF–PO commander.
- ❑ Integrate all elements of JTF–PO, including the 835th Transportation Battalion DDST and command and control element, the 113th EPU, and the 689th RPOE.
- ❑ Conduct a port assessment using the joint assessment team.
- ❑ Operate the joint operations center.
- ❑ Establish communications, including secure and nonsecure Internet.
- ❑ Provide mission command using ITV capabilities.

Training the JTF–PO in Thailand

Once the battalion received its orders for the mission, it began to determine its course of action, task organization, resource requirements, and personnel requirements. The staff needed to determine how to meet the established training objectives given the constraints of operating out of a commercial port. Battalion operations personnel began coordinating with the III Marine Expeditionary Force, the commercial carrier, and the port authority at Laem Chabang Port in Thailand.

After several meetings and many discussions, it was decided that some preliminary training was necessary to ensure a seamless transition to a joint operation. The joint assessment team, consisting of key personnel from each component of the JTF–PO (SPOD), conducted a port assessment. The TRANSCOM subject-matter expert conducted initial classroom training, which was called JTF–PO 101. This training ensured that everyone began with the same understanding of the JTF–PO (SPOD).

The DDST personnel provided hands-on training on three cargo management and tracking systems: the Worldwide Port System (WPS), Integrated Computerized Deployment System, and Integrated Surface Distribution and Data Cleansing. The RPOE and EPU provided feedback that was instrumental in fostering the integration of the JTF–PO (SPOD). A rehearsal of concept (ROC) drill was conducted to familiarize the team with the concept of operation. The ROC drill focused on a discussion of the cargo flow and maintaining ITV throughout the process.

These initial training opportunities opened the lines of communication, provided a base of understanding, and facilitated a dialog that was beneficial to the execution of port operations.

The accountability of all containers was established in the staging yard using handheld scanners and manual backup sheets for further processing in WPS. To maximize the training value, the cargo flow was staggered over a 3-day period from the cargo staging area to the forward node.

Portable deployment kits were placed at the staging yard and forward node to ensure that ITV was maintained throughout the process. Once the forward node received and accounted for all cargo, it released the cargo for delivery to the final destinations before the required delivery date. Constant communication throughout the execution of port operations enabled the integration of the individual components and ensured that the JTF–PO met its objectives.

Lessons Learned

The value of collecting lessons learned from an exercise cannot be overstated. The 599th Transportation Brigade employed an independent observer to compile after-action feedback and to facilitate an after-action review.

Overall, the mission was a success. Working together for the first time required patience and a willingness to share and listen to ideas that had proven successful on previous missions. The JTF–PO met all established objectives, but it also took note of a few areas that could be improved to make future operations more effective. Listed below are some significant points from the after-action review.

Reception and integration. The battalion performed well in establishing life support and sustainment for arriving personnel. However, on a couple of occasions, deploying personnel were not aware of the immigration procedures for arrival at the airport in Bangkok. Many Soldiers did not know if a passport was even required. Much of the responsibility for ensuring personnel are prepared to deploy falls on the unit or its higher headquarters, but the gaining headquarters also has a stake in ensuring that everyone comes prepared.

Port operations. When a unit deploys, it must bring all of the resources that make it fully functional. One of the units arrived relying on power from local commercial vehicles to operate its portable deployable kit, even though the equipment had a power inverter that would have allowed it to operate independently. The unit's plan did not work, but fortunately another unit deployed with its power inverter, which allowed the JTF–PO to function as planned.

Joint manning document. Currently, no official joint manning document (JMD) exists to provide a basis for building a JTF–PO headquarters. As a result, manning a headquarters became a trial and error process. A JTF–PO is designed to operate for 45 to 60 days. Having a full, functional staff, including an S–1, S–2, S–3, and so on, would have been beneficial. In this case, the deputy commander and the S–3 fulfilled the functions of the other staff members. That would likely be more difficult during a longer, more involved mission.

The JTF–PO proved itself when it supported the relief effort in Haiti. With the JTF–PO's training base and the RPOE located at Fort Eustis, supporting operations in the Pacific region presents some challenges, including time and distance. Gaining familiarity with the battalions of the region and developing an understanding of the culture will make a great idea even better.

The "run" phase of the 599th Transportation Brigade's JTF–PO training is planned for this year. Based on the experience and lessons learned from this initial engagement of the 599th Transportation Brigade with JTF–PO, the Pacific region will benefit significantly from using this expeditionary logistics asset.

Lieutenant Colonel Kenneth Walker was the commander of the 835th Transportation Battalion in Okinawa, Japan, when this article was written. He holds a bachelor's degree in geology and a master's degree in urban and regional planning from Ball State University. He is a graduate of the Transportation Officer Basic Course, Combined Logistics Captains Career Course, Army Command and General Staff College, and Joint and Combined Warfighting School's Joint Professional Military Education–II.

Captain Alethia Reynolds was the S–3 of the 835th Transportation Battalion when this article was written. She holds a B.S. degree in business management from Columbus State University. She is a graduate of the Transportation Officer Basic Course, Combined Logistics Captains Career Course, and Support Operations Course.

Aviana Gutierrez is the chief of the 835th Transportation Battalion Detachment, Singpore. She holds a B.S. degree in supply chain management from Arizona State University and is a graduate of the Logistics Management Specialist Intern Program.

Leveraging Sustainment Units for Alaska Maintenance

BY CHARLES W. FICK, JR.

The Army Sustainment Command's expanded responsibility for supporting operational-level logistics in the continental United States was tested when mechanics from units in Washington, Kansas, and Texas traveled to Alaska to maintain equipment left behind by deployed units.

For small teams of Soldiers sent to Alaska last summer, it was a chance to do what they do best. For the commanding generals of the Army Materiel Command (AMC) and the Army Forces Command (FORSCOM), it was evidence that a memorandum of agreement (MOA) called "Leveraging Sustainment Organizations in the Continental United States" is yielding operational benefits.

Called "LSOC" in logistics circles, the intent of the MOA is "to build upon the already strong relationships between the Expeditionary Sustainment Commands (ESC), the Sustainment Brigades (SB), the Army Sustainment Command (ASC), and the Army Field Support Brigades (AFSB), all in support of the senior commander and his/her Army force generation (ARFORGEN) mission."

On the ground at Fort Wainwright, Alaska, LSOC meant that maintenance Soldiers from the "lower 48" spent the summer maintaining vehicles left behind when their fellow Soldiers of the 1st Stryker Brigade Combat Team, 25th Infantry Division (1–25 SBCT), deployed to Afghanistan.

The AMC–FORSCOM Partnership

Although the Alaska mission was clear-cut, planning for it broke new ground and exercised new lines of authority. For the past decade, installation directorates of logistics (DOLs) have provided maintenance capability to assigned units. With the advent of the Materiel Enterprise, DOL activities are being absorbed by ASC in its role as AMC's operational arm. Paired with LSOC, it is a new way of doing business.

As outlined in the four-star MOA, ASC plans, prepares, and executes operational-level logistics within the continental United States (CONUS). The agreement goes on to charge ASC with the responsibility for executing its CONUS mission by coordinating with FORSCOM

A mechanic with the 1st Maintenance Company works on a vehicle left behind at Fort Wainwright, Alaska, by the deployed 1st Stryker Brigade Combat Team, 25th Infantry Division. He was part of a Fort Riley, Kansas, maintenance support team partnered with Army Field Support Battalion–Alaska under a new agreement that leverages sustainment organizations to improve materiel readiness and hone Soldiers' skills. *(Photo by SSG Trish McMurphy, U.S. Army Alaska PAO)*

sustainment organizations while supporting FORSCOM priorities.

At the Army command level, the operating force (FORSCOM), with its responsibility for the Readiness Enterprise, has agreed to partner with the generating force (AMC, with ASC as its agent) to integrate sustainment capabilities and apply them to readiness priorities.

The 13th ESC, headquartered at Fort Hood, Texas, coordinates activities in the newly created LSOC–West region, which encompasses all FORSCOM activities west of the Mississippi River (except for Louisiana) and liaises with ASC's 404th and 407th AFSBs. The 3d ESC, at Fort Knox, Kentucky, is partnered with the 406th AFSB to create LSOC–East.

Leveraging Support in Alaska

Seeing that a tactical opportunity could be derived from the MOA's strategic direction, ASC's 404th AFSB, through its on-scene element, the Army Field Support Battalion (AFSBn)–Alaska, identified a requirement for additional maintenance capability at the Fort Wainwright DOL. Fort Wainwright's DOL needed more manpower to meet its commitment to maintain and return mission-ready equipment left behind by three deployed units. The mission was a good candidate for an LSOC solution.

Until very recently, shortfalls in installation maintenance capability were routinely solved by augmenting the DOL workforce with contracted labor. This is a costly solution and provides no training for Soldiers. "Bringing Soldiers into the equation creates new opportunities," said Chief Warrant Officer 5 Billy J. Jackson, the chief of maintenance and workloading at ASC's Distribution Management Center.

In the case of the 1–25 SBCT in Alaska, Jackson noted, "The 404th delivered a business case analysis to ASC, which we used to help identify workforce requirements. Our workload planning method enabled us to identify specific skills and the number of people possessing those skills required to meet the mission."

Armed with its detailed analysis, ASC developed a concept of support for a Soldier-based solution that FORSCOM concurred with and tasked the 13th ESC to support.

"The 13th ESC canvassed the sustainment brigades in LSOC–West, and several were able to provide support," reported Major Edwin Marcelino, a 13th ESC support operations officer. Jackson added, "While they're on the job in Alaska, the LSOC Soldiers will be partnered with AFSBn–Alaska, which has a coordinating team on site." Soldiers of 3 sustainment brigades from the lower 48 states would service and repair up to 600 pieces of rolling stock.

Support Comes North

First to trek north in June were 593d Sustainment Brigade Soldiers from Joint Base Lewis-McChord in Washington, followed in July by a maintenance support team from the 1st Sustainment Brigade at Fort Riley, Kansas. A maintenance support team from the 4th Sustainment Brigade at Fort Hood closed out the 1–25 SBCT LSOC mission in August.

On the receiving end at Fort Wainwright, Mark Chapman was the man on point for the Materiel Enterprise. A logistics management specialist assigned to AFSBn–Alaska, Chapman was the liaison between the visiting

A 295th Quartermaster Company mechanic from Joint Base Lewis-McChord, Washington, inspects a generator while servicing a vehicle left behind at Fort Wainwright, Alaska, by the deployed 1st Stryker Brigade Combat Team, 25th Infantry Division. *(Photo by CW2 Ray S. Bishop)*

maintenance support teams and their Fort Wainwright hosts. "Our mission is enabling maintenance Soldiers to do their jobs without delay or distraction," Chapman said.

Soldiers Develop Their Skills

Besides attending to basic life support like quarters and subsistence for the visiting Soldiers, AFSBn–Alaska and Fort Wainwright teamed to ensure that mission-related logistics support was in place. "Ensuring repair parts are on hand, on time, is an obvious requirement," Chapman said. Many other details were less apparent, but equally crucial. "Arranging fuel for the vehicles in repair and ensuring hazardous materials are properly handled are just two examples of requirements for a successful maintenance mission."

Chapman, who is a retired Army maintenance warrant officer, saw benefits accruing for the Soldiers who were turning wrenches 6 days a week at Fort Wainwright. "Their entire effort . . . focused on the shop floor. On the battlefield, or at home station, other demands reduce the amount of time and attention Soldiers can devote to their primary skill. While they're here, it's all maintenance, all the time. In my view, this helps them sharpen their skills."

Sergeant Joshua L. Brown, a wheeled vehicle mechanic from Fort Riley, echoed Chapman's assessment. "I've only been in this specialty a couple years, so this is a great chance for me to hone my skills," he said. "I've already completed two or three maintenance tasks I've never done before."

Brown, who is assigned to Headquarters and Headquarters Company, 541st Combat Sustainment Support Battalion, pointed to the variety of work as another bonus. "In a headquarters company, I don't have the opportunity to work on that many trucks, and the big jobs all go to another level. Here, I get up in the morning knowing I'm going to be inspecting, troubleshooting, and repairing trucks all day long. I'm absolutely improving my skills." Camaraderie will not show up on a work order or a briefing chart, but it is a point of pride for Brown. "We're Army mechanics doing Army work. When the 1–25 [SBCT] Soldiers return from Afghanistan, their trucks will be as good as we can make them."

Sergeant Jon F. Billiter has been downrange for many of his 12 years as an Army wheeled-vehicle mechanic. "There's not much opportunity to turn wrenches," he said, recalling entry control points, convoy protection, and all the other demands on Soldiers in combat. "This is a great opportunity, not just for me, but also for the five Soldiers in my squad," he said of the Alaska mission. "We need to get 'old school' and become expert mechanics so our skills are equal to our rank as we move up. NCOs [noncommissioned officers] have to be leaders and teachers, able to pass their skills along to the next generation."

A wheeled-vehicle mechanic with the 1st Maintenance Company, 541st Combat Sustainment Support Battalion, from Fort Riley, Kansas, replaces an upper ball joint on a high-mobility multipurpose wheeled vehicle during a tasking to inspect and service military vehicles for the 1st Stryker Brigade Combat Team, 25th Infantry Division, at Fort Wainwright, Alaska. *(Photo by SSG Trish McMurphy, U.S. Army Alaska PAO)*

A mechanic assigned to the 542d Support Maintenance Company from Joint Base Lewis-McChord, Washington, repairs a vehicle left behind at Fort Wainwright by the deployed 1st Stryker Brigade Combat Team, 25th Infantry Division. *(Photo by CW2 Ray S. Bishop)*

Describing his Soldiers' enthusiasm for the intense, hands-on opportunity to get greasy, Billiter observed, "I can't pull 'em off the trucks to go to chow. I have to insist. This is the first time in years I have spent more time in coveralls than duty uniform. As far as I am concerned, a mechanic's duty uniform is coveralls."

Benefits to DOL

Besides hosting the Soldier-mechanics, the Fort Wainwright DOL also had a role, and a stake, in the LSOC mission. "We're all new at this LSOC opportunity, as well as being new to ASC's operations, so we're sorting out the most effective ways to partner my people with the visiting Soldier-mechanics while adapting to a new chain of command," said Anthony van Hoveln, maintenance supervisor at the Fort Wainwright DOL. "We're glad to have the help. Whatever turns out to be the best method, we're all about the mission. When the 1–25 Soldiers come home from Afghanistan, we'll hand over their left-behind equipment at [technical manual] 10–20 standard. They'll be good to go."

The operating force and the generating force agree that LSOC is one smart solution to the vexing problem of materiel readiness. "Our 21st-century, expeditionary Army is radically different than the one I grew up in," said Chief Jackson, a 29-year veteran. "For almost 10 years now, the operational tempo has demolished the garrison routine on which we based our logistics practices."

The incessant demands of combat on two fronts have required the Army to resort to contingency measures, including contracted labor, Jackson observed. "Contracts were the best answer, but now that we are winding down in Iraq, we have the opportunity to afford our Soldiers opportunities to hone their technical skills."

LSOC operations also have a financial benefit. "It is estimated that using military mechanics to perform the maintenance on the 1–25 SBCT equipment will avoid approximately $1.5 million in labor costs," Major Marcelino noted.

It all adds up. Materiel readiness gets a boost, enabling 1–25 SBCT Soldiers to come home to a fleet of ready vehicles. Soldiers' technical skills get an intensive workout, yielding a more capable sustainment base. And the Army saves significant money in a time of fiscal constraint.

Marcelino summed it up: "This maintenance mission showcases the flexibility and agility afforded by LSOC relationships and regional collaboration, even across traditional major command and combatant command lines, to solve collective sustainment problems."

There will be more LSOC missions in the future. The MOA on Leveraging Sustainment Organizations in the Continental United States calls on ASC to "translate the FORSCOM commander's operational priorities into priorities of continental United States sustainment support" while establishing "strategic and joint interfaces to facilitate synchronization and integration efforts. . . ."

Exploiting the collaborative nature of enterprise operations, the agreement focuses ASC on maximizing its "strategic, operational and tactical reach through close coordination with AMC, FORSCOM G–4 and continental United States Expeditionary Sustainment Commands."

It's a tall order, and one that places ASC squarely "on the line" with the Soldiers it serves.

Charles W. Fick, Jr., *is the lead writer for the Army Sustainment Command Public Affairs Office at Rock Island Arsenal, Illinois. An Air Force veteran, he attended Ohio University and the University of Maryland and is a graduate of the Department of Defense Short Course in Communications at the University of Oklahoma and a number of Defense Information School courses.*

How to Fix the Theater Gateway Problem

BY MAJOR ANTHONY OLIVERAS

The author believes that the Army needs to clarify what a theater gateway is and what it does and suggests task-organizing a combat sustainment support battalion to perform the mission.

I believe that management of the theater gateway is a problem. The overarching issue is that the sustainment community does not have a strong understanding of what a theater gateway is or does and is often unclear on the best method of integrating the theater gateway mission into the overall sustainment mission.

I saw this problem firsthand as the deputy director of the 9th Theater Gateway Team, which was deployed in Kuwait to run the theater gateway from the fall of 2008 through the fall of 2009. The three main problems I observed were mission command confusion, resourcing confusion, and an unsynchronized reception, staging, onward movement, and integration (RSOI) planning process. I believe that Army sustainment doctrine also lacks depth and clarity, which results in a gap between personnel and equipment RSOI.

Through my experience and study of doctrine, I have developed a solution that I think addresses these problems and will help future sustainment planners and commanders of theater-opening operations to improve theater gateway operations.

What Is a Theater Gateway?

You won't find the theater gateway (TG) adequately defined in Army doctrine. In fact, when those two words do appear in doctrine, it is almost always in reference to the TG personnel accountability team (PAT). However, Field Manual (FM) 1–0, Human Resources Support, and FM Interim (FMI) 4–93.2, The Sustainment Brigade, both mention the establishment of a personnel processing center (PPC) (the joint operations area TG PAT center in FM 1–0 and the TG R5 PPC in FMI 4–93.2) and indicate the basic tasks associated with conducting the PPC mission. ["R5" means reception, replacement, return to duty, rest and recuperation, and redeployment.]

TG PAT human resources (HR) tasks include establishing and managing accountability of personnel transiting through the intertheater aerial port of debarkation (APOD) and providing limited essential personnel services, such as identification documents; DD Form 93, Record of Emergency Data; and SGLV Form 8286, Servicemembers' Group Life Insurance Election and Certificate.

However, the TG PAT also is responsible for coordinating many crucial non-HR tasks, such as transportation activities related to the APOD and life-support activities (billeting and feeding) for transients. The collective activity of PPC operations and the necessary support operations is colloquially known as the "theater gateway." When it comes to RSOI, the TG conducts and coordinates the R, S, and O for personnel.

So I see the theater gateway as a crossroads of HR and logistics support operations, where both functions occur simultaneously and in mutual support of each other.

Multiple Agencies and Mission Command Confusion

One of the significant problems I noticed during my tour at the TG in Kuwait was mission command confusion. If you asked the question, "Who owns the theater gateway?"—as in which single organization had mission command over the activities of the TG—you had to go all the way up to the Army service component command level and say "ARCENT" (Third Army and U.S. Army Central). This is because the TG was not so much an organization as it was an aggregate of multiple missions controlled by multiple agencies in disparate mission command channels. The only common umbrella of mission command was ARCENT.

The TG organization was a task force of the TG PAT and the HR company known as Task Force Gateway (TFG). TFG fell under the mission command of the 1st Theater Sustainment Command (TSC). Of course, the 1st TSC was directly subordinate to ARCENT. During my tour, the TFG initially fell directly under the 311th Expeditionary Sustainment Command (ESC), with the 4th Sustainment Brigade having administrative control. After the ESC redeployed, the TFG task-organized back to the sustainment brigade under the 332d Ordnance Battalion, which was designated to execute deployment and redeployment operations (D/ROPS). Yet the remaining agencies critical to TG operations fell outside the mission command of the 1st TSC.

The two contracted movement control teams (MCTs) that managed passenger movements for intertheater flights to the APOD and intratheater flights out of Ali Al Salem Air Base in Kuwait were controlled by the 53d Movement Control Battalion, which was task-organized directly under ARCENT. The intratheater MCT eventually moved under the control of the air expeditionary wing at the airfield.

For additional joint flavor, the customs inspection process for rest and recuperation and redeployment flights belonged to the Navy Expeditionary Logistics Support Group. Then there was Area Support Group (ASG) Kuwait, also task-organized directly under ARCENT, which managed force protection operations and base camp facilities.

The 332d Ordnance Battalion, better known as the D/ROPS battalion, owned the planning and synchronization process, but it did not control most of the assets that executed that process. When problems arose, the D/ROPS battalion's responsiveness was limited to intense coordination among all the supporting units involved in an attempt to work things out on behalf of the supported unit. This included units both within and outside of the TSC's chain of command.

So mission command of the TG did not cleanly align with mission support responsibility for the TG. This often confused and frustrated both the supporting and supported units. This mission command confusion led directly to resourcing confusion. Since no single commander was in charge of all of the critical pieces of the operation, it was not clear who was responsible for fixing emerging problems.

Task Force Gateway Challenges

At the TFG level, we experienced this confusion daily as we requested support resources from the sustainment brigade through the D/ROPS battalion and from ASG Kuwait through the logistics support area (LSA) camp command. The sustainment brigade managed theater-provided equipment and supply budgets for us. However, we had to go to the LSA camp command for facility maintenance, life support, medical support, and even photocopier service contract management. As the TFG deputy director, I was the primary coordinator for all of these external support requirements. Although I enjoyed the work and learning about these other agencies, I found the situation to be terribly inefficient and at times ineffective.

RSOI Management

Another problem I saw was that the planning processes for RSOI of the personnel and equipment of supported units were disconnected at the operational level. Although the D/ROPS battalion owned both the personnel and equipment processes, we never integrated them for the supported units. The equipment RSOI process was very complicated and labor intensive and required multiple, closely coordinated planning team meetings with the enabling agencies and the unit. However, the personnel process was also complicated and supported equipment RSOI.

Despite its ownership of both the personnel and equipment processes, the D/ROPS battalion left it up to each supported unit's staff to synthesize the two. It was mandatory for deploying units to learn the equipment process, but these units had to make an extra effort if they wanted to learn about the personnel process, which was optional. The theater RSOI program highlighted the equipment process, while the personnel process became peripheral and perfunctory.

The hard work of liaisons and staffs ensured that the personnel process went as smoothly as possible. Command emphasis by the supported commander, the D/ROPS battalion, or the sustainment brigade occurred mainly when something went wrong.

Problems With Doctrine

The problems that I observed in the field resulted from what I believe is a lack of clear sustainment doctrine on the TG. Our current sustainment doctrine is not complete and does not have the desired depth to guide sustainment commanders in conducting TG operations.

At the time of this writing, sustainment doctrine was still under development. FM 4–93, The Sustainment Brigade, was still in draft. I did not see any changes in the draft from what FMI 4–93.2 says on TG operations. The draft also did not incorporate some of the changes covered in FM 1–0.

R5 Versus PA

The most significant change in FM 1–0 affecting the TG that is not reflected in FM 4–93 is the replacement of the term "R5" with "personnel accountability" (PA). This is something that I expect will be addressed before FM 4–93 is finalized. The significance of this mismatch is that it creates confusion and inhibits full understanding of HR doctrine by sustainment professionals. It also points to a lack of depth in our doctrine.

I do not disagree with changing the term since "R5" does not accurately reflect the HR task. However, "PA" does not adequately capture all of the logistics coordination associated with the mission. The consolidation of FMI 1–0.01, S–1 Operations, and FMI 1–0.02, Theater-Level Human Resources Support, into FM 1–0 resulted in the loss of the detail FMI 1–0.02 provided for understanding the R5 mission. The term "R5" may have been confusing, but I do not think that "PA" is any less confusing when it comes to the TG. The force is familiar with "PA" in the term "personnel accounting and strength reporting" (PASR). Although FM 1–0 separates PA from SR, it does not carry over the level of detail found in FMI 1–0.02.

Sustainment Versus Logistics

Although sustainment is more than logistics, FMI 4–92.3 and the draft FM 4–93 do not give much consideration to HR or financial management (FM) in combat sustainment support battalion (CSSB) operations. They contain a few sentences indicating that the HR or FM companies can be assigned to the sustainment brigade's special troops battalion or a CSSB and a couple of diagrams that depict such arrangements. But these FMs do not help the sustainment commander or planner visualize a reason to do so.

Furthermore, at the TSC, ESC, and sustainment brigade levels, we have staff structures that incorporate HR and FM planning and operations to advise the commander. However, these staff structures end at the brigade level. This creates a gap that I think unintentionally biases the sustainment commander against consideration of HR unit task organization under the CSSB.

Equipment Versus Personnel RSOI

When it comes to theater-opening operations, current sustainment doctrine addresses the RSOI of equipment and personnel separately. This is possibly a symptom of the lack of depth on theater opening in sustainment doctrine. I find that the recent FM 3–35, Army Deployment and Redeployment, does a good job of capturing the integrated nature of RSOI. Though I think it is moderately lacking in HR support concepts, it addresses the synchronization of personnel and equipment RSOI.

Sustainment doctrine must be clear on this synchronization, but I find that it is not. FM 1–0 lightly covers the TG concept and does not connect it with FM 3–35. FMI 4–93.2 is well connected to the equipment RSOI concepts in FM 3–35. However, except for mentioning the sustainment commander's responsibility to provide logistics support requirements for the R5/PA mission and the PPC, it does little to promote the integration and synchronization of RSOI support below the sustainment brigade.

The Solution

Based on my experience and my analysis of doctrine, task-organizing a CSSB for the RSOI mission (including the TG mission), with all the elements that support and execute RSOI, is a solution that appropriately and adequately addresses the TG problem. The D/ROPS battalion showed promise in illustrating this task organization concept since it was essentially a battalion headquarters responsible for coordinating the execution of RSOI. However, because it was not a CSSB, it did not have the functionality to control additional assets.

Task-organizing a CSSB for the RSOI mission is valid when analyzed against the criteria of suitability, feasibility, and acceptability. Suitability means that it meets the requirements and solves the problem. Feasibility means that it accomplishes the mission with the resources available. And acceptability means that it will satisfy all of the stakeholders involved.

Suitability

Having the CSSB responsible for the TG mission would eliminate mission command and resourcing confusion by assigning the TG mission to a commander who is resourced to accomplish it. This would also better support the units deploying into the theater by placing RSOI coordination at one point under one mission commander.

With this streamlining of mission command, the CSSB would be set up to integrate the detailed, dynamic, and continuous coordination required by RSOI. A single commander could coordinate the sustainment of personnel *and* equipment reception and distribution operations within the brigade for the supported units.

With the right mix of assets, the CSSB would not only own the planning and synchronization but also more of the direct execution of RSOI and thus could be more responsive to the needs of supported units.

Feasibility

In a new theater of operations, a CSSB could be task-organized with all of the assets needed to accomplish the support mission. Mission command here is important because it has a direct impact on the priority and delivery of resources. Along with the aforementioned TG PAT and HR company, the CSSB could command several logistics support organizations as part of the TG mission.

The CSSB would need at least two Force Provider companies to provide lodging, messing, bath, and laundry support. This arrangement would provide support similar to the LSA at Ali Al Salem. An inland cargo transfer company (ICTC) would operate as the arrival/departure airfield control group.

Ideally, the CSSB would have its own transportation assets to control personnel movements to and from the flight line and the PPC. At a minimum, this would require a light truck platoon with three squads to move personnel and baggage between the flight line and the PPC. An MCT for the APOD and one for the seaport of debarkation would also be ideal. The HR company's PA platoons would work closely with the MCT and the ICTC on personnel receiving, processing, and manifesting.

Depending on the RSOI operation's footprint, more of these units might be required to support the operation. Some of this support might be provided through contracted services under the CSSB rather than through a line unit. Nonetheless, the CSSB could be tailored with the right mix of assets to execute RSOI for both personnel and equipment. This tailoring not only would bring the right mix of units and services available to support the mission, but it also would put it under one commander to control the execution.

The CSSB has the available mission command and staff structure to support the equipment RSOI processes for the TG mission, but it would need augmentation to manage the HR support mission. The CSSB support operations office (SPO) is designed primarily for logistics support, so the addition of the TG PAT and the HR company's plans and operations section would provide the needed augmentation to manage the HR operations of the joint operations area TG PAT center. The combination of the CSSB SPO and the TG PAT would tightly integrate the whole RSOI process with and for the supported units. This would mirror the staff structures at higher echelons of sustainment commands without requiring a change in the CSSB's headquarters organization.

Acceptability

I believe there are three reasons why sustainment commanders would find this task organization course of action acceptable. The first is that this TG task organization is supported by doctrine. FM 1–0 indicates that the TG PAT normally will operate under the control of a CSSB. FMI 4–93.2 also presents the option of task-organizing the HR company under the CSSB, although it does not provide a possible scenario for doing so. Part of my intent in this article is to provide sustainment commanders with a practical scenario to consider the possibilities I suggest.

The second reason is that this concept would give sustainment commanders below brigade level the opportunity to gain experience with commanding and integrating logistics and HR support missions before they assume brigade command. The CSSB commander would work with the TG PAT like sustainment brigade and ESC commanders work with the human resources operations branch (HROB) and the TSC commander works with the human resources sustainment center (HRSC).

The third reason is that giving a CSSB the TG mission does not infringe on the initiative to put HR and FM officers in command of special troops battalions. I do not suggest this option as a standard for all sustainment brigades. The TG would typically appear only once in a theater of war, and this task organization concept would only apply to the sustainment brigade with the theater-opening mission.

This course of action also would benefit the HRSC, the HROB, and the TG PAT. It should improve logistics support coordination for the TG by establishing a continuous and stable means of delivery and oversight. This would allow the HRSC and the HROB the freedom to focus their energies and efforts on other aspects of PA or on more demanding and dynamic responsibilities, such as resourcing support for casualty and postal operations. This streamlining of the mission command for the TG would support the HR en-during principles of integration, anticipation, responsiveness, and synchronization.

DOTMLPF Implications

The primary implications for doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) fall squarely in the realm of doctrine. During my time as deputy director of the 9th Theater Gateway Team, I heard from senior leaders, mostly at echelons above corps, about how significant the TG mission is. Yet I do not see this significance adequately reflected in doctrine; rather, it is marginalized to a few paragraphs that are not well meshed with other, related doctrine.

Current trends in emerging doctrine do not appear to fix this problem of the lack of clarity and depth with TG doctrine. A synchronization of RSOI concepts among FMs 1–0, 4–93, and 3–35 would alleviate this problem. I also recommend that FM 1–0 provide more detail on establishing the PPC in order to describe the full logistics implications of such a task. Currently, the sustainment community does not have much depth of experience when it comes to TG operations for full-spectrum operations. Doctrine can help fill that gap in experience.

I believe the theater gateway is a problem, but it does not have to be. The mission command confusion, resourcing confusion, and synchronization problems I observed were unintended consequences of implementing changes in doctrine while in the midst of real-world execution. Nonetheless, I believe that these same results are bound to be repeated unless we acknowledge the problem and address it.

Fixing doctrine will ultimately prevent this from becoming a pattern. Assigning the TG mission to the CSSB and resourcing it accordingly is suitable, feasible, and acceptable and is the solution for the field. My hope is that enough sustainment leaders will agree with me so that we can test this task organization in training and be better prepared for the next theater of battle that awaits us.

Major Anthony Oliveras is a G–3 current operations battle major with the 10th Mountain Division (Light Infantry) at Fort Drum, New York. He holds a bachelor's degree in Spanish from Georgia State University and is a graduate of the Air Defense Artillery Officer Basic Course, the Adjutant General Captains Career Course, and the Army Command and General Staff College.

Sustainment Warrant Officers' Expanded Roles

BY CHIEF WARRANT OFFICER 4 WAYNE A. BAUGH

The Army Combined Arms Support Command has charged senior warrant officers with facilitating the reverse collection and analysis team program to translate observations, insights, and lessons learned into changes in doctrine, organization, training, materiel, leadership and education, personnel, and facilities.

Many would argue that our continuously changing contemporary operational environment and the Army's move toward a full-spectrum capability are the driving forces behind the expanding role of sustainment warrant officers in the modular force. In many ways, not everyone would agree with the wisdom of this expansion. Some people in the warrant officer and other communities are concerned that we may be headed in the wrong direction with these expanded roles.

Expanding Responsibilities

Historically, the warrant officer cohort's roles and responsibilities have been fairly narrow in focus because warrant officers are subject-matter experts in their respective fields or disciplines. Right or wrong, the roles of today's warrant officer are being broadened. Many would say this is because of the operational environment, globalization, and cultural shifts in the Army.

In today's environment, warrant officers can no longer afford to be just technical experts; that would be considered "old think." Because of their expanded roles, warrant officers have to be able to understand the commander's intent and turn it into action in order to execute today's complex full-spectrum missions.

Junior and senior warrant officers have to be technical experts, but they also must possess staff skills to assist the organization in accomplishing its mission. Skills such as the ability to analyze, anticipate, plan, coordinate, and prepare detailed briefings, reports, memoranda, and orders are all part of what warrant officers do routinely in their daily duties. These skills are needed to complement their technical expertise and have proven vital to mission accomplishment.

This is a point of friction among warrant officers today. While part of the cohort wants to hold to its legacy charter as technical experts, others would like to broaden their horizons and enhance their overall operational skill sets. The following story is about three warrant officers in the sustainment community who have embraced the idea that there are no boundaries to warrant officer duties and involvement.

A warrant officer and a captain mentor a fuel handler staff sergeant during the 3d Brigade, 82d Airborne Division, full-spectrum operations training rotation at the Joint Readiness Training Center.

Warrant Officers in Action

The Sustainment Center of Excellence recently assigned three of the Army's logistics experts to its Directorate of Lessons Learned and Quality Assurance (DL2QA) at Fort Lee, Virginia. Chief Warrant Officer 4 Percy Alexander (a senior property accounting technician), Chief Warrant Officer 4 Mark Brubeck (a senior mobility officer), and I, Chief Warrant Officer 4 Wayne Baugh (a senior automotive maintenance officer), are the first warrant officers selected to work in this capacity within the sustainment community.

Chief Warrant Officer 4 Alexander was the first quartermaster warrant officer to graduate from Intermediate Level Education (ILE) at Fort Leavenworth, Kansas. ILE is normally attended by only commissioned officers, and Chief Alexander was part of the first ILE class to include warrant officers.

Chief Warrant Officer 4 Brubeck was selected as one of the Army's first mobility warrant officers (military occupational specialty 882A) and later became the course manager for that specialty. I was the first warrant officer to attend the Theater Logistics Studies Course (TLog) at the Army Logistics University, another course normally attended by commissioned officers. Each of us has deployed several times in support of Operation Iraqi Freedom and Operation Enduring Freedom, serving in our areas of expertise at the theater level of command.

Today, warrant officers are placed in positions of increased responsibility based on their progressive training and experience. DL2QA's three warrant officers are no different. The contemporary Army warrant officer understands that you cannot move into the future until you fully understand the past. Working in DL2QA at the Army Combined Arms Support Command (CASCOM) has allowed us to broaden our individual skill sets, enabling us to provide a valuable capability to the sustainment community and the Army as a whole.

DL2QA affords us the opportunity to look at Army sustainment from the top down, across the different levels of war: strategic, operational, and tactical. We work in the domains of doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF). We warrant officers may be aligned functionally to our specific branches of quartermaster, ordnance, and transportation, but our daily responsibilities involve a holistic sustainment outlook.

The Reverse Collection and Analysis Team

As the Army experienced changes because of modularity and the execution of full-spectrum operations, the Center for Army Lessons Learned (CALL) drove a requirement to distribute information to the operational force faster than ever before. The vision was to provide the Army with best practices and lessons learned through "rapid adaptation."

Sustainment leaders quickly recognized the importance of this initiative, and the CASCOM commander at the time, Major General Mitchell H. Stevenson, approved the addition of the three senior warrant officers to CASCOM's table of distribution and allowances. He wanted to use their expertise to validate many of the issues units were reporting.

Army warrant officers are unique in many ways, but in this capacity they are able to call on their expertise at all levels of war to reduce the burden on the CASCOM staff. They routinely conduct first-cut analysis on sustainment issues before CASCOM's directorates start working on solutions.

> WARRANT OFFICERS ARE CAPABLE OF SO MUCH MORE THAN THEY ARE CURRENTLY ASKED TO DO.

DL2QA's warrant officers champion a program called the reverse collection and analysis team (R–CAAT). An R–CAAT is a team at CASCOM that hosts a commander and a few of his key staff members at Fort Lee immediately after a deployment. For 2 days, they conduct a leader professional development session, which includes a commander's interview and roundtable sessions with each of the DOTMLPF domain owners at CASCOM.

The program derives from a CALL program called the collection and analysis team (CAAT). A CAAT is a team sent out by CALL to a unit in theater to collect observations, insights, and lessons learned. These events are high priority so that senior leaders can obtain feedback from the operational force and resolve sustainment issues that affect the warfighter. CALL is in constant communication with the highest Army leaders, who often participate in this program and recognize it for its value added to the sustainment community and the Army as a whole.

Why Warrant Officers?

Some may ask why we should use warrant officers in this capacity. The answer is simple: Who other than an Army warrant officer has the ability, understanding, expertise, knowledge, and breadth and depth of experience to work highly technical, tactical issues at an operational level while knowing how to embrace and engage strategic partners to accomplish the mission?

Warrant officers have instant credibility when dealing

with different organizations. We three warrant officers function in an environment where we communicate routinely with Department of Defense and Army agencies, such as the U.S. Transportation Command, Military Surface Deployment and Distribution Command, Defense Logistics Agency, Army Training and Doctrine Command, Army Combined Arms Center, Army Forces Command, Army Materiel Command, Army TACOM and CECOM Life Cycle Management Commands, Army Human Resources Command, and many more.

We three warrant officers have dubbed ourselves "change agents" because it is our charter to change the culture of the sustainment community. Changing a culture that has been in place for years is a complex and daunting task, but we have signed up for the mission. We provide an initial briefing to every sustainment professional military education class at the Army Logistics University, outlining the sustainment lessons learned program and the importance of filling out surveys and writing observations, insights, and lessons learned.

Positive Results

The work that we execute daily has contributed to numerous sustainment changes in DOTMLPF, enabling our current and future force to fight and win on the battlefield. The R–CAAT program alone is responsible for several logistics concepts, including the central receiving and shipping point, operational contract support, convoy protection platform gunnery, joint personal effects depot, and the responsible drawdown, just to list a few. Our work and that of the entire DL2QA team has affected the sustainment community in many ways.

The above-mentioned initiatives and many more have resulted in changes to 12 field manuals, 21 collective support training packages, 12 force design updates, 9 convoy force protection functional needs analyses, 12 CALL-produced handbooks, 10 capabilities-based analyses, and 4 capabilities needs assessments. These are just the long-term products that have been produced or initiated. We have also enabled the completion of other significant products, such as the 47 R–CAATS, focused interviews with the most senior Army logisticians, 19 *Army Sustainment* articles, and countless video teleconferences with the operational force.

All of these initiatives are used to bridge the gap between the generating force and the operating force. Our cumulative knowledge has benefitted doctrine, training, and combat developers in CASCOM and the junior leaders at ALU and the quartermaster, ordnance, and transportation proponent schools. Our actions have resulted in an improved ability to make field manuals and platform instruction and training more effective and relevant to the rapidly changing wartime environment. As we move forward with the Army Learning Concept 2015, we are going to continue to stress the capabilities of senior logisticians like us.

The "so what" of this entire article is this: What benefits are provided from using warrant officers in this capacity for the warrant officer cohort, the Army, and individual Soldiers? As we move forward, we realize that the Army is a learning environment. Our environment is changing at a much faster rate than before. In order to get ahead of these changes, we should consider investing more in our warrant officer cohort.

The Army should consider integrating a certain percentage of senior warrant officers into the Army War College, ILE, TLog, and other advanced training opportunities to expand and complement the education, training, and future utilization of the warrant officer cohort. This initiative will allow warrant officers to train in a joint service and intergovernmental environment with coalition partners. This will afford the Army's technical experts the opportunity to share their expertise and experience when operating within a joint and foreign environment. Warrant officers are capable of so much more than they are currently asked to do.

Army warrant officers are leaders, competent and confident warriors, innovative integrators of emerging technologies, dynamic teachers, and developers of specialized teams of Soldiers. Their extensive professional experience and technical knowledge qualifies them to be invaluable role models and mentors for officers and noncommissioned officers. The Army Warrant Officer Corps comprises over 24,550 men and women in the Active Army, Army National Guard, and Army Reserve. Today's warrant officers are highly educated, physically fit, mission focused, and ready to serve their country.

For access to unit R–CAAT briefings, videos, interviews, and information, visit https://forums.army.mil/secure/communitybrowser.aspx?id=466463&lang=en-US and www.cascom.army.mil/unit.aspx.

Chief Warrant Officer 4 Wayne A. Baugh is the Analysis and Integration Division Ordnance officer-in-charge for the Army Combined Arms Support Command Directorate of Lessons Learned and Quality Assurance. He holds a bachelor's degree in Liberal Arts from Excelsior College and a Master's Degree in Logistics Management from Florida Institute of Technology. He is a graduate of the Warrant Officer Basic, Advanced, Staff, and Senior courses.

The author would like to thank Chief Warrant Officer 4 Percy Alexander, Chief Warrant Officer 4 Mark Brubeck, Stephen Ball, Larry Gammon, Joe Shaw, Chief Warrant Officer 5 (Ret.) Jeffrey Martin, and Chief Warrant Officer 5 Bernard Satterfield for their contributions to this article.

Back to the Future: Relearning Sustainment and Force Protection for Full-Spectrum Operations

by Captain Daniel Holland and Captain Louis J. Jackson

The 3d Brigade Combat Team, 82d Airborne Division, deployed to the Joint Readiness Training Center and conducted a forced-entry airborne exercise to test current logistics doctrine and formations in full-spectrum operations.

Since 2003, the Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana, and the other combat training centers (CTCs) have focused almost exclusively on mission rehearsal exercises (MRXs) to train units for operations in Afghanistan and Iraq. After 2004, the MRXs became centered on counterinsurgency (COIN) operations. Focusing MRXs on COIN means that the new generation of Soldiers lacks experience in full-spectrum operations (FSO) as laid out in the June 2001 version of Field Manual 3–0, Operations.

Pre-Modular FSO

The 2001 version of Field Manual (FM) 3–0, Operations, stated—

> Full Spectrum Operations include offensive, defensive, stability, and support operations . . . . Missions in any environment require Army forces prepared to conduct any combination of these operations:
>
> - *Offensive operations* aim at destroying or defeating an enemy. Their purpose is to impose US will on the enemy and achieve decisive victory.
> - *Defensive operations* defeat an enemy attack, buy time, economize forces, or develop conditions favorable for offensive operations. Defensive operations alone normally cannot achieve a decision. Their purpose is to create conditions for a counteroffensive that allows Army forces to regain the initiative.
> - *Stability operations* promote and protect US national interests by influencing the threat, political, and information dimensions of the operational environment through a combination of peacetime developmental, cooperative activities and coercive actions in response to crisis. Regional security is supported by a balanced approach that enhances regional stability and economic prosperity simultaneously. Army force presence promotes a stable environment.
> - *Support operations* employ Army forces to assist civil authorities, foreign or domestic, as they prepare for or respond to crisis and relieve suffering. Domestically, Army forces respond only when the NCA [national command authorities] direct. Army forces operate under the lead federal agency and comply with provisions of US law, to include the Posse Comitatus and Stafford Acts.

It is important to remember that in 2001 the division remained the centerpiece of Army operations. The 2001 FM 3–0 stated, in essence, that larger units will naturally conduct FSO, often as part of a joint force. Still, the Army had attempted brigade-level operations before. From the late 1990s, JRTC had served as the Army's laboratory to hone and perfect a light combat brigade's execution of FSO. Justifiably, an airborne or light brigade was the most likely formation to deploy abroad for a forced-entry mission or as part of a joint task force.

For forced-entry rotations at JRTC, an airborne brigade combat team (BCT) conducted airborne and airland operations to secure an airhead and expand lodgment. Follow-on forces then continued to build sufficient combat power. Logisticians simultaneously executed initial arrival/departure airfield control group operations, established a brigade support area (BSA) to sustain the BCT, and conducted defense and force protection. This all could best be described as pre-modular FSO.

Transformation and Modularity

In 2003, with the completion of Force XXI, the Army transformed to the modular BCT concept. This meant that the tools to execute independent FSO shifted from the division to the almost completely redesigned modular BCT.

Sustainment was also affected. The division support

commands, with their forward support battalions and main support battalions, were dissolved. In their place, newly formed brigade support battalions (BSBs) stood up as the logistics formation organic to the BCT. The old support platoons located in the maneuver battalions became the BSB's forward support companies (FSCs).

By 2005, the Army was developing a modular force, transforming units as they prepared to deploy in what were becoming COIN-centric campaigns in both Iraq and Afghanistan. Yet, the Army's central warfighting doctrine for FSO remained division-centric. It worked well in Iraq and Afghanistan, both of which were developed theaters with established networks of forward operating bases (FOBs) and combat outposts. Tests run on new modular BCTs at JRTC in the fall of 2004 reflected this reality.

FSO Version 2008

By 2008, units, leaders, and Soldiers were engaged in a FOB-sustained, COIN-centric fight and the Army acknowledged the loss of some skills across those same formations. The Army issued a new FM 3–0, which described "an operational concept where commanders employ offensive, defensive, and stability or civil support operations simultaneously as part of an interdependent joint force to seize, retain, and exploit the initiative, accepting prudent risk to create opportunities to achieve decisive results."

The manual's foreword continues, "Just as the 1976 edition of FM 100–5 began to take the Army from the rice paddies of Vietnam to the battlefield of Western Europe, this edition will take us into the 21st century urban battlefields among the people without losing our capabilities to dominate the higher conventional end of the spectrum of conflict."

Most importantly, the new FM marries the FSO concept to the modular force—an "FSO Version 2008" concept. In contrast to the 2001 version, FSO Version 2008 has the BCT commander rather than the division commander serve as the central conductor for the symphony of FSO. The Army began to plan FSO rotations at the CTCs to refresh the critical combat skills of units, leaders, and Soldiers. JRTC was tasked to execute the first modular FSO rotation in late 2010.

The 3d BCT's JRTC Rotation

In October 2010, the 3d BCT, 82d Airborne Division, deployed to JRTC. The rotation marked many firsts. It was the first FSO rotation in over 8 years and the first application of FSO Version 2008. It was the first forced-entry airborne operation by a modular airborne BCT to test current logistics doctrine with current logistics formations in an FSO.

The 3d BCT planners embraced the unique challenges of the FSO rotation. The BCT executed a brigade combined arms rehearsal followed by a brigade sustainment rehearsal.

Every operation has constraints to overcome and realities to face. For the 3d BCT, allocated airframes were the primary constraint in planning the forced entry. This dilemma is succinctly expressed in the recently published FM 3–35, Army Deployment and Redeployment:

> The commander's planning and operational dilemma is balancing the need for early deployment of combat forces against the requirement to deploy tailored logistical units that maximize throughput of sustainable combat forces. To resolve this dilemma, the commander must have the ability to see, understand, and balance the flow. The combatant commander defines force requirements in terms of size, location, and time while the TPFDD [time-phased force and deployment data] defines the force flow needed to meet these requirements. Knowledge of the RSOI [reception, staging, onward movement, and integration] infrastructure present in the theater, coupled with assets arriving via the TPFDD, is critical to understanding the flow.

After the BCT secured the drop zone, no FOB had been established and no unit was waiting to conduct a relief in place/transfer of authority. The 82d BSB, the 3d BCT's support battalion, began to establish the BSA, which is no easy feat and one that most BSBs have not executed recently. In fact, this BSA was the first one established at JRTC in 8 years. Most BSBs have been providing FOB-centric logistics for numerous rotations in Iraq and Afghanistan. The 82d BSB used Appendix B, BSA Layout and Protection, from FM 4–90, Brigade Support Battalion, as a reference for completing this task.

When establishing a BSA, the BSB must overcome the challenges of terrain, available infrastructure, logistics resources and their locations, and enemy activity. The BSB commander must always balance the BSA's security requirements with its ability to conduct logistics operations. The balancing act is further complicated by the constant flux of BSA tenant units, which depart and enter the perimeter based on their logistics requirements.

Establishing the BSA

Ideally, the BCT commander and the BSB commander already have a well-rehearsed plan for establishing, managing, and securing the BSA. That plan must be discussed in detail during the sustainment and health service support rehearsals. During the BCT combined arms rehearsal, the BSB commander should discuss the BSA establishment timeline, including initial operational capability and full operational capability, external support, BSA tenant requirements, and force protection for the BSA.

To develop a protection plan for the BSA, the 82d BSB staff incorporated protection lessons learned from their collective deployment experiences and then coupled that knowledge with the doctrine in FM 3–37, Protection. The base defense plan consisted of passive and active measures that included—

- ❑ Establishing a base defense operations center.
- ❑ Establishing individual and crew-served fighting positions.
- ❑ Erecting triple standard concertina wire and other barriers.
- ❑ Conducting reconnaissance and security patrols.
- ❑ Emplacing chemical alarms.

The BSA commander and staff should coordinate for external assets from the brigade for BSA protection support. These assets could include aviation, air defense, military police, engineer, and chemical, biological, radiological, and nuclear units to augment the protective capabilities of the BSA.

The first requirement for a BSA is to establish security against key threats on a bare piece of ground. In the years before 9/11, BSA establishment was the culminating event during the brigade and battalion field training exercise. Just getting to that point was the result of long hours of individual and small-unit collective training.

The BSA's foundation was first formed during long hours of sergeant's time training on Soldier skills. These events would stair-step to collective tasks through squad, section, and platoon collective training. Then each company commander and first sergeant would tie it all together during a company field training exercise while establishing a company perimeter with interlocking fields of fire and a company command post.

Inherent to a night airborne operation are the challenges of accounting for personnel and equipment, establishing communications (out of a rucksack), and gaining situational awareness. The BSB had to establish local security, an arrival/departure airfield control group, and advanced trauma life support.

Using the FSCs

FM 4–90 states, "While normally under the command of the BSB, an FSC may be placed in either a command or support relationship with its supported battalion. Command relationships . . . are generally limited in duration and focused on the completion of a particular task or mission." The 3d BCT validated that concept during the rotation. With the FSCs initially colocated in the BSA, the BSB was able to provide the FSCs with greater technical oversight and sustainment synchronization.

The FSCs need to remain synchronized with the maneuver battalion tactical operations center and the administrative and logistics operation center (ALOC). This is best achieved by locating the FSC executive officer in the combat trains command post with the maneuver battalion ALOC. The FSC can still maintain a presence in the BSA by utilizing a field trains. This allows the FSCs to interact with both their supported maneuver battalion and the BSB.

Maneuver battalions should remember to include their FSC commander in the battalion military decision making process. As stated in FM 4–90, the FSC commander serves as the senior logistics adviser to the battalion commander and staff, just as the BSB commander is the senior logistics adviser to the BCT commander and staff.

A benefit of the FSCs' collaboration with the BSB manifested itself in convoy operations. By having immediate access to the BSB S–2, the FSCs were better prepared to provide their own security during convoy operations. It is worth noting that at JRTC before 9/11, opposing force interdiction of convoy operations often shut down a brigade's logistics support. Eight years of combat convoy operations have provided enduring lessons that apply to FSO.

As the Army begins to increase its focus on FSO, units will have to relearn doctrine, tactics, techniques, and procedures that have gone out of practice with current operations. BSBs will not only have to learn how to establish a BSA but also be able to "jump" the BSA to best support maneuver operations. BSBs currently secure their convoys, but they will also have to secure their perimeters. The use of "soft-skinned" equipment from the modified table of organization and equipment rather than up-armored theater-provided equipment will force changes in training. Regaining FSO proficiency will result in skilled units able to accomplish any mission.

Captain Daniel Holland is the Joint Readiness Training Center Brigade Support Battalion Medical Planner Observer/Controller. He is a graduate of the Medical Service Corps Officer Basic and Captains Career Courses and the Medical Logistics Course.

Captain Louis J. Jackson is the S–4 of the 1st Battalion, 509th Airborne Infantry, at Fort Polk, Louisiana. He is a graduate of the Ordnance Officer Basic Course, Combined Logistics Captains Career Course, Unit Movement Officer Course, Battle Command Sustainment Support System Course, and Casualty Notification/Assistance Course.

Learning Ammunition Lessons From Canada

BY SERGEANT TERRENCE E. FAGAN

While working with Canadian forces, an ammunition specialist at Fort Bragg learned lessons that could be applied to U.S. operations.

For a month last winter, I had the chance to work with a group of Canadian paratroopers from Petawawa in Ontario, Canada, who trained at Fort Bragg, North Carolina, with the 3d Brigade Combat Team, 82d Airborne Division.

The two Canadian soldiers who were responsible for ammunition were Corporal Ian Hamilton, an ammunition manager for the 3d Royal Canadian Regiment, and Sergeant Luc Sevigny, an ammunition technician for the 2d Service Battalion. During our month together, we exchanged much information with the Canadians. We taught them the procedures for storing and transporting ammunition at Fort Bragg, and they taught us how ammunition operations are run in Canada. Two things they showed us that were models of efficiency and cost effectiveness were the use of fraction tags and the use of a plastic fibrous strapping system called Caristrap.

Canadian ammunition handlers count and repack opened ammunition after a live-fire training exercise with the 3d Brigade Combat Team, 82d Airborne Division, at Fort Bragg, North Carolina.

Fraction Tags

The Canadian forces use small 1½-inch by 3-inch orange stickers called fraction tags. These stickers are like small spreadsheets that go on light ammunition cans. The stickers list the date, the quantity of ammunition, and the initials of the people who counted the ammunition. These fluorescent tags are bright and easy to see both in day and at night.

They also have several advantages over traditional orange spray paint. They are more environmentally friendly than spray paint, which sends hazardous chemicals into the air. They are neater to use so Soldiers do not have paint all over their hands and uniforms. Fraction tags are also easier to transport than spray paint, and the container in which the tags are transported does not require a hazardous material certification.

U.S. Soldiers seemed to like using the tags a lot better than using paint. The Canadians still use paint, but in much smaller quantities. They obliterate any markings on a container and then add a white sticker that is about the size of a large index card, which identifies what is in the container and what the quantity is. Again, these tags are clearly marked and can be read easily in poorly lit areas.

The Caristrap System

The Canadians also use a fibrous strapping system that is almost as strong as our steel banding but has many advantages over the product we use. The Caristrap system, made by Caristrap International, Inc., in Quebec, Canada, is specially made for the Canadian Army. Each kit comes with a 330-foot roll of strapping, a stretcher/cutter, and 100 clips. The strapping is wrapped around a pallet like metal strapping and attached to a clip. Soldiers use the stretcher to pull all of the slack out of the strapping, then use the cutter to cut the strapping from the roll. A small 1-inch tail is all that remains.

This method seems much more efficient than pulling out some steel banding, guessing how much is needed, tightening it down until it cuts into boxes and bends cans, and cutting off sharp excess pieces. Another advantage of the Caristrap system is that once the banding is cut away from the pallet, it can be wadded up and placed in a trash bag. The clips are reusable once the strapping is cut. Instead of ending up with a dumpster full of scrap metal that has to be taken to the landfill or recycled, Soldiers can easily throw Caristrap bands into the trash.

A key advantage that the Canadians have found is that the Caristrap system is cheaper than using steel banding. The company quoted the strapping at $36.55 per 330-foot roll, with 8 rolls per box. A pallet of strapping has 216 rolls on it. The stretcher starts at $272 for the basic model and $668 for a higher-end model. Each model does the job that the Canadians need, so they go with the basic model. Each box of 100 clips costs $49.65.

A box containing steel strapping comes with the strapping, a stretcher, crimpers, band cutters, and clips. The set costs about $455, and replacement strapping costs $160. A pallet of banding usually comes with six boxes.

While the initial investment into the Caristrap system—216 rolls (a full pallet), a stretcher, and 5 boxes of clips—would be over $8,000, you also get 71,280 feet of strapping compared to 600 feet of steel banding. One pallet could last a brigade-sized ammunition transfer and holding point section through all of its predeployment training and a 12-month deployment.

Comparison of 1¼-Inch Strapping Systems

	Steel Strapping	Caristrap
Feet per coil	100	330
Weight (in pounds)	11.4	90
Price per coil	$160	$36.55
Price per 100 feet	$160	$12.19
Price per pallet	$2,730	$7,894.80

This chart compares the Caristrap System with current metal strapping used by U.S. forces.

Other Lessons

The Canadian soldiers proved to be a very efficient and professional fighting force, intelligent and well disciplined when it comes to ammunition. They went out of their way to make sure that the ammunition that they had opened was repackaged and properly counted before handing it over to the ammunition technician.

Sergeant Sevigny, who works in an ammunition supply point in Petawawa, would go through every container of ammunition when he got it back and inspect every round. He would make sure that all ammunition was packed back in its container just the way it came from the factory.

During our time together, both U.S. and Canadian ammunition handlers suggested that an exchange between our two countries be developed so that we could get a more indepth look at how the other country did business. The Canadians liked this idea very much because they were really enjoying our weather in the middle of January. For the United States, it would be an opportunity to see how a professional fighting force about as large as all the units on Fort Bragg conducts business and trains to help its allies.

Both groups also saw a disadvantage of working with each other. The U.S. Soldiers were not sure if they could handle harsh Canadian winters, and Corporal Hamilton was afraid that the U.S. airborne Soldiers would want to toss him out of a high-performance aircraft at their first opportunity. However, I suspect that an exchange would result in a better understanding of each other's ammunition operations and a greater appreciation of the professionalism of both armies.

SERGEANT TERRENCE E. FAGAN IS AN AMMUNITION SERGEANT FOR A COMPANY, 82D BRIGADE SUPPORT BATTALION, 3D BRIGADE COMBAT TEAM, 82D AIRBORNE DIVISION. HE IS PURSUING A BACHELOR'S DEGREE IN MILITARY HISTORY AT AMERICAN MILITARY UNIVERSITY. HE IS A GRADUATE OF THE BASIC AIRBORNE COURSE AND THE PRIMARY LEADERSHIP DEVELOPMENT COURSE.

The Challenges of Bulk Fuel Operations

BY CHIEF WARRANT OFFICER 2 LUIS A. CARABALLO MONTERO

The 43d Sustainment Brigade overcame the challenges of delivering fuel to units in the rough terrain of Afghanistan.

One of the most difficult jobs in Afghanistan today is making sure Soldiers and their vehicles receive fuel. Without fuel, U.S. forces and their coalition partners simply cannot move or conduct operations with any meaningful impact. In order to deliver fuel to Soldiers on time, sustainers must overcome tough terrain, coordinate with diverse military units, avert enemy attacks, and be patient in dealing with host-nation trucks and local nationals.

Shortly after taking over as the senior logistics unit in Afghanistan's Regional Command (RC) South, RC Southwest, and RC West (RC–S, RC–SW, and RC–W), the 43d Sustainment Brigade began addressing each of these challenges to ensure mission success.

Environmental and Cultural Challenges

The first challenge Afghanistan presents to any logistics unit is the nearly complete lack of infrastructure. Local villages and coalition forward operating bases (FOBs) are connected by a series of treacherous gravel paths and narrow mountain passes that are often closed during winter months because of heavy snow accumulation. Such terrain is ideal for ambushes by the enemy, which preys on slow-moving convoys. The constant threat of ambush and the challenging roads caused the 43d Sustainment Brigade to rely on aerial delivery more than it would have liked in order to distribute bulk fuel to remote locations.

Reliance on host-nation contractors to reach these locations can minimize coalition casualties and in turn maximize the number of troops available for other operations. But this reliance on private contractors presents two problems. First, host-nation drivers often arrive behind schedule after making extended rest stops and taking detours to visit local relatives. Second, the quantity of fuel delivered quite often differs from the amount shipped and, to compound the problem, water might be added to make the volume appear close to the quantity stipulated on the shipping papers.

Receiving units must always be on guard. They must test all incoming fuel to ensure the product is within specification and can be safely used for aircraft and ground vehicles. The 43d Sustainment Brigade instructed units to disregard the quantity of fuel annotated in the shipping papers and to write instead the exact quantity downloaded. Since contractors are penalized or not paid for missing fuel, the units' diligence is the best deterrent to prevent shortages.

Another added headache of using host-nation trucks to transport and deliver bulk fuel comes from Taliban sympathizers who may allow the enemy to emplace improvised explosive devices on loaded fuel trucks. This risk has forced coalition forces to use specific countermeasures. Those countermeasures are critical to avoiding deaths and minimizing damage to coalition resources, but they add time between fuel request and fuel delivery.

Inventory Challenges

The lack of standardized reporting from the more than 65 FOBs or combat outposts preparing and sending daily reports is an added challenge for anyone dealing with fuel in RC–S, RC–SW, and RC–W. Many fuel system supply points (FSSPs) and forward arming and refueling points (FARPs) are managed and operated under the Logistics Civil Augmentation Program. Civilian contractors are often unaware of North Atlantic Treaty Organization (NATO) policies intended to guide fuel operations in Afghanistan, and they manage locations with over 2 million gallons of fuel while having no previous training on how to conduct bulk fuel accountability procedures in a military theater of operations.

Making matters worse, the FSSPs and FARPs they run may be equipped solely with collapsible fabric tanks without gauges. The lack of gauges requires site managers to conduct physical inventories using a cumbersome and unorthodox method called "gauging," which is prone to errors. To estimate the volume of fuel in the bag using the gauging method, fuel handlers need a cord or string, a ruler, a line level, a gauging stick, a "strapping" chart, math skills, and superb attention to detail.

Many of those contracted sites have minimal military oversight. Even when there is military oversight, many of the assigned contracting officer's representatives (CORs) are not familiar with fuel operations because their military occupational specialties are not associated with fuel, so they are ill-prepared to perform their COR duties.

To correct the gauging and accountability problems, the 43d Sustainment Brigade's higher headquarters actively worked to bring a fully automated data collection and tank gauging system to the combined joint operations area. The system, called Tactical Fuels Manager Defense, was deployed in March 2011 and reduced theft and improved management by enhancing oversight.

In its quest to standardize reporting and minimize mistakes, the 43d Sustainment Brigade's class III (petroleum, oils, and lubricants) section, with assistance from the Joint Sustainment Command–Afghanistan, enforced the use of the fuel report (REPOL) as the only acceptable way to report fuel operations. The REPOL details how much fuel a FOB is consuming on a daily basis, how much it currently has on hand, and how much it is receiving. This fuel picture allowed the 43d Sustainment Brigade to forecast consumption and recommend future fuel orders to keep the area of operations properly resupplied.

Even with standardized reporting, the brigade's class III section spent a considerable number of hours each day scrutinizing each report before combining them and forwarding them to higher headquarters for review and disposition. Surprisingly, most of the time spent on these reports was spent fixing simple errors that could have been avoided or corrected if the reporting unit's mid-level leaders had been involved.

Cooperation Challenges

Another major challenge the 43d Sustainment Brigade encountered while conducting fuel operations was changing the mindset of many Soldiers and civilians who were working in Afghanistan without oversight from a sustainment brigade. Many of the key players dealing with fuel operations adopted the attitude that if something did not appear to be broken (because it seemingly worked from their own vantage point), it did not need to be fixed—that is, until a unit found itself low on fuel and could not figure out why.

Although the U.S. Armed Forces conduct numerous military exercises with other nations, operational differences exist among all of the nations. Even worse, there is a certain level of mistrust, which is manifested when a nation blocks another from accessing its war stocks or records.

Thus, the 43d Sustainment Brigade had to bridge gaps in understanding among units scattered across the country and bring them together so they could work cohesively toward mission accomplishment. As such, the brigade commander conducted a distribution synchronization board twice a week, where all important players came together and coordinated how to better use resources.

The class III section coordinated, by email or memoranda, with NATO forces to gain access to their fuel farms to test questionable fuel. The class III (bulk) officer and noncommissioned officers conducted staff assistance visits to see firsthand how U.S. and NATO soldiers conducted fuel operations. The visits helped everyone put faces to the voices they heard on the phone several times a day.

The arrival of the 10th Mountain Division and its appointment as the unit with overall responsibility for fuel operations in RC–S presented another test to the sustainment brigade. It was obvious the two units were competing for the same turf. However, the friction had a short lifespan. The division and the brigade support operations officers called a meeting, defined specific areas of responsibility for each unit, and steered the units toward playing strong complementary roles.

As a result, the 10th Mountain Division assumed responsibility for fuel issues at the strategic level while the 43d Sustainment Brigade took the lead at the operational level. Eventually, the units cochaired the weekly logistics synchronization meeting and, working as one, solved issues and facilitated the work of the task forces.

As challenging as conducting fuel operations in Afghanistan's RC–S, RC–SW, and RC–W was, the 43d Sustainment Brigade's presence made a positive impact. It overcame obstacles and succeeded in raising the overall on-hand average fuel levels from 21 days of supply to a healthier 42 days of supply across all three RCs. The 43d Sustainment Brigade, living up to its motto, "Provide With Pride," was successful in its quest to provide guidance and assist units and civilian contractors with identifying and fixing fuel issues before they turned into big problems.

CHIEF WARRANT OFFICER 2 LUIS A. CARABALLO MONTERO IS A V CORPS PETROLEUM SYSTEMS TECHNICIAN. HE WAS A PETROLEUM SYSTEMS TECHNICIAN RESPONSIBLE FOR FUEL AND WATER OPERATIONS FOR THE 43D SUSTAINMENT BRIGADE DURING OPERATION ENDURING FREEDOM 10–11. HE HAS A B.S. DEGREE IN CRIMINAL JUSTICE FROM TROY UNIVERSITY AND IS A GRADUATE OF THE DOMINICAN REPUBLIC MILITARY ACADEMY AND THE WARRANT OFFICER BASIC AND ADVANCED COURSES.

THE AUTHOR WOULD LIKE TO THANK SERGEANT FIRST CLASS RONALD J. HARRIS AND FIRST LIEUTENANT RICHARD A. BURD FOR THEIR CONTRIBUTIONS TO THIS ARTICLE.

PBUSE Automatic Identification Technology Phase II

BY JOHN E. LAUDAN AND LONNA FREELAND

Property Book Unit Supply Enhanced now has an automatic identification technology capability that assists unit supply users to perform their duties more efficiently.

The Army is improving the accountability process of its web-based property accountability system, Property Book Unit Supply Enhanced (PBUSE), by improving the PBUSE automatic identification technology (AIT) functionality at the unit level. Software Engineering Center–Lee has taken a two-phased approach to implementing and improving the use of AIT, most notably for unit supply sergeants.

What is AIT?

AIT is a family of powerful technologies and devices that capture, aggregate, and transfer data to automated information systems. AIT reduces administrative and logistics costs in a wide variety of applications by increasing data accuracy (eliminating errors), speeding the collection and transmission of data, and making the entire data-entry and collection process more efficient. For example, AIT can assist in the data collection needed to achieve the objectives of total asset visibility, condition-based maintenance, and other logistics, medical, and personnel functions. AIT provides a reliable and consistent means to identify and track marked items as they move through the supply and maintenance pipelines.

Types of AIT Being Used by PBUSE

PBUSE uses two types of bar codes within its application: 2-dimensional bar codes and item unique identification (IUID) data matrices.

Two-dimensional bar codes use technology similar to linear bar codes but carry about 100 times more data and allow the identification data specific to a piece of equipment to be encoded in the barcode.

IUID of items is accomplished by marking each qualifying item with a permanent 2-dimensional data matrix barcode label. The data matrix is encoded with the data elements needed to construct the unique item identifier (UII), which is globally unique and unambiguous. The data elements required to form a UII include the format identifier, the manufacturer's identification (such as the commercial and government entity code), and the item's serial number.

How AIT Works With PBUSE

The AIT being fielded as components of unit-level PBUSE systems has a hand-held terminal (HHT) and a printer that applies thermal transfers to a durable Mylar label that can be applied directly to the equipment being tracked.

PBUSE AIT uses a client application on a local laptop computer to pass property book data and inventory results among the PBUSE enterprise server, the local laptop, and the HHT. Inventories are downloaded from the PBUSE server to the client application and pushed to the HHT. The user performs the inventory and marks it as complete. Inventories are then reported through the client and pushed to the PBUSE server. The user then reviews the inventory and resolves any discrepancies. Upon resolution, the inventory is archived in the PBUSE database.

The HHT is used to view and perform the actual inventory, to include adding items not already on the inventory list, scanning items not owned by the unit (data are tracked by the unit identification code [UIC]), manually entering or flagging items that cannot be scanned, and flagging items that need their barcode labels reprinted. When performing an inventory using an HHT, if the item is a bulk item (without a serial number, registration number, lot number, or component hand-receipt number), the user is prompted to enter the quantity.

The client application serves as the "middleware" and is installed on the laptop as a local application. Its functionality includes printing barcodes, managing HHT devices, and managing users for the HHT. (Multiple HHT devices, users, and UICs can be created, downloaded, and assigned in the client application.) The client application also serves to push and pull data to and from the PBUSE enterprise server and automatically install software upgrades and security patches onto the HHT.

The user also uses the AIT client application on the laptop to select a UIC to generate barcode labels. The user chooses items to barcode by downloading the latest hand-receipt data and selecting items from the list or by entering search values to filter the hand-receipt line item number (LIN), national stock number (NSN), or sub-hand receipt holder. The user will then review the list and select the quantity of labels to print on the barcode label printer. The labels are then applied to the specific items of equipment.

Phased Implementation Approach

In PBUSE AIT Phase I, released in 2008, the PBUSE inventory process was automated to provide commanders and property book officers with the ability to create, administer, and review the results of any directed inventory. PBUSE AIT was originally designed to automate the inventory processes in PBUSE. However, after seeing the success of these processes, Army leaders expressed a keen interest in adding functionality to PBUSE AIT.

In PBUSE AIT Phase II, released on 20 May 2011, the functionality includes the ability to initiate transfers of unit-level equipment from one sub-hand receipt to another and scan and process a lateral transfer through AIT. Phase II also added a barcode to the property book office-generated Department of the Army Form 3161, Request for Issue or Turn-in. It also added the abilities to inventory system nonexpendable components and to initiate corrective actions for inventory discrepancies.

Benefits of AIT

AIT provides many benefits to the logistics community. The real value of AIT is that with minimal human intervention, it is possible to rapidly capture, track, and transfer detailed information for equipment accounted for by PBUSE. It captures data faster and more accurately than manual modes and reduces common inventory errors. Inventory management is simplified, inventory records are archived indefinitely, and minimal training is required.

AIT provides the ability to direct inventories by LIN, NSN, or sub-hand receipt. It can create ad hoc inventories and provides the ability to see what inventories have been downloaded and completed. It can also be used to view inventory results and discrepancies identified during the inventory. AIT will show scanned, unscanned, and manually inventoried items and items scanned but not currently on the property book. It will also identify items for barcoding and print or reprint labels.

PBUSE AIT will assist the commander in performing inventory functions and save time through the better use of technology.

Testimonials

Users in the field are extremely pleased with the capabilities that PBUSE AIT is providing and the enhanced functionality that is forthcoming. One such testimonial comes from Army National Guard Staff Sergeant McGruder, who said—

> I believe that it is a great system. I believe it's a fantastic tool. I am currently using it to prepare my unit to move from Tyndall Armory to the new Lawrence Armory. After carefully labeling of all of my serial numbered MTOE [modified table of organization and equipment] equipment, the inventory of the equipment into the Triwalls was a breeze. After syncing the inventories to PBUSE, I was able to print out the inventories and attach them to the DD Form 1750s, saving me from the time it would take to write down each number on the form. The printout not only showed what was scanned by LIN, NSN, and serial [number]; it also showed the date when it was done showing further proof that I actually did the inventory. The standard automated systems will be augmented by the suite of AIT devices that will provide valid, usable information, in a timely manner, with minimum effort on the part of the warfighter that must gather data and information to make sound logistical decisions.

A Department of the Army G–4-directed PBUSE AIT training/usage survey was conducted between 15 October and 15 November 2010. The responses received from unit supply sergeants in the field were very positive. Below are some of the comments collected:

"The AIT equipment has reduced the time it takes to do an inventory by 65 percent."

"After the end item is properly identified and labeled, we can conduct an inventory in about one-tenth the time it used to take."

"With the PBUSE AIT, we were able to conduct inventories of our property in far less time than in the past. We went from spending 2–3 hours on inventorying a platoon-size element worth of stuff to only having to spend 30–40 minutes max."

"It has dramatically increased the proficiency and reduced the clerical errors that can happen during inventories."

"Sub-hand receipts are easily updated on the system on the spot rather than days, which can lead to lack of updates."

These responses were obtained before the release of the AIT enhancements within Interim Change Package 6.5.2. Imagine how much more beneficial AIT will be for the users with the enhancements.

Projected requirements for PBUSE AIT are to train and field over 12,000 units. Fielding began in November 2008 and is expected to run through the second quarter of fiscal year 2012.

JOHN E. LAUDAN IS THE PROJECT OFFICER FOR THE PROPERTY BOOK UNIT SUPPLY ENHANCED PROGRAM FOR SOFTWARE ENGINEERING CENTER–LEE AT FORT LEE, VIRGINIA. HE IS LEVEL III CERTIFIED IN PROGRAM MANAGEMENT AND LEVEL III CERTIFIED IN TESTING AND EVALUATION.

LONNA FREELAND IS THE SYSTEM MANAGER FOR THE PROPERTY BOOK UNIT SUPPLY ENHANCED PROGRAM FOR SOFTWARE ENGINEERING CENTER–LEE. SHE IS PURSUING CERTIFICATION IN PROGRAM MANAGEMENT UP TO LEVEL III OVER THE NEXT 2 YEARS.

THE AUTHORS THANK CHRISTOPHER BARBAGALLO, PAUL BEDARD, MAXINE BOND, AND KELLY DUNCAN FOR THEIR HELP IN PREPARING THIS ARTICLE.

Developing a Logistics Major's 5-Year Plan

BY LIEUTENANT COLONEL NATHAN M. SWARTZ

The author provides guidance for majors preparing for promotion to lieutenant colonel. The secret lies in having a valid, updated 5-year plan.

While serving as a logistics majors' assignment officer for 2 years, I was often asked what it is really like to work at the Army Human Resources Command (HRC). I answered this question in many different ways. My answer changed often because every day brought a new set of challenges. One of the consistent challenges was the large number of logistics majors and senior leaders who had difficulty understanding the logistics major's professional timeline. One tool to help them understand and manage this timeline is a 5-year plan.

Why You Need a 5-Year Plan

Approximately a month into serving as one of the three logistics majors' assignment officers, I learned two valuable pieces of information that would shape how we assisted logistics majors over the next 2 years. First, the logistics promotion rate to lieutenant colonel had decreased from 90 percent to 76 percent. Second, the officers who were not selected for promotion to lieutenant colonel typically had not completed schools or served in positions that were outlined as key and developmental (KD) in Department of the Army Pamphlet (DA Pam) 600–3, Commissioned Officer Professional Development and Career Management.

When these officers called to ask why they were not selected for promotion to lieutenant colonel, I turned the question and and asked them why they did not serve in any KD positions or complete Intermediate Level Education (ILE). After several minutes of discussion, it was clear that they did not understand their professional timeline and the associated requirements. It also became clear that most officers assumed that promotion selection rates would remain high and thus they would virtually be guaranteed the rank of lieutenant colonel.

Fast forward 2 years, and the promotion rates for logistics majors to lieutenant colonel have remained below the Army average. Fiscal year (FY) 2009 started the downward trend from the high 90 percent range to a 76 percent selection rate, FY 2010 followed closely with 75 percent, and FY 2011 continued the trend with a 74 percent selection rate. These drops in promotion rates occurred before the grade-plate reductions. [In 2011, the Chief of Staff of the Army approved a restructuring of the officer grade plates to increase the number of company-grade officer positions by 1,392 and decrease the number of field-grade officer positions by 2,208 (682 of which are lieutenant colonel positions) for a total decrease in officer positions of 816.]

If these trends continue, promotion to lieutenant colonel in the future will be even more difficult for officers who do not complete the requirements outlined in DA Pam 600–3. To better prepare logistics majors for selection to lieutenant colonel, I recommend developing and using a tool you have probably had leaders tell you to keep in your professional kit bag: a 5-year plan.

Professional Timeline

The 5-year plan is not a new concept, but it is something that most officers neglect to write down or have reviewed by a peer or mentor. If you are one of the few who already have a 5-year plan in your professional kit bag, when was the last time you updated it based on the Chief of Staff of the Army's Manning Guidance, DA Pam 600–3, or the information provided to you by your assignment officer? Most officers spend hours, days, or weeks ensuring that calendars, concepts of support, or review and analysis slides are updated and accurate. If you spent just 1 percent of that time on your professional timeline, it would likely assist you in more ways than you may think.

The first thing to understand is that you are not alone in this process. Plenty of great examples are available, including those sent out over the last 2 years in the Logistics Majors Newsletter. The format you use needs to fit your personal and professional requirements.

Your professional timeline as a major is likely much different from your rater's and is certainly different from those of your senior rater and mentor. The differences are important not only for you to understand but also for your rater, senior rater, mentor, and significant other (if applicable) to understand.

I cannot tell you how many times I have received a phone call from a senior leader who was concerned about Major X because he was assigned to a position that was not KD or had not attended ILE as a major. Once I tell him that Major X has another 5 years until his lieutenant colonel board, I often get silence.

As an assignment officer, this tells me two things: Major X does not know that he will spend 6 years as a major, and his senior leader is still thinking along the lines of how he, himself, had been successful. Major X needs to understand that what made his mentor successful may not work for him, and a senior leader should not give advice that is based only on his own experiences. Both officers need to understand and embrace change. Keep in mind that these are not HRC's rules. These are the FY 2011 Chief of Staff of the Army's Manning Guidance and policies outlined in DA Pam 600–3. HRC is simply the agency responsible for enforcing these policies and guidance.

The professional timeline changes based on the current policy are very clear:

- ❑ An officer will spend 6 years as a major, not 4 years.
- ❑ A major will attend ILE and does not have to worry about being board selected to attend the Army Command and General Staff College.
- ❑ A major will get no more than 24 months of KD time, even though the senior leader that mentored him had 36 or more months.
- ❑ Time not spent in a KD position or ILE will be spent in a broadening position. (Examples can be found in DA Pam 600–3.)

KD Position

Each major should complete three major milestones. The first, and most important, milestone is the KD position. My first recommendation is to read DA Pam 600–3, particularly the portion on logistics majors. There you will find a list of KD positions. KD positions are fundamental in developing an officer's core branch or functional area competencies and are critical for providing experience across the Army's strategic mission.

Before we go any further, let's dispel a common myth from the field. HRC does not decide what is classified as a KD position or what position is not considered KD. The proponents (the Army Combined Arms Support Command, the Quartermaster School, the Ordnance School, and the Transportation School) decide what logistics positions are KD. Assignment officers are charged with enforcing these decisions. The list of positions is clear and is best used when not interpreted to fit your particular situation. (For example, the support operations [SPO] section has only one SPO [officer]. The supply and services officer in a SPO section is not the SPO, and it is not a KD position.) DA Pam 600–3 does not use the buzz words "soft KD" and "hard KD," nor does it provide a rank ordering of best-to-worst KD positions. DA Pam 600–3 goes into further detail stating, "There is no one particular KD job in a specific unit that is considered most important or a must have for promotion or selection."

ILE

The next milestone is generally considered to be completing ILE. ILE can be completed at Fort Leavenworth, Kansas, or at several other locations in the continental United States. Most officers will attend ILE at Fort Leavenworth. The course is offered twice a year. One course begins in August and finishes in June, and the other course begins in February and ends in December. When you attend and what course you attend are generally based on your year group and your particular professional timeline. In general, logistics majors do not attend ILE immediately after selection to major because there are not enough ILE seats.

Logistics majors average 166 seat allocations at ILE per year. Year group 2001 has 222 logistics majors. The difference for just this one year group is 77 seats. Imagine if we took the difference between the number of logistics majors and the available logistics major spaces at ILE for year groups 1996 to 2000. That would identify quite a backlog. Logistics is only one branch, and every branch in the Army is experiencing the same backlog. That is why assignment officers are forced to assign majors to KD positions or broadening positions before ILE.

The key for logistics majors is to complete ILE before their lieutenant colonel promotion board. This is important because the FY 2011 Chief of Staff of the Army's Manning Guidance specifically states that beginning in FY 2013 ILE "will be a requirement before promotion to Lieutenant Colonel" and ILE will be a requirement to be considered for a lieutenant colonel-level command. As a result, priority for ILE seat allocations will continue to go to the senior year groups.

The chart on page 28 shows the percentages of logistics majors who have completed ILE. As you can see, the more senior the year group, the more likely the officer is to have completed ILE. You can also see that some officers in junior year groups have completed ILE. This goes back to the point that each officer's professional timeline is reviewed and taken into consideration. One thing to keep in mind is that ILE can be completed before or after KD time and even before or after broadening time. Approximately 40 percent of logistics majors attend the course as KD-complete majors. Although this is not the assignment manager's goal, it is the direct result of ILE seat allocations.

Broadening Time

The final milestone is broadening time. KD time and ILE require at most 34 months of your time as a major. This leaves over 3 years for you to serve in a broadening position. DA Pam 600–3 defines a broadening position as "assignments that develop a wider range of knowl-

Logistics Majors Who Have Completed ILE	
Year Group	Percentage
1996	96
1997	84
1998	66
1999	51
2000	26
2001	6

edge and skills, augment understanding of the full spectrum of Army missions, promote practical application of language training or increase cross cultural exposure, and expand officer awareness of other governmental agencies, units or environments."

DA Pam 600–3 says that for logistics majors these positions include joint, interagency, intergovernmental, multinational, military transition teams, and staff positions at the expeditionary sustainment command level and higher. The bottom line is that your broadening experience should challenge you and develop your skill set to operate at various levels of command. Again, this can be completed before or after KD time or ILE.

Developing Your 5-Year Plan

Once you have articulated a tentative plan for your logistics major timeline that includes KD time, ILE, and broadening time (in no particular order), you can begin to develop a potential 5-year plan. Your 5-year plan is like a logistics synchronization matrix. It must be accurate, detailed, and synchronized in order to be effective. Obviously, the three major milestones must be separated by time. For example, you cannot be in ILE while in a KD position and you are not getting broadened while serving in a KD position. The milestones should generally cover the 6 years you will spend as a major.

Second, once you realize you can complete the milestones in any particular order, it is probably best to develop multiple courses of action within the 5-year plan. This provides you with some flexibility when discussing future positions and PCS (permanent change of station) moves with your rater, senior rater, mentor, and significant other. DA Pam 600–3 has an example that you may find helpful.

Refining Your 5-Year Plan

You have now completed your working 5-year plan. In order for it to be an effective tool, you must use it and not just place it in your "I love me book" or store it on a laptop. My recommendation is to review it with your rater. A good time to review your 5-year plan is during your quarterly counseling. If you are not being counseled quarterly, or at all, use this tool to gauge your boss's view of your performance and, more importantly, your potential as a field-grade officer.

It is important for you to share this information with your rater and senior rater so everyone is on the same sheet of music. Some of the talking points when reviewing your plan should include the importance of completing 18 to 24 months of KD time, PCSing after 18 to 24 months of KD time, a timeline for submitting a DA Form 4187 for attendance at ILE, your next promotion board, your next officer evaluation report (OER), and a general review of your overall timeline. It may help to have a copy of this article with you to inform your rater about what HRC is briefing the field. Your rater and senior rater may not be aware of recent trends, such as lowered promotion rates for logistics majors to lieutenant colonel. This may not shape his OER comments or even the blocking you receive on your OER, but it will provide him with updated situational awareness.

Once you have gone through your 5-year plan with your rater or senior rater, it is important to get an outsider's perspective on your refined plan. If you have a mentor, now is the perfect time to review your plan with him to get his input. A fresh set of eyes with a different perspective is always a good thing when developing a plan. You may have missed some considerations during the review with your rater and senior rater. If you do not have a mentor, you can review it with a peer who is willing to give you honest feedback. This is your chance to review and update your plan before your next quarterly counseling.

The next step in refining your 5-year plan is to review it with your significant other. This could be considered the most important step for many reasons. Some points of discussion should include the high likelihood of PCSing three times in 6 years (KD, ILE, broadening), the potential costs associated with gaining a master's degree, or the likelihood of deploying if your dwell time is in excess of 36 months. Although these topics may be difficult to discuss, your significant other will likely appreciate the advanced notice and predictability. These discussions may lead to important personal decisions, like buying versus renting a home or volunteering for a deployment versus waiting for your assignment officer to place you on a Worldwide Individual Augmentee System tasker.

What to Do With Your Completed Plan

When your 5-year plan has been reviewed and updated with input from your rater, senior rater, mentor, and significant other, send a copy to your assignment officer. When an assignment officer receives a 5-year plan, he reviews it and places it in your file. (This is important because you will likely have three assignment officers in your 6 years as a major.) The assignment officer will also likely make comments in the Total Officer Personnel Management Information System, which is automatically accessed every time you call him. The more the assignment officer knows about you and your plan, the easier it is for him to assist you with achieving your plan.

You should also ask the assignment officer to review your plan with you. This is generally done over the phone and should be a scheduled event. The assignment officer will always fall back on the guidance and policies provided to him through the Chief of Staff Army's Manning Guidance and DA Pam 600–3. He does not know you and your individual situation nearly as well as your rater, senior rater, mentor, and significant other do. Sharing your 5-year plan will let him know your personal career aspirations.

Once your plan is refined and complete and you feel comfortable that it will help you achieve your professional goals, you need to update it regularly. An easy way to remember your 5-year plan maintenance schedule is to think of it like your vehicle or sensitive items. It also requires you to conduct preventive maintenance checks and services (PMCS). Your plan does not require daily or weekly PMCS. However, a review once a quarter, in conjunction with your quarterly counseling, is probably realistic.

A quarterly PMCS should be sufficient to keep your plan updated. However, I recommend looking at it semiannually with both your mentor and significant other. This will keep a fresh set of eyes on your plan and can serve as a springboard for you to regularly contact your mentor and openly discuss it with your significant other. The annual service should be completed by sending your assignment officer an updated plan and reviewing it with him in person or over the phone. This forces you to have a working relationship with your assignment officer and keep the lines of communication open for future assignments and schooling.

Your 5-year plan can be an effective tool if it is maintained regularly and is a collaborative effort among you, your rater, senior rater, mentor, significant other, and assignment officer. Once you have mastered this process, you should demand the same from your subordinates. Before you know it, you will be a mentor reviewing 5-year plans.

Lieutenant Colonel Nathan M. Swartz is the commander of the 703d Brigade Support Battalion, 4th Infantry Brigade Combat Team, 3d Infantry Division, at Fort Stewart, Georgia. He was assigned to the Army Human Resources Command from June 2009 to July 2011. He holds a bachelor's degree in political science from Middle Tennessee State University and a master's degree in business and supply chain management/logistics from the University of Kansas. He is a graduate of the Quartermaster Officer Basic Course, the Combined Logistics Captains Career Course, and Intermediate Level Education at the Army Command and General Staff College.

Continued from page 2

ing energy demand and increasing energy efficiency is a win-win situation for all levels of the Army; we can reduce risks and costs and increase capability, mobility, lethality, and quality of life.

Achieving our objective requires a team effort. Enhancing energy security is a basic responsibility of every Army Soldier and civilian. Success lies in individual accountability for improved energy efficiency through effective use of available energy and the development and implementation of innovative materiel and nonmateriel solutions to mitigate our energy challenges. We must change the culture of the Army to one that puts a high priority on efficient energy use, and this requires leader involvement.

As leaders within your respective fields, each of you must consider how you can reduce the demand for energy on the battlefield. Ask yourself, "What can I do within my organization to help change the energy culture in the Army from one of consumption to one of conservation?" Every leader should ask these questions: What is my organization's "energy factor?" (That is the percentage of energy that is delivered and used effectively compared to what is wasted.) How can we reduce energy demand? And what do I need to increase energy efficiency, accountability, and awareness?

We all have an opportunity, here and now, to be agents of change with a strategic implication. We have guidance from the Department of the Army to reduce energy consumption; in response, the CASCOM Operational Energy Office has identified areas that need improvement and drafted a campaign plan to make those improvements. The hard part is executing the guidance at all organizational levels. To do this, I need leaders to focus on helping me begin to shift the energy culture within the Army.

We will meet this challenge head on, capitalizing on leading-edge research, technologies, and business practices. Achieving success will take dedication, sustained leadership, and accountability at all levels. Remember, every Soldier in the U.S. Army is an energy manager and has the capability to help reduce demand. We all can make a difference!

Major General James L. Hodge is the commanding general of the Army Combined Arms Support Command and Sustainment Center of Excellence at Fort Lee, Virginia.

Improvements in Container Management Training

BY THOMAS CATCHINGS

As the Global Container Manager, the Military Surface Deployment and Distribution Command has improved the quality and availability of container management training through a variety of online tools.

Logistics is directly related to military mission success in short- and long-term conflicts. The movement of supplies in full-spectrum operations has to keep up with the operational tempo and must be flexible based on the battlespace. Containers give the Armed Forces' logisticians the ability to meet these two very critical requirements.

Over the past few years, containers have become a major focus of the Department of Defense (DOD). DOD regulations and joint and Army publications have been changed to address the need for better container management. This shift in focus has caused a major change in how we train our Soldiers in container management.

Container management training for DOD employees is what supports the transition to, and incorporation of, new and diverse technologies in the field. The Military Surface Deployment and Distribution Command (SDDC), which was designated as the Global Container Manager (GCM) by the U.S. Transportation Command, is responsible for training and educating the container management community. GCM works with all of the services and the Army Training and Doctrine Command (TRADOC) to ensure that Soldier training and doctrine meet the new DOD container management requirements.

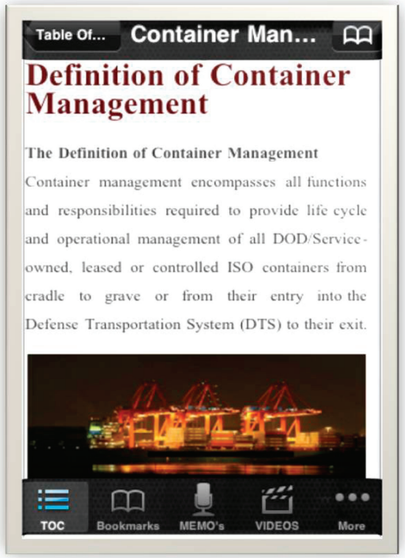
Container Management Training Online

GCM created a distance learning container management training course, available through the Army Enterprise Lifelong Learning Center, to close the training gap for deploying Soldiers. This web-based training was deployed in June 2010 and has been completed by more than 3,107 students. The training also has been adopted by country container authorities in Southwest Asia as a prerequisite to receiving access to the U.S. Central Command (CENTCOM) Container Management System for tracking and accounting for containers.

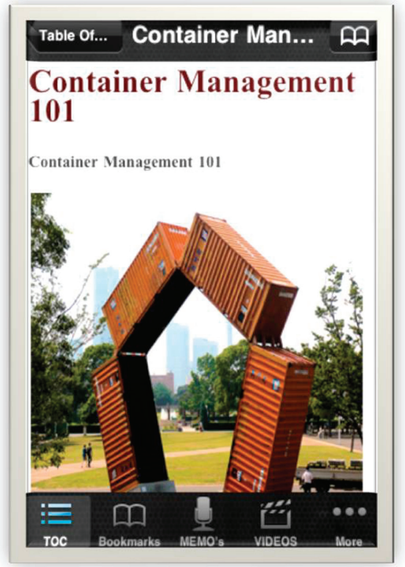
This training is now part of the mandatory systems training for deploying country container authorities and container control officers into CENTCOM. It serves as the prerequisite course for all continental United States training conducted by GCM.

The opportunities for our armed forces to receive container management training are better than before, but GCM continues to find ways to reach as many Soldiers as possible before deployment. The training section of GCM has created another training platform through Defense Connect Online (DCO). By using DCO, GCM can train deploying units by setting up accounts for them at their home stations. This platform provides effective training while cutting travel and lodging costs normally associated with a training team's travel to the military facility to conduct this training.

In addition to course material, this new mobile application includes the Container Management Smartbook, which gives users access to up-to-date container management doctrine and procedures.



Container management training materials like these are now available through an application developed through a partnership between SCoE Mobile and the Global Container Manager Division, SDDC. The mobile application was launched on 1 July 2011.



Container Management Training Working Group

GCM also has established a training working group with the Army's Deputy Chief of Staff, G–4; the Army Logistics University (ALU) Noncommissioned Officer Academy; and the Transportation Management Coordinator Course at the Army Transportation School at Fort Lee, Virginia. This working group is designed to facilitate leader development at every logistics level.

The working group realized that container management training must be taught to give Soldiers a higher percentage of mission success in container management tasks. The courses currently provide container management training for ALU and Army Transportation School students, but this working group's focus is to enhance training based on the current operating tempo of containers being used in Southwest Asia.

Container Management Training App

The Combined Arms Support Command's Sustainment Center of Excellence (SCoE) has developed an optimum training platform that trains Soldiers while keeping their creative minds energized. In a collaborative effort, SCoE Mobile and GCM launched the first container management training available in the form of a mobile application (app). The product, released 1 July 2011, is called the Integrated Booking System Container Management Module and can be downloaded directly to an iPhone, iPad, or iPod touch.

The app includes the integrated Container Management Smartbook created by GCM that covers container topics ranging from procurement to disposal. The smartbook provides current training aids and up-to-date DOD container regulations and policies all in one place. This app eliminates the need for Soldiers to carry large and pocket-sized manuals and gives them easy access to training materials, guidance, or process validation at a minute's notice.

The application is free through Apple's App Store. To download the application, users must connect to the Internet and type "container management" into the search bar. When the search results become available, they should select "Integrated Booking System Container Management Module."

GCM continues to "lean forward" to find more training platforms and innovative technology that not only meet the needs of the container management community but also capture the attention and interest of today's Soldiers.

THOMAS CATCHINGS IS THE PROGRAMS AND SYSTEM PROGRAM MANAGER FOR GLOBAL CONTAINER MANAGEMENT WITH THE MILITARY SURFACE DEPLOYMENT AND DISTRIBUTION COMMAND. HE HOLDS A B.A. DEGREE FROM ALABAMA STATE UNIVERSITY AND IS A LEAN SIX SIGMA BLACK BELT. HE IS A GRADUATE OF THE ARMY COMMAND AND GENERAL STAFF COLLEGE'S CIVILIAN ADVANCED COURSE AND THE CIVILIAN EDUCATION SYSTEM FOUNDATION AND BASIC COURSES.

New Technologies Train Army Sustainment Units

BY MAJOR JAMES P. MULVEHILL

Distributive simulation networks push mission command training to sustainment unit commanders and staffs and reduce the Army's training costs by using new technologies.

The Army Reserve's 75th Mission Command Training Division (MCTD) in Houston, Texas, and the Logistics Exercise and Simulation Directorate (LESD) at Fort Lee, Virginia, work together to train Army combat sustainment support units through the use of newly available technologies. An accredited distributive simulation network (DSN) serves as the vehicle to push simulation of the sustainment Joint Deployment Logistics Model (JDLM) to approved home-station locations and combat training centers (CTCs).

The ability to push or broadcast low-cost, simulation-driven exercises to multiple locations on a distributive network for training reduces costs during a time of constrained Army budgets. According to Field Manual (FM) 7–0, Training Units and Developing Leaders for Full Spectrum Operations, "Commanders employ the live-virtual-constructive training environment, as appropriate, to help replicate the conditions in the projected operational environment, optimize training time, and mitigate resource shortfalls."

New training capabilities that are part of the Army's second training revolution work in concert with the current concepts governing Army training conducted during the Army Force Generation (ARFORGEN) cycle. At a time of tight budgets and personnel shortages, the combined efforts of the Army's premier training division, the 75th MCTD, and the Army's sustainment capabilities integrator, LESD, may help to significantly improve how the Army trains the force. DSNs are the way ahead for training through the application of available technology.

The Army Training Revolutions

Army Training and Doctrine Command (TRADOC) Regulation 350–70, Systems Approach to Training Management, Processes, and Products, describes the first Army training revolution:

> TRADOC's adaptation of the Interservice Procedures for Instructional Systems Development (ISD) with the addition of collective training resulted in the proven process we have today for developing Army training, the Systems Approach to Training (SAT). For the first time in Army history, critical tasks were identified for all unit and individual soldier jobs. Analysis of those tasks identified conditions under which those tasks should be performed and the standard to which the tasks should be performed to ensure success on the battlefield. Task information was captured in all training courses, materials, and literature (such as Mission Training Plans [MTPs] and Soldier's Training Publications [STPs]).

Developments in the capabilities of the live, virtual, constructive, and gaming training environments all build toward a new, efficient way of training the force. As described in TRADOC Regulation 350–70, "The fundamental principles of the first training revolution are still the foundation of Army training. However, technology has greatly altered today's training environment, and it will lead us into another training revolution."

The Army's second revolution will occur after available technologies are applied to home station training.

Role of the 75th MCTD

The 75th MCTD serves as a premier mission command and staff training organization servicing all Army components. The division holds the majority of the Army's simulation operations officers (functional area 57A). Its 5 brigades and their subordinate operations groups, which are located throughout the United States, supported 157 brigade and battalion-sized units in training year 2010 with more than 80 missions.

The 75th MCTD conducts predeployment battalion and higher mission command staff training for all Army component forces at home stations, mobilization training centers, and mission command training centers in support of ARFORGEN. The Army now emphasizes training of contingency expeditionary force units rather than deployment expeditionary force units in the ARFORGEN cycle because of the drawdown of U.S. forces in Iraq and the projected decrease of Army units in Afghanistan.[Contingency expeditionary force units are units that do not have a deployment date. They go through the same ARFORGEN reset and training cycles as deployment expeditionary force units, but they have missions such as homeland defense and civil support, overseas exercises, institutional support, and global response.]

Technologies and Systems

The 75th MCTD uses the Army Battle Command System (ABCS) during sustainment training, including the Battle Command Sustainment Support System (BCS3), Maneuver Control System, and Command Post of the Future. The Army's previous Deputy Chief of Staff, G–4, Lieutenant General Mitchell H. Stevenson, stated that BCS3 is the premier mission command sustainment tool.

A DSN would allow the 75th MCTD to project simulations of ABCS as used in digital command posts. Simultaneous support could occur at multiple locations, which would economize training with significant cost reductions.

However, security mechanisms must be set in place before any classified simulation data may be pushed through a DSN. The Department of Defense Information Assurance Certification and Accreditation Process (DIACAP) ensures that controls are set as a means of meeting security requirements. The controls are defined by the particular system's mission assurance category and confidentiality level. Once the DIACAP accreditation process is achieved for a DSN, classified simulation data may be pushed to a location within the network. This accreditation will enhance the 75th MCTD's training capability by allowing it to use the latest available technologies.

LESD

LESD serves as a capabilities integrator and provider of worldwide sustainment mission command training exercises. It provides exercise support to the institutional and operational forces to assist commanders in preparing Soldiers to successfully execute their sustainment missions.

LESD manages the JDLM, which simulates BCS3 in accredited DSN or stand-alone exercise events. The two LESD categories of exercise support are exercise design and exercise execution. Exercise design includes planning and coordinating with a unit to build a database that reflects that unit's task organization, logistics capabilities, and established logistics support relationships, all in accordance with doctrinal requirements.

The exercise execution category of support includes database adjustment, BCS3 simulation, technical support in managing the network, coordination of simulation management with the exercise's technical controllers, and maintenance of the Logistics Federation (LOGFED) server.

LESD has worked with the 75th MCTD in support of exercise events, including command post exercise–sustainment, Pacific Warrior, Patriot Warrior, and other culminating training events. The level of support that LESD provides can be scaled as required, and training is available for building a database on JDLM.

Sustainment Units in the Reserve Components

The Army National Guard and the Army Reserve provide more than 80 percent of the sustainment units within the total force. Because of this, Reserve component units need LESD's ability to provide training support in the use of JDLM so they can simulate using BCS3 to obtain a logistics common operating picture, commodity tracking capability, and sustainment unit status.

LESD may push the logistics model anywhere in the world, provided there is an accredited DSN. Once the 75th MCTD completes the DIACAP accreditation process for its own DSN, it will have the capability to push classified simulation data for the training of Reserve component sustainment units.

Home Station Training

Future training concepts call for most training of Army units to occur at the unit's home station during the ARFORGEN train phase. The "walk" increment of the crawl/walk/run standard of measure occurs at home station, where standards-based core skills and capabilities training will nurture individual and collective training before the unit's arrival at a CTC. The CTC training will provide a high-fidelity operational environment for brigade-level and above training in a live and constructive setting.

The distributive network training concept at home station, along with a high-fidelity training event at a CTC, will fully prepare a unit before it enters the surge force or available force pools at the end of the ARFORGEN training cycle.

With the development of mission command training centers at each of its brigade locations, the 75th MCTD can employ simulation exercise scenarios for unit training events. JDLM database packages developed through LESD may focus on specific commanders' training objectives for the unit and its mission at hand. The Army Reserve's training divisions, the 75th MCTD, and the Army's capabilities integrator for sustainment, LESD, forge a formidable team to tackle mission command training for combat sustainment support organizations in the contingency expeditionary force pools of the ARFORGEN cycle.

MAJOR JAMES P. MULVEHILL IS THE COMMANDANT OF THE REGIONAL TRAINING SITE–MAINTENANCE AT FORT HOOD, TEXAS. HE WAS PREVIOUSLY THE SENIOR ACTIVE GUARD RESERVE TRADOC REPRESENTATIVE AT THE NATIONAL SIMULATION CENTER AT FORT LEAVENWORTH, KANSAS. HE HOLDS A B.A. DEGREE IN LIBERAL ARTS FROM GRANDVIEW COLLEGE AND AN M.B.A. DEGREE IN LOGISTICS MANAGEMENT FROM TOURO UNIVERSITY INTERNATIONAL. HE IS A GRADUATE OF THE ARMY COMMAND AND GENERAL STAFF COLLEGE.

Medical Evacuation Planning in Support of the Brigade Combat Team

BY CAPTAIN MATTHEW L. TILLMAN

Three CH–47 Chinooks on the helicopter landing zone at Forward Operating Base King at the National Training Center are used for an air assault and as nonstandard medevac platforms. The use of lift assets as nonstandard evacuation platforms is critical to the success of a medevac plan.

At the National Training Center (NTC) at Fort Irwin, California, units routinely struggle with casualty evacuation, even when mission rehearsal exercises have vast infrastructure, semistatic locations, and degraded enemy capabilities. As we begin to prepare for conflict with a "near peer" adversary as identified in Training Circular (TC) 7–100, Hybrid Threat, medical planners must develop evacuation plans that are synchronized with the tactical plan and are understood and rehearsed at the executor level. This article identifies friction points and potential ways to overcome the obstacles that will prevent us from clearing the battlefield.

Medevac Planning

Medevac planning is not a complicated concept; it is simply planning for the movement of our wounded using dedicated assets and personnel. However, in practice, medevac planning is much harder and units struggle from the beginning with the roles and responsibilities of the various medical planners and executors because doctrine is vague on who should conduct what part of the process.

This vagueness is intentional to allow units the flexibility to support different personalities and capabilities within their organizations. However, in order for medevac planning to be successful, someone must act as executor and the responsibilities of the brigade surgeon section (BSS), brigade support battalion (BSB) medical planners, brigade support medical company (BSMC) commander, and task force medical platoon leaders must be identified.

This article outlines a way to determine medevac planning roles and responsibilities based on doctrine. This recommendation is based on observations of more than 15 NTC rotations, where the BSS often lacked the experience to heavily influence the outcome of the medevac plan and the BSB commander or the support operations officer (SPO) often took responsibility for plan development and system enforcement.

BSS

Field Manual (FM) 5–0, The Operations Process, states that the command surgeon is responsible for the synchronization of Army health system support planning and execution. However, the BSS must accomplish four primary missions for the brigade combat team (BCT)-level medevac plan:

- Develop the patient estimate.
- Provide clinical and technical oversight for all medical assets in the BCT, including medevac. The surgeon, who is a member of the BCT commander's special staff, must serve as the eyes and ears of the medical community and ensure that specified, implied, and essential medical tasks as well as facts and assumptions are captured and considered during mission analysis and the military decisionmaking process (MDMP).

The brigade support battalion (BSB) commander, brigade support medical company commander, BSB S–3, and battle noncommissioned officer conduct a mission analysis over a map for an operation planned in the coming days. Formal planning processes are critical to successful medevac operations.

- Articulate requirements and the commander's intent to the other medical planners in the BCT by remaining integrated into the BCT plans cell and constantly communicating with the other planners. Although the final product of MDMP is an order, the BSS must consider subordinate units' needs while it develops a plan with sufficient detail to ensure success.
- Work with the BSB medical operations officer (MEDO) to develop a solid common operational picture of the medical assets within the BCT. This will provide the surgeon with the ability to allocate additional assets to help fill shortfalls in the task force's evacuation plan.

The planning relationship between the BSS and the BSB MEDO should be similar to that of the BCT S–4 and the BSB SPO, and constant communication during the planning process must be ensured.

BSB MEDO

The BSB MEDO is a key player in developing a medevac plan that enables the BCT to clear the battlefield. FM 4–02.2, Medical Evacuation, states that the BSS is responsible for the BCT medevac plan. However, the critical link here is the passing of BCT-level generic mission planning to the BSB for synchronization and execution.

During the course of the MDMP, the BSS should identify the requirements needed to meet the BCT commander's intent and support an all-encompassing planning method. However, finalizing, synchronizing, and resourcing the plan should fall on the MEDO in the SPO as his focus should be on developing plans to fill shortfalls with BSMC assets, just as the SPO must plan for class V (ammunition) resupply to the task force level while the BCT S–4 develops the number of rounds required.

This medevac plan should include detailed evacuation routes analyzed against the terrain, the enemy, and friendly movements. It should include ambulance exchange points (AXPs) that shorten lines of communication, and it should identify medevac air corridors (planned by the brigade aviation element or forward support medevac platoon leader) that allow casualty evacuation by air without interfering with airspace coordination. The plan must also direct the placement of BSMC assets forward with the battalion aid station or combat trains command post and depict templated casualty collection points identified by the battalion MEDOs for the supported battalions. The plan must include a communications architecture that facilitates medevac communication but does not hinder the abilities of commanders to control the fight. Finally, the BSB MEDO must produce a health services support synchronization matrix similar to the logistics synchronization matrix that drives decisions and asset moves based on the tactical plan and triggers.

In order to fully develop the medevac plan, the SPO MEDO must actively communicate with his supported units to understand not only the battalion medevac plans but also any perceived shortfall in assets.

Medical Platoon Leaders

Task force medical platoon leaders and the battalion MEDOs play critical roles as they truly are the tip of the spear in the Army's medevac process. FM 3–90.5, The Combined Arms Battalion, places the responsibility for planning Army health system support on the professional filler system (PROFIS) field surgeon, who by doctrine is also the platoon leader with assistance from the MEDO. However, in practice, the MEDO, a Medical Service Corps officer, is not only the medical platoon leader but also the principal medical planner for the task force while the PROFIS field surgeon focuses on patient care and treatment. Whoever serves in the role of medical planner for the task force must plan its evacuation process concurrently with the BCT medical planners, ensuring communication at all times.

At the battalion level, the medevac plan should include placing medics and ground evacuation assets with company trains and locating casualty collection points at the company level. It should include evacuation routes within the battalion's operational environment and articulate the battalion internal communications architecture that will enable casualty information to be passed without interfering with the fight.

Finally, MEDOs must articulate their plans to the BSB MEDO and BSS with shortfalls so that additional assets can be allocated and the common operational picture can be generated. The task force plan must

Professional Filler System (PROFIS)

PROFIS is a system used to fill professional personnel voids (such as physicians, lawyers, and civil engineers) when a unit deploys. The system is used mostly for assigning physicians to deploying units. When not deployed, physicians are assigned to military hospitals or clinics, where they treat patients. Once assigned as a PROFIS field surgeon, a physician is usually with the unit for the entire deployment. (Note: the term field surgeon in this context means unit physician, not someone who operates on patients. This term is a hold-over from U.S. colonial times.) Medical specialists in areas such as cardiology, general surgery, neurology, and emergency and critical care are usually assigned PROFIS to a combat support hospital, where they perform their specialties in the combat theater.

A patient is loaded onto an M113 medical evacuation vehicle during a National Training Center rotation. The M1113 is the most capable vehicle for ground evacuation in the current inventory.

be backbriefed to the BSS and BSB MEDO in a battle rhythm event either articulated in the orders process or driven by standing operating procedure.

BSMC

The final key player in developing a solid medevac plan at the BCT level is the BSMC commander and his direct executor, the BSMC ambulance platoon leader. As the BSB MEDO develops medevac plans based on requirements from supported units, the commander's intent, and the operation plan, he must quickly issue the medevac plans to the BSMC so that troop-leading procedures can begin.

At the BSMC, considerations must be made to ensure dedicated security for movement from AXPs to the brigade support area (if the enemy situation template dictates) and the allocation of mission command at AXPs. The question must be asked, "Who is the decisionmaker at the forward location?" so that as the fight develops, decisions are made in accordance with the commander's intent.

Determining Casualty and Patient Estimates

Once clear roles and responsibilities have been established, medical planners must pay close attention to mission analysis at all levels to ensure proper allocation of assets against time and space according to the maneuver plan. The first planning consideration must be the patient estimate, which is determined by the surgeon. Planners then must understand their patient movement capability and how that capability can be degraded by various effects, including the enemy's capability, disposition, and location.

The BCT S–1 is responsible for producing a casualty estimate so that the commander can make decisions about personnel replacement operations and unit aggregate strength during and after operations.

Patients are transferred from the medevac aircraft to frontline ambulances for transport to the level II medical facility at the National Training Center.

Two questions must be answered to have a sound patient estimate: How many? And when and where? Many tools are available to help planners estimate casualties based on the type of terrain, enemy disposition, type of operation, and so forth. Common tools are the Medical Course of Action Tool, the Medical and Casualty Estimator, and the Logistics Estimate Worksheet. Although no tool has been officially endorsed, all of these tools can help develop the number of patients. However, casualty estimate tools should be used only when historical casualty data are not available.

All of the patient estimate tools outlined above will tell you a number by precedence of patients, but the true mission analysis that medical planners must conduct estimates when and where the casualties will occur based on tactical actions. An understanding of the operation plan and good wargaming are the best tools available to determine these data requirements.

Identifying Available Assets

Once a requirement based on time and space is determined, the next consideration is what assets are available to support the mission. Medical planners must know what standard and nonstandard evacuation platforms, both air and ground, are available for medevac within their formations.

BCT medical planners generally track medevac assets that are available within their formation, such as M113 armored personnel carriers, field litter ambulances, and UH–60 Black Hawk helicopters. However, when requirements exceed the assets available to move patients, medical planners must look at other assets, including nonstandard platforms. Medical planners must know what nonstandard platforms are available to move patients, what their capabilities are, and how to plan for their use. Most importantly, they must understand that these resources must be tasked in the orders process, or units will be hesitant to reduce their combat power. Finally, when planning to use nonstandard platforms, either air or ground, planners must consider the loss of en route medical care provided by medevac platforms and the survivability reduction associated with that loss.

Planners also must consider what can degrade capabilities. Often, planners track the total number of ground assets that are available but plan for their employment at a 100-percent operational readiness rate without accounting for other mission-critical components, such as communications or manning the assets. One way to track these assets is to treat them as systems or crews in much the same way that a combined arms battalion treats its Abrams tanks and crews.

The final asset consideration for medevac is for air evacuation. Consistently, medical planners treat air medevac as the primary method instead of the preferred method of evacuation, so they often do not truly plan for the use of these limited assets. Using the patient estimates, planners must account for the number of turns required to move patients, based on time, distance, load time, and available security. Urgent patients are transported using air assets first. Any excess capability then can be used to move priority and routine patients, but a ground plan must be in place first.

Medevac Planning Considerations and Tools

Countless ways exist to provide casualty evacuation from a battlefield based on certain terrain, assets, and enemy templates. However, several basic practices should be considered for most operations.

Casualty collection points (CCPs) must be planned at the company, battery, or troop level, and planners should consider locating evacuation assets at the CCP under the direction of the first sergeant. At the task-force level, casualty transportation should use dedicated standard assets to quickly and efficiently move patients from the CCPs to the battalion aid station when possible.

By breaking the operational environment into smaller pieces, AXPs are an effective means of shortening lines of communication and helping to ensure better understanding of the operational picture. To maximize the use of AXPs, planners must lay out the locations of the AXPs, determining the proper placement based on the enemy situation template, terrain, and accessible routes.

AXPs are not generally used at the battalion level but instead are usually a BSMC ambulance platoon responsibility. BSMC ambulances should be positioned at the battalion aid station to evacuate to the AXP. Within the hybrid threat environment, security assets for these AXPs and evacuation routes must be planned and, once tasked, AXP security should be that element's primary mission.

Medevac by air in the hybrid threat environment will require considerations that are not required in the contemporary operating environment. Enemy air defense artillery capability could limit the range of forward advance for medevac aircraft, in which case AXPs could become not only transfer points between tracked and wheeled vehicles but also between ground and air assets.

Finally, the use of air corridors to deconflict airspace will become more important. The current perception of troops in contact as high-intensity, lower-frequency events will be replaced by high-intensity, high-frequency events across large fronts. This will require a dedicated airspace management plan to deconflict artillery fires, attack aviation, and medevac.

Planning Meets Execution—Medevac Rehearsal

The final step in developing a detailed, resourced,

synchronized medevac plan should be a rehearsal. To ensure that the rehearsal does not become a synchronization meeting, several tools must be used to articulate the plan before the rehearsal occurs. At NTC, failures at the time of execution are generally caused by planning shortfalls, but even the best plan, if not rehearsed, has great potential for failure. FM 5–0 discusses the different levels of rehearsals and the resources necessary to execute them.

In a perfect world, all BCT-level rehearsals would be chaired by the BCT commander, but in reality, countless competing demands can take him from the medevac rehearsal. If not the BCT commander, then preferably the BCT deputy commander or executive officer would chair the meeting, with the final choice being the BSB commander.

Every attempt should be made to have the executors of the plan available for the rehearsal, including—

- ❑ Task force MEDOs (executors of the medevac plan at the task-force level).
- ❑ Task force executive officers (honest brokers who ensure that the task force medevac plan is sound and synchronized with maneuver plans and that any shortfalls are identified and filled or otherwise mitigated).
- ❑ The brigade surgeon and planner.
- ❑ The BSB MEDO and SPO.
- ❑ The BSMC commander and ambulance platoon leader.
- ❑ The forward support medevac platoon leader.
- ❑ A ground ambulance company representative (if attached).
- ❑ A brigade aviation element representative.
- ❑ The brigade S–2 to brief the enemy situation template.
- ❑ The brigade S–3 to brief the concept of the operation and deconflict maneuver issues.

Although there are several rehearsal methods, this example will cover rehearsal of phases of the operation by unit. The following outlines a way to execute this rehearsal.

The brigade executive officer, serving as the rehearsal director, introduces the rehearsal and outlines the agenda. (See sample agenda at left.)

The S–3 reads the mission statement of the headquarters and discusses friendly unit locations.

The S–2 discusses the enemy's most likely course of action and most deadly course of action.

At this point, the rehearsal leader transitions the first phase of the operation. Each subsequent phase will have the same order of briefers. Each briefer's discussion should begin with the trigger that ended the previous phase and end with the trigger that moves the unit into the next phase of the operation.

As each subsequent phase of the operation begins, the S–2 should briefly discuss the enemy situation and the enemy's most likely course of action, which introduces the subsequent phase.

The S–3 should follow by discussing the friendly maneuver plan for that phase and each friendly maneuver unit's task organization, task and purpose, and disposition.

The BSB MEDO should then sketch the BCT's medical concept of support for the phase, including the medical task organization, evacuation means, evacuation routes, treatment facility capabilities and locations, and active helicopter landing zones, airfields, and mission control procedures.

The forward support medical platoon leader or air medevac liaison officer should then discuss aircraft availability and locations for the phase, including both casualty evacuation and medevac aircraft and air corridors.

Task force MEDOs should discuss the—

- ❑ Battalion scheme of maneuver.
- ❑ Task organization (organic and BSMC assets).
- ❑ Maneuver units' tasks and purposes.
- ❑ Medical capabilities and locations.
- ❑ Patient estimate numbers by location for the phase.
- ❑ Casualty evacuation plan from the forward line of troops to the rear, including CCPs, methods and priorities of evacuation, helicopter landing zones, routes, and the number of required turns for evacuation assets to move the estimated number of patients.
- ❑ Mission control plans within the battalion, including net management.

Medevac Rehearsal Agenda

1. Roll call
2. Map and terrain-model orientation
3. Critical events and decision points to be rehearsed
4. Briefing sequence: Should be logical and flow with the battle from front to rear, with focus on time and space.
   a. Brigade S–3
   b. Brigade S–2
   c. BSB MEDO
   d. Task force MEDOs
   e. BSMC commander
   f. Forward support medevac platoon leader or air medevac liaison officer
5. Additions to the BCT execution checklist
6. Fragmentary order publishing timeline if changes are required

This ambulance exchange point at the National Training Center was established to support a border incursion scenario. One M113 ambulance and two light medium tactical vehicle nonstandard casualty evacuation vehicles are staged to transfer casualties.

- ❑ Class VIII (medical materiel) resupply "movement plan forward and request to rear."

The BSMC commander should discuss level II capabilities and location, forward positioned assets (evacuation and treatment), AXP locations, mission control, and class VIII resupply plan forward and request to rear.

Dialog during the rehearsal should cover what the executor is doing; who he is calling, on what net, and with what traffic; and what he anticipates the other party to do. The BSMC commander should then confirm or deny the previous brief when his turn to rehearse comes.

The rehearsal leader must ensure that the desired end state is met before moving from one phase to the next.

When all phases of the operation are complete and the standard is met, the recorder of the rehearsal should read back notes for all attendees. If all attendees agree that all issues have been resolved and appropriate adjustments to the plan have been made, the notes should be turned into a BCT fragmentary order and updated synchronization matrix.

A sound medevac plan is not just the procedures for calling a 9-line medevac request on a radio. This will especially be true as we transition into hybrid threat operations. To be successful, medical planners must first clearly delineate and accept responsibility for planning. There are many ways to do this, and doctrine is vague in order to allow units room to make decisions based on the personalities and capabilities of planners.

Medical planners must understand their requirements. How many casualties will there be? When and where will they occur? When these requirements are understood, medical planners then must understand their capabilities to meet those needs. What assets are on hand? How can Murphy's Law mess the plan up? Medical planners must ensure understanding and synchronization of the plan with a thorough rehearsal.

Every effort must be made to ensure sound planning and understanding of that plan because Soldiers' lives are at stake and the American public expects us to care for its sons and daughters.

Captain Matthew L. Tillman is the brigade support medical company senior combat trainer at the National Training Center at Fort Irwin, California. He holds a B.S. degree in business administration from Colorado State University. He is a graduate of the Army Medical Department Officer Basic Course and the Combined Logistics Captains Career Course.

Crafting a Sustainable Medical Logistics Infrastructure for the Iraqi Ministry of Defense

BY MAJOR EDWIN H. RODRIGUEZ

In the 1970s, Iraq was at the forefront of healthcare in the Middle East. The Iraqi Government developed a centralized, free healthcare system by using a hospital-based, capital-intensive model of curative care. The war in 2003 destroyed an estimated 12 percent of Iraqi hospitals and two main public health laboratories. In 2004, some improvements were made. However, Iraq's supply chain was left significantly crippled, impeding its ability to support and sustain a health-care system. Nearly 9 years after the toppling of Saddam Hussein's government, Iraq's medical supply, distribution, and biomedical maintenance programs are still facing many challenges.

The Aftermath of War

When hostilities ceased in 2003, the Iraqi Government was left with an antiquated warehouse infrastructure and a handicapped distribution system. This caused a partial loss of medical stocks and biomedical equipment. All central and government warehouses required extensive repair or replacement since most of them were aging and not regularly maintained. The intravenous (IV) fluids warehouse was affected the most.

The supply delivery system was interrupted between March 2003 and the beginning of June 2003. This increased some of the shortages, particularly at hospitals and health centers in remote areas. These shortages included commonly used antibiotics, drugs used in anesthesia, anticancer drugs, most laboratory reagents, and medical supplies, such as surgical gloves, sutures, surgical blades, IV cannulas, and blood bags. Distribution activities gradually resumed when some contracts previously submitted by the former government were awarded.

The Iraqi Government medication production base was almost nonexistent, which exacerbated the shortages. The IV fluid plant in Ninewah completely stopped operating as a result of looting and vandalism. However, the Arab Company for Antibiotics Industries (ACAI) and Samara Industries were not affected by the war. The ACAI factory resumed activities in August 2003, but the raw materials available were only sufficient to maintain production for 1 month.

Enabling Self-Sufficiency

In June 2004, the Multi-National Security Transition Command–Iraq (MNSTC–I) was established to assist the Iraqi Government in developing capable ministries and adequate Iraqi Security Forces (ISF) that adhere to the rule of law. The establishment of MNSTC–I was a direct response to the need to create a new Iraqi Army and to build a new police force using a civilian police assistance team and advisory missions to the Ministry of Defense (MoD) and the Ministry of Interior (MoI).

The U.S. Congress appropriated funding for MNSTC–I to meet its mission of building and supporting the ISF. To assist in distributing this funding, MNSTC–I used nine advisory teams that advised and generated requirements for the ISF. These requirements involved developing the ministerial capacity, arranging training for Iraqi Army and Iraqi National Police forces, and building sustainment efforts on behalf of the ISF to enhance its performance.

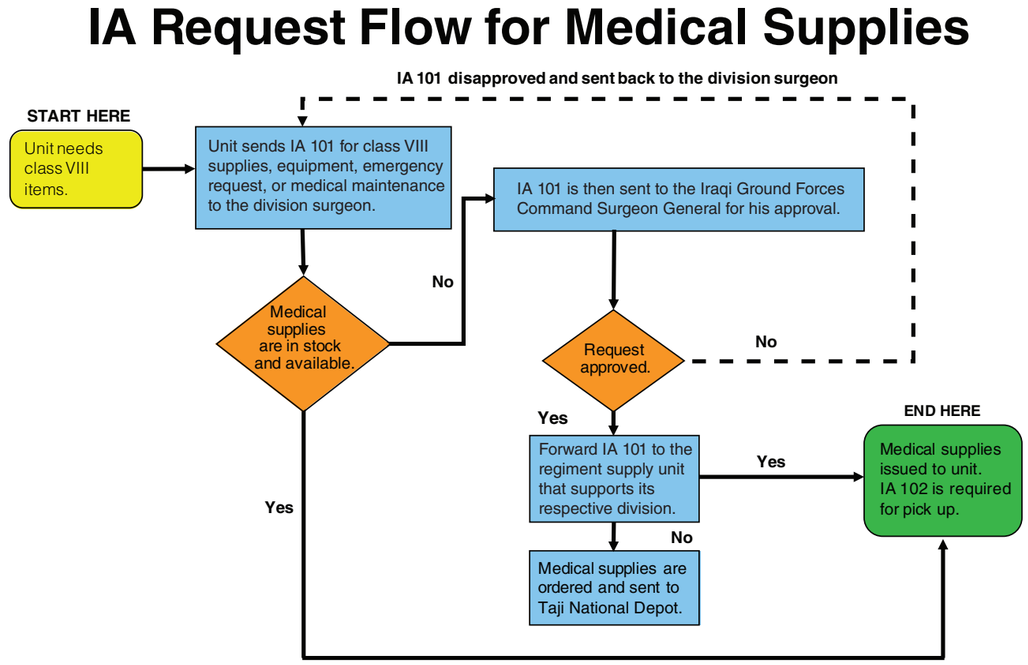
The health affairs advisory team was tasked with advising the Surgeon General of Iraqi Joint Forces (SGIJF) (who worked for MoD) and the director of health affairs (who worked for MoI) and their staffs on healthcare policy, preventive medicine, medical training, medical logistics, and facility planning. The health affairs medical logistics section played a crucial role in the initial distribution of class VIII (medical materiel), in the design, development, and equipping of medical infrastructure and logistics systems, and in enabling the ISF to become capable and ready as they move forward toward self-sufficiency.

The Big Picture

The ISF faces discouraging challenges in its efforts to rebuild the shattered Iraqi medical infrastructure. These challenges can be attributed to excessive bureaucracy, the lack of healthcare professionals, widespread illiteracy, and inaccessible pharmaceuticals and medical equipment.

"AN ARMY WITHOUT ITS BAGGAGE-TRAIN IS LOST; WITHOUT ITS PROVISIONS IT IS LOST; WITHOUT BASES OF SUPPLY IT IS LOST."

—SUN TZU, *THE ART OF WAR*



The shortage of healthcare personnel in Iraq is the direct result of its three wars since 1980 and years of ethnic persecutions. After June 2003, there was a massive exodus of healthcare professionals to neighboring nations. This created a huge void in access to care. The Ministry of Health (MoH) adopted an aggressive employment strategy that included a safe work environment, higher salaries, and an excellent retirement package. The SGIJF was forced to match, and in most cases exceed, MoH benefits in an effort to recruit more clinicians into the ranks.

This prompted extraordinary SGIJF office outreach efforts, from recruiting campaigns over the radio to bonuses for highly trained personnel. This endeavor has benefitted both MoD and MoI in healthcare. Ultimately, these underlying practices are necessary to having trained ISF medical personnel. Trained and proficient human capital is the most important aspect of ensuring that the Iraqis are able to attain true self-sustainment.

A complex hierarchy and administrative processes bound by red tape put severe limitations on ISF's ability to direct, control, and achieve the objectives and requirements from its requesting units and support agencies. Bureaucracy seemed to be the rule for day-to-day operations. The MoD and MoI acknowledged their inability to spend their annual budgets. The budget expenditures for the SGIJF office did not reach 30 percent of its annual funds by the end of the second quarter. In fact, this is one reason MoD provided its Commander's Emergency Relief Program (CERP) funds to MNSTC–I so that MNSTC–I could spend its own money.

Kimadia, the state company managing the importation and distribution of drugs and medical equipment, is the main drug supplier of Iraq. This organization operates a distribution network of specialized central, governorate, and district warehouses. Kimadia also is the sole source authorized by law for management, planning, selection, quantification, procurement, storage, and distribution of medicines and medical equipment. This restricts the SGIJF and the MoI Health Affairs from selecting their own sources of supply at home and abroad.

Laying a Foundation

Most people in the developed world take for granted access to basic health services and the existence of a functioning health system. The situation is different in Iraq because of fundamental limitations in funding, staffing, training, and other elements of essential infrastructure. Several steps must be taken to improve the Iraqi health services system.

Create a partnership with Kimadia. Establishing a strategic alliance between the ISF and Kimadia will enable both organizations to gain competitive advantage through access to each partner's resources, including markets, technologies, capital, and human resources. This partnership will create a flexible support infrastructure that can rapidly meet ISF medical supply needs,

provide a distribution mechanism that is well represented both geographically and strategically, reduce cost through a greater pool of suppliers, and standardize supply-chain synergies throughout the country.

Train the ISF medical logistics force. The SGIJF logistics chief has developed guidelines for building and maintaining a comprehensive awareness and training program as part of an organization's medical logistics program. This guidance is presented in a life-cycle approach, ranging from designing, developing, and implementing awareness and a training program to post-implementation evaluation of the program. The program includes guidance on how medical logistics professionals can identify awareness and training needs, develop a training plan, and get organizational buy-in for the funding of awareness and training program efforts.

Establish a biomedical maintenance program. A planned and well-orchestrated preventive maintenance program is regular and repetitive work done to keep equipment in good working order and to optimize its efficiency and accuracy. The SGIJF medical logistics office will promote regular, routine cleaning, lubricating, testing, calibrating and adjusting, checking for wear and tear, and eventually replacing components to avoid breakdown. This program includes the proper selection of equipment to be included in planned preventive maintenance. The SGIJF envisions a joint venture with the MoH to train and develop young engineers.

Regular Preventive Maintenance Performance

An important aspect of planned preventive maintenance is the participation and commitment of the users. Preventive maintenance should start with users, and the bulk of the work should be their responsibility. The user must perform preventive maintenance tasks daily, and the user must conduct joint activities with a technical engineer at the end of each week. Highly technical repairs, which are the engineer's responsibility, may be scheduled every 6 months.

The SGIJF medical logistics office knows that all equipment that is in the care of the service workshop should be recorded on cards. All relevant information about the equipment must be entered, including its location, records of repair and maintenance, and manufacturer. A reference number is given and written on a printed paper label, which is attached to each item. This number is recorded in a ledger of equipment with full identifying details.

Before beginning training, those who are qualified and available to do preventive maintenance must be identified. A list must be drawn up of personnel who are readily available. Once the personnel have been listed, specific responsibilities should be assigned, perhaps in the form of a work order, giving clear instructions for the task. Each person should understand his responsibilities. Job assignments must correspond to the training, experience, and aptitude of the individual.

The intent is to have two biomedical technicians per distribution center to assist in day-to-day maintenance. However, the maintenance depot will have the reach-back capability to augment regions on a case-by-case basis. If the MoH hospital staff includes a large number of well-trained, experienced individuals who are familiar with medical equipment, in-service training can easily assist MoD in gaining that technical edge.

Improvements Made

Improvements have been seen in the form of new policies and procedures that have been staffed and published to address operating processes for both the healthcare field and garrison operations. The policies set into their day-to-day operations include disposal of regulated medical waste and cold-chain management.

Other improvements accomplished within the warehouse management arena include properly staged oxygen containment, inventory tracking systems, medical unit requisition systems, the introduction of a truck fleet for the distribution of temperature-controlled medical supplies, and the implementation of wireless and satellite logistics enterprise systems.

The challenges facing the SGIJF medical logistics office are large and exceedingly difficult to address. These include a compromised system of expired supplies, poor inventory automation capability in regional warehouses, difficulty in keeping the SGIJF medical logistics office informed of regional shortages, and a limited range of vendors for resupply.

To tackle these problems, rebuilding the relationship with the different healthcare organizations and groups in the country is indispensible. The central challenge to this rebuilding does not lie in the repair of the physical and institutional devastation but in restoring confidence in any political arrangement put in place and in the mechanisms of conflict prevention in general.

The success or failure of Iraq will depend chiefly on whether domestic realities and dynamics are accurately understood and can be translated into a form of governance that sets priorities for healthcare provided by the Iraqi constituency.

Major Edwin H. Rodriguez is an Army Health Facility Planning Agency deputy program manager for Army Medical Department Research Laboratory projects. He served as the senior medical logistics planner and advisor for the Multi-National Security Transition Command–Iraq. He holds a bachelor's degree in biology from Inter American University of Puerto Rico and a master's degree in health service management from Webster University. He is a graduate of the Army Medical Materiel Management Program, the Army Medical Department Captains Career Course, and the Medical Logistics Management Course.

Defining the Requirement for Cargo-Carrying Unmanned Aerial Systems

by Major Richard G. Petersen

The United States Army Functional Concept for Sustainment 2016–2028 (Army Training and Doctrine Command Pamphlet 525–4–1), released on 13 October 2010, lists as a required capability of the future force the ability to move "critical supplies, personnel, and repair parts" to forward locations on the battlefield by air, using manned and unmanned systems. To bring this capability into being, Army sustainers must accurately define typical aerial resupply requirements.

Aerial resupply fills a key role in tactical logistics, especially at the brigade combat team level and below. Anecdotal stories of aerial resupply in combat abound, and the capability is essential in austere environments that have widely dispersed elements in the 30- to 60-kilometer range. In these operating environments, units receive routine resupply by air at locations that ground vehicles cannot reach. Aerial resupply is also frequently accomplished under "emergency" circumstances.

Determining the Type of Aircraft to Use

The Army Aviation Center of Excellence (USAACE) at Fort Rucker, Alabama, has a cargo unmanned aerial system working group to which the Army Sustainment Center of Excellence at Fort Lee, Virginia, has contributed logistics subject-matter expertise. USAACE recognizes the key role of aviation assets in combat sustainment now and in the future. The aviation community has three options for meeting this requirement: continue to use manned systems, use an optionally piloted vehicle (a conventional aircraft adapted for unmanned flight), or develop a cargo-capable unmanned aerial vehicle. The likely option will be a combination of conventionally manned and optionally piloted vehicle systems in the midterm (2016 to 2025) and longterm (2026 to 2035) until the Army has the capability to fly most aerial sustainment missions using unmanned platforms after 2035.

Although virtually anything needed by troops in combat can be flown to them, the most common items are rations, ammunition, fuel, repair parts, and mail. The weights and quantities of these items can be large, even for small teams or squads. It takes more than 4,000 pounds of cargo capacity to bring enough rations to feed 50 Soldiers for 14 days.

Remote locations that have artillery systems or mortars providing fire support to combat operations demand thousands of pounds of ammunition, often daily. One 500-gallon fuel pod weighs over 3,400 pounds but can provide enough fuel to generate electrical power and heat for a platoon-sized unit for up to a week. Repair parts for critical combat systems are needed right now. The U.S. Postal Service allows mailers to send a package of up to 70 pounds to a Soldier. If 25 Soldiers in a remote element are each sent a package from home weighing 70 pounds, that comes to 1,750 pounds.

Advanced Mobility Experiment

In January 2011, the Sustainment Center of Excellence participated in an advanced mobility experiment hosted by the Boeing Company at its Virtual Warfare Center in Saint Louis, Missouri. Based on combat conditions in Afghanistan, the simulation assessed the desired mission capabilities, concepts for employment, and value of unmanned aerial cargo platforms in the joint force. Participants role-played an air mobility operations cell, a theater-level remotely piloted aircraft cell, a combined joint task force headquarters, a brigade aviation officer, a joint tactical air coordination cell, a brigade mission command cell, and an opposing force cell.

The results of the experiment indicated that a tactical-level unmanned cargo aircraft ideally would be capable of carrying 4,000 to 6,000 pounds. The experiment results also indicated that if unmanned, intratheater lift existed, it should be capable of carrying up to 18,000 pounds of cargo. The results showed that an unmanned cargo system introduces an enhanced ability to provide sustainment from its point of origin directly to its point of need.

Sustainers now and in the future will have no shortage of critical, time-sensitive cargo missions that they will ask the aviation community to perform. The need for expanding unmanned aircraft system capabilities into cargo missions across all the services requires an active partnership between the Sustainment and Aviation Centers of Excellence. For its part, the sustainment community must lead the way in defining typical aerial resupply requirements because sustaining small tactical elements will remain a very big task.

Major Richard G. Petersen works in the Force Development Directorate of the Sustainment Center of Excellence at Fort Lee, Virginia. He holds a B.S. degree in aviation science from San Jose State University and a master of military art and science degree from the Army Command and General Staff College, and he is currently working on an M.B.A. degree from the University of Maryland.

Logistics in Asymmetric Conflicts

BY EYAL ZIV

An Israeli and his colleagues examine several contemporary operations to determine what characterizes logistics in low-intensity conflicts.

In conducting the studies that resulted in our book *Logistics in Asymmetrical Conflicts*, my coauthors, Dr. Haim Shnaiderman and Dr. Hanan Tell, and I found that while asymmetric conflicts are more common than conventional warfare, little research had been conducted about logistics in asymmetric confrontations.

In fact, even Israel, which has not really been at peace since its establishment almost 64 years ago, fought its last conventional war more than 30 years ago. Since then, the Israel Defense Forces (IDF) has fought battles against insurgents and terrorist organizations in Lebanon, the West Bank, and the Gaza Strip. So we decided to bring the subject of logistics in asymmetric conflicts to the forefront of military discussions in a book.

National Perspectives on LICs

Our book discusses theories of low-intensity conflicts (LICs) and asymmetric contingencies and the conduct of civil and military logistics. We looked at LICs from the American, Soviet, and Israeli perspectives. We found out that each country adopted its own definition of the subject in light of its specific political and geographic situation.

The American perspective sees LIC as a spectrum of ways to conduct warfare that is below conventional war and includes peacekeeping and humanitarian missions and counterinsurgency missions on a global scale. The Israeli perspective is quite similar to the American, but it emphasizes LIC as a way to combat terrorism and insurgency along its own borders. The Soviet Union saw LIC from the opposite perspective, as a way to attack mainly western forces using insurgents as proxies. This perspective changed when the Russian Federation—the successor to the Soviet Union—had to counter Chechnyan insurgents.

Logistics Principles and Case Studies

We concluded that, in most cases, nine common principles determine logistics success: simplicity, flexibility, feasibility and attainability, economy, information, dispersion, continuity and coordination, timeliness, and responsibility.

We then analyzed logistics in asymmetric warfare through case studies of the Soviets in Afghanistan and the Russians in Chechnya; the U.S.-led coalitions in Somalia and Iraq (Operation Iraqi Freedom 04–07), using the American perspective; and North Atlantic Treaty Organization (NATO) forces in Bosnia-Herzegovina and Kosovo.

We also studied how the IDF sustained its asymmetric contingencies in the West Bank, during Israeli control of its self-declared security zone in Lebanon (until 2000), during Israeli control in the Gaza Strip (until 2005), and during the last war in Lebanon against Hezbollah in 2006.

Observations on LIC Logistics

We noticed a few differences among the conflicts. The Soviets, the Russians, and the Israelis handled conflicts within their territories or in territories along their borders, while the Americans and NATO forces led coalitions far from their homelands in conflicts supported by host nations.

Most of the conflicts were operations against insurgents and terrorist organizations. In fact, the only conflict against a sovereign nation was NATO's operation in Kosovo; this model was repeated recently during the conflict in Libya.

Most asymmetric conflicts were nonlinear and did not feature any real front lines. Logistics forces were typically caught in the line of fire and sometimes were targeted by the enemy. In some situations, the civilian population also received humanitarian support from military logistics forces; this strategy was aimed at easing pressure on the combat forces that dealt with insurgents by earning the trust of the locals.

The militaries had to adopt new concepts and tactics and use unconventional logistics tools. In most cases, the logistics forces had to adopt and improvise solutions.

For instance, water supply was often a problem. The water available in Iraq, Afghanistan, and Somalia had to be purified and distributed by means other than water tankers. In urban fighting in Iraq, Chechnya, the West Bank, and Gaza, enemy fire and close-range fighting made water distribution difficult. In most cases, the immediate solution was to provide water in small bottles.

While examining maintenance efforts, we found that in most cases regular and preventive maintenance procedures were insufficient and equipment broke down frequently. Most militaries adopted tailored maintenance procedures, like special squads of mechanics in Afghanistan and Bosnia, or allocated equipment for local use only (in the IDF, this type of equipment is called "line-equipment for territorial use only") or adopted new mean time to repair-based procedures.

In most conflicts, the method of medical evacuation was changed dramatically. The conventional medical evacuation procedures simply did not fit the situation in the field. Most conflicts required widespread and close-to-combat medic coverage because of the dispersion of combat forces, usually within urban areas. Dispersed medics and forward surgical troops within the combat units had to reach injured personnel as fast as they could and perform fast land and air evacuations straight to hospitals (a procedure called "scoop and run").

Tactical transportation and distribution was a problem in most cases because of the nature of the conflicts, with enemy personnel surrounding bases and routes and disguising themselves as civilians. In some cases, transportation platforms were lacking. To address those issues, militaries used armored vehicles to supply combat forces and relied heavily on local subcontractors to perform ad-hoc missions.

Characteristics of LIC Logistics

We identified 13 LIC issues that affect the 9 common logistics principles.

Reduction of buffers. During conventional warfare, the logistics formations differ at the strategic, operational, and tactical levels; each level has its own clear responsibilities. However, the logistics formations in asymmetric conflicts became more modular and very much tailor-made. As a result, logistics buffers between levels are usually reduced.

Continuous learning. Unlike conventional conflicts, most asymmetric conflicts take years to end. It took 3 weeks to crush the Iraqi army in 2003, but the ensuing operations in Iraq continued for 8 years. Because of the longevity of asymmetric conflicts, there is time to learn lessons (which insurgents do as well) and adopt new tactics regularly.

Spectrum of logistics solutions. The changing intensity of LICs requires militaries to use a wide range of logistics solutions to sustain combat forces. Maintaining flexibility to sustain combat forces is needed at all times using a wide range of supply, medical, maintenance, and transportation solutions.

"Just in case" philosophy. Unlike conventional conflicts, where resources are scarce and are managed to meet urgent needs, LICs are likely to require many more resources, such as provisions, equipment, and medics. Increased resources are needed to meet the demands of unforeseen missions that arise from LICs and the need to have those resources nearby.

Logistics in hostile environments. In conventional conflicts, logistics troops are usually operating one step behind the combat forces. During LICs, logistics forces often operate in a hostile environment and need to protect themselves from enemy attacks.

Detailed data management. The mass of forces and operations in conventional conflicts does not allow logistics commanders to control their resources in detail. During LICs, logistics commanders need to, and can, manage their operations with greater precision. Commanders in LICs tend to manage their supply levels in absolute numbers (as opposed to required percentages, as is common in conventional wars), have specific data on casualties, and know the exact location of each convoy. Conventional wars do not provide the time or the ability to manage resources in such a detailed manner.

Small headquarters. Deployment of combat forces often takes priority over deployment of logistics forces. As a result, in some LICs, small logistics headquarters are deployed quickly to provide urgently needed support. Therefore, in some cases, logistics headquarters have a short time for buildup and begin operations with a shortage of personnel. Personnel often are provided largely by reserve forces.

High tempo. The tempo of operations in LICs usually does not tolerate the conventional logistics tempo common during war. Medical evacuations are faster, supplies for combat troops need to be provided constantly, and equipment breakdowns are less tolerated by commanders. Therefore, logistics commanders need to provide fast solutions and be able to sustain forces in every situation.

Humanitarian aid. In some of the LICs we studied, humanitarian aid was the priority mission and logistics played a major role in providing that aid. An example is Operation Provide Relief in Somalia. During LICs that were not oriented toward humanitarian aid, providing supplies and medical treatment to civilians eased the pressure for logistics support from combat troops and local political leaders by preventing humanitarian catastrophes.

Use of permanent infrastructure. LICs are usually static and enable deployed forces to use local infrastructure.

Use of aerial logistics. Most LICs are executed in an environment in which threats to aircraft are relatively low and there usually is no shortage of aerial platforms for logistics functions such as supply and medical evacuations. Therefore, logistics support can be much more flexible by using helicopters and airplanes to support logistics operations and bypass enemies threatening logistics routes on the ground.

Outsourcing. Outsourcing is an old technique used to sustain armies in foreign territory. History records countless examples of outsourcing food supply, transportation, and barracks for troops. Modern war has somewhat neglected the use of outsourcing because of the speed of modern combat, which relies on military convoys and military logistics solutions. The static nature of LICs and their duration have made outsourcing a useful and economic way to sustain troops.

Extensive reliance on information technology. Reliance on information technology and other new technologies is not characteristic of conventional warfare. How-

ever, the high demand for accurate, online information for decisionmakers has made information technology platforms important for logistics in LICs. The United States has used newly adopted technologies, such as radio frequency identification and total asset visibility systems, as strategic enablers. The IDF is adopting the new Tzayad Digital Army Program as a main platform to transfer data from the field to headquarters.

Impact of LICs on the Logistics Principles

When we examined how the 13 characteristics we identified affect the 9 common logistics principles, we found that some of the principles fit the nature of LIC logistics and others do not. We also suggested two new principles that should be adopted by militaries engaged in LICs: survivability and dynamic endurance.

Simplicity. Simplicity emphasizes finding simple solutions in difficult situations. We found that because of the differences in military situations, sometimes within the same region, and the high tempo and the broad spectrum of contingencies, simplicity is hard to achieve in LIC logistics. In fact, emphasizing simplicity can be the exact opposite of what is needed on the ground when complex solutions are required. Therefore, simplicity does not apply to LIC logistics.

Flexibility. Flexibility is one of the bases of the ability to sustain troops during LICs and is an important logistics principle.

Feasibility and attainability. By their nature, LICs are relatively long operations that require high levels of resources. So it is important that they be based on feasible and attainable objectives.

Economy. The nature of LICs contradicts the economy principle. Commanders prefer to have as many resources as they can, even in excess of actual needs, just to be on the safe side.

Information. Since one of the characteristics of logistics in LICs is the need to accurately and quickly process data on line, information is a key principle of LIC logistics success.

Dispersion. Although combat troops in LICs disperse, their sustainment is mainly centralized. Unlike conventional conflicts, where combat troops at the battalion and brigade levels are mainly self-reliant, the logistics solutions during LICs are usually provided by the central and regional levels. The only cases we found in which dispersion of logistics forces was implemented was during deployment of medical troops. Therefore, we conclude that, for the most part, dispersion is not a principle of logistics in LICs.

Continuity and coordination. Although continuity and coordination in LICs are relatively hard to achieve, we found that this principle is important and supports sustainment efforts.

Timeliness. Timeliness is critical to success during LICs. The tempo of the conflicts and the importance of tactical missions that sometimes affect strategic decisions make it an important principle.

Responsibility. This principle calls for defining the level of responsibility of each headquarters and commander in each stage of an operation. It sometimes requires defining the responsibilities of each country to sustain forces in coalition operations. During international operations such as NATO operations, the principle of responsibility reflects the need to define the role of each participating country.

We added two new principles:

Survivability. The principle of survivability was adopted by a few armies, but it is not very common. We found that it is critical for logistics troops to develop survivable platforms and procedures in order to sustain combat troops.

Dynamic endurance. Endurance is the ability to withstand hardship or adversity. We defined dynamic endurance as a principle that emphasizes the need to sustain forces during contingencies throughout a conflict until its end, even if it takes years.

In the last chapter of our book, we looked at the history of how military revolutions appeared and at current and future trends in warfare. Modern theories like the revolution in military affairs, the fourth generation of war, and others suggest that asymmetric warfare will dominate future confrontations and replace traditional linear battles.

As a consequence of this trend in warfare, we expect logistics to evolve into three operational levels. Frontline logistics will be divided into two sublevels:

- Logistics platforms and resources placed with combat units that will enable greater self-reliance than those forces have today.
- A dynamic logistics network that will be composed of modular logistics units that will be able to sustain all types of combat troops within their areas of logistics responsibility. This line of thinking, which is similar to a cellular phone network, has started to develop during LICs, especially in the IDF.

Strategic logistics based in both the homeland and the host nation will support the theater with strategic resources and will stretch strategic resources toward the meeting point with the frontline logistics troops.

Eyal Ziv is a technical and quality manager at Nestle Nespresso Israel and a lieutenant colonel in the Israel Defense Forces (IDF) Reserve. He co-wrote* Logistics in Asymmetrical Conflicts *during his active service as a logistics officer in the IDF technology and logistics branch while he served as a research fellow in the logistics department at Barllan University. He has a B.A. degree in logistics and economics from Barllan University and a master's degree in business administration from Ben-Gurion University.

Logistics in Reverse: The U.S. Intervention in Siberia, 1918–1920

by Alexander F. Barnes and Cassandra J. Rhodes

In the chaos following the Russian Revolution and Russia's withdrawal from World War I, U.S. forces were deployed to Siberia and northern Russia. This little-remembered mission offers some interesting lessons in strategic logistics.

The American Soldier patrolling the switching yard in Verkhne-Udinsk, Russia, slapped his hands together to warm them. He grabbed the sling of his rifle and shifted the heavy weapon from his right shoulder to his left. Though his heavy coat had been sufficient protection against the weather 2 months earlier when the 31st Infantry Regiment had arrived from the Philippines, it was not working well now. Adding to his discomfort was the statement from his platoon sergeant that this was just the start of the winter season.

He hoped that the relief guard would arrive soon so he could return to the barracks and get warm. At least this time he had something interesting to tell the guys back in the warehouse building they called home. During his guard tour today, two trains had passed through, heading west into the snowy distance. The first train was filled with Japanese infantrymen on their way to guard another stretch of the long railway. Shortly afterward, a second train passed by, this one filled with Chinese soldiers on a similar mission.

Wherever they were going was just fine with the American sentry. He was just as deep inside of Siberia as he ever wanted to be. If America's Japanese and Chinese allies wanted to head deeper into Russia, they could go with his best wishes.

U.S. Army involvement in military coalition operations is something that we take for granted in our current environment. However, the first real instance of U.S. forces serving on foreign soil with the armed forces of other nations did not occur until the 1900 campaign against the Boxers in China. However, the Boxer Rebellion was relatively short lived and involved only a small contingent of U.S. Soldiers and Marines.

The first U.S. participation in coalition operations on a massive scale occurred less than 20 years later, when over 2 million American doughboys deployed to France in 1917 and 1918 to support the Allied countries of Great Britain, France, Italy, and Russia in their struggle against the German and Austro-Hungarian armies. A plethora of material describes the U.S. Army's actions in World War I and its important role in ending that conflict. What is not so well known is our Nation's participation in two separate campaigns that continued even after the war had ended. What is even more significant is that both of these campaigns took place in Russia.

In this article, we will examine some of the logistics and operational considerations involved in the Siberian campaign of 1918 to 1920. In a subsequent article in the March–April 2012 issue of *Army Sustainment*, we will review the Army's involvement in the Northern Russia campaign.

Russian Revolution Leads to U.S. Involvement

To understand why the U.S. Army was in Russia requires a basic understanding of the events of 1917. Czarist Russia had entered World War I in 1914 as a full partner of Great Britain, Belgium, France, and a number of other smaller nations aligned against Germany, Austria-Hungary, and Turkey. By 1917, the war had changed the world dramatically. Belgium and a large part of France were occupied by the German Army. Soldiers from Great Britain and its Commonwealth were fighting German soldiers in Africa and Turkish soldiers in the Middle East. Most significantly, Russia's woeful performance in the war had provided the spark to light the fuse of civil war and revolution in that nation.

The Allies, primarily Britain and France, were barely holding the line in France and feared the arrival of fresh German units should the Russian Army be knocked out of the war. They had sent massive amounts of military aid to the Czarist Army in a vain attempt to keep Russia active in the war.

However, Russia's greatest asset, its enormous landmass, had also proven to be its fatal handicap. The Russian ports of Archangel and Murmansk in the north near the Arctic Circle and Vladivostok in the Far East on the Pacific became giant depots containing military supplies of all types. Unfortunately, the infrastructure required to transport these supplies forward to the Russian Army did not exist, so critical supplies remained in

Warmly dressed doughboys use a truck to deliver mail and supplies to distant outposts of the U.S. forces spread over a large area of Siberia. *(Photo courtesy of the Army Military History Institute)*

place while the Czarist forces facing the German Army went without them. By 1917, an estimated 725,000 tons of supplies (including barbed wire, cars, trucks, tools, weapons, and ammunition) valued at over $750 million sat in the Vladivostok area alone. Over 4,000 miles away, the ports of Archangel and Murmansk had similar stockpiles.

Poorly trained, poorly led, and without the supplies and ammunition it needed, the Czarist Army collapsed. The Czar was forced to abdicate, and he and his family were taken prisoner by the revolutionaries. The Russian Government, controlled after November 1917 by the Bolsheviks (or Communists), was forced to agree to peace terms dictated by the Germans.

With Russia sliding quickly into chaos, the poorly equipped Communist "Red" forces tangled with the equally poorly equipped remnants of the Czar's Army and other anti-Bolshevik forces (usually referred to as "Whites.") Under these conditions, it was little wonder that the large stockpiles of supplies and equipment at the ports became of great interest to both sides.

Events had reached such a critical point in July 1918 that British, Japanese, and Chinese forces landed in Vladivostok to seize the port and prevent the local Bolsheviks from removing the supplies. A detachment of Marines from the USS *Brooklyn* also landed to protect the U.S. consulate facility in the port.

As the trench fighting on the Western front consumed the great majority of their armies, the British and French Governments looked across the Atlantic to their newest ally as another source of manpower. The United States had joined the fight against the Germans in April 1917 and was soon involved in building an army and deploying it to France. By early 1918, U.S. troops were beginning to flow through British and French ports en route to training bases before assuming actual combat duty in the trenches.

Against the counsel of his own military advisers, President Woodrow Wilson agreed to the Allies' request to provide military forces to protect the Russian supply depots and gave the order to divert 8,000 Soldiers to Siberia and another 5,000 to northern Russia. Most of the troops headed to Siberia were from bases in the Philippines (the 27th and 31st Infantry Regiments) and California, while the Northern Russia expeditionary force consisted primarily of the 339th Infantry Regiment, a largely draftee unit drawn mainly from the Midwest.

Though he probably harbored some doubts about the wisdom of sending U.S. troops to Siberia, Wilson had another reason for deploying them. Imperial Japan had already made some inroads into the Asian mainland and had been looking to expand northward into Manchuria and western Russia. Using their role as an ally of Great Britain and France as justification, the Japanese quickly agreed to send military forces into Siberia. It was Wilson's hope that perhaps the presence of American troops would prevent further Japanese encroachment into that area.

The Czech Legion

When it arrived at Archangel in September 1918, the 339th Infantry Regiment found itself part of a multinational force consisting of British, French, Italian, and Canadian soldiers under the command of a British brigadier general. Thousands of miles farther east, in Siberia, the U.S. forces became part of a much larger Allied command that included 70,000 Japanese soldiers and smaller groups of Chinese, British, French, Canadian, and Romanian troops. Also awaiting the Americans in Siberia was an unusual organization known as the "Czech Legion."

Consisting mainly of Czech and Slovak soldiers hoping to gain support in their quest for an independent homeland, the Czech Legion had become a significant presence in Russia. Numbering almost 50,000 men, the legion had served in the Czarist Army against the Germans and their Austrian allies. With the collapse of the Czarist government and subsequent Russian peace arrangements with Germany, the legion's presence in Russia became an international issue. The Germans wanted them disarmed, the Bolsheviks wanted them out of Russia, the Allies wanted them out of Russia and transported to the Western front to fight the Germans,

U.S. Soldiers march down one of Vladivostok's streets, followed by units of the Chinese and Japanese armies. This Army Signal Corps photo provides evidence of the coalition aspect of the Siberian expeditionary force. Note the presence of the traditional droshky Russian horse carts used for transportation, along with the automobiles and trolley car.

and the Czechs just wanted to go home.

In the end, the Allied position prevailed, and it was decided that the legion would move eastward through Siberia and exit via Vladivostok en route to the Western front. However, as the best-trained and most well-equipped force in Siberia in 1918, the legion soon found itself fighting the Bolsheviks in support of the White Russians. They were especially vigorous in fighting for control of their ticket out of Russia: the Trans-Siberian Railway. Because of their earlier less-than-favorable experience as part of the Czar's army, the legion's soldiers also had no great love for or loyalty to the White Russians.

With the end of the war in November 1918, the legion, weary of the tension and double-crossing coming from both the Red and White Russians, began to act as an independent force and seized parts of the Trans-Siberian Railway in their quest to move eastward and out of the country. Ultimately, the Czech legion was able to successfully depart Russia by 1920 and return home to the newly formed Czechoslovakia.

The Trans-Siberian Railway

Historically, the sequence of events in a military expedition starts with the deployment of combat forces and is followed by a buildup of the logistics and distribution capability required to support those forces. What was taking place in Russia was just the opposite: War materiel was already in place, and the combat forces were being deployed to ensure the safety and proper distribution of that materiel.

Complicating the mission further was the fact that, with the signing of a peace treaty between Germany and the provisional revolutionary Russian Government, the Allied soldiers were not exactly sure to whom they were supposed to issue the supplies. Along with safeguarding those supplies, the newly arrived Allied forces were also expected to maintain and protect the critically important logistics pipeline provided by the Trans-Siberian Railway.

The railway's construction was initiated by the Russian royal family in the late 19th century. Its main purpose was to connect Moscow with Vladivostok on the Pacific coast, allowing better travel and communication for the Russian people. The Trans-Siberian Railway was actually a set of three routes that ran from northern Russia all the way to China, making it the longest rail route in the world—stretching approximately 5,700 miles.

Russia's leaders had hoped that building this railway would entice Russian citizens to move to Siberia, thereby increasing the Russian population in that sparsely-populated region while reducing the overpopulation of the westernmost Russian cities. Along with some success in moving the Russian population eastward, the railway became a vital link for Russia's trade and industry by providing direct access to Vladivostok, Russia's largest Pacific port.

Unfortunately, after many years of poor maintenance, by 1917 the Trans-Siberian Railway had fallen into disrepair and was dilapidated along many stretches. To address the problem even before he agreed to commit U.S. Army forces to the area, President Wilson decided that the United States would organize what became known as the Russian Railway Service Corps. The corps was an all-American organization, consisting of railway experts and engineers, that was tasked with the sole purpose of inspecting, analyzing, and providing expert advice on the tracks and trains within the Russian railway system.

Similar in many ways to today's Logistics Civil Augmentation Program (LOGCAP) contracting efforts, these experts were expected to provide their services on site and in direct support of the military operation. Wilson even had these men appointed as officers in the Army and issued uniforms. Along with sending this organization of professional railroad men, the United States also provided 300 locomotives and over 10,000 railroad cars.

A short while later, in 1919, the Allies Inter-Allied Railway Agreement to provide better management and control of the railroad. The Allies recognized the continued importance of the railway to the logistics support of their forces and the Whites, so they decided

that the United States, China, and Japan would each patrol and maintain a portion of the railway.

Ultimately, control of the railroad in its role as the logistics pipeline became the key to most operational decisions made in Siberia. However, the complexities of distributing supplies, supporting the evacuation of the Czechs, and limiting Japanese expansion complicated the American mission far beyond Wilson's original intention.

U.S. Army Relations With Red and White Russians

Making matters worse was the inconsistent behavior of the White Russian forces in Siberia. As non-Bolsheviks, these forces were the logical claimants for the Allied military supplies. The nominal leader of the White Russians in Siberia was a former Czarist naval officer, Admiral Alexander Kolchak. The bulk of his anticommunist forces were deployed fighting the Reds in western Siberia. However, the White Russian warlords operating in eastern Siberia, while ostensibly fighting Red guerilla bands, appeared to be more like opportunistic bandits than anticommunists.

Among the worst of these was Grigori Semenov, a former Czarist Army officer. Major General William Graves, the overall commander of the U.S. forces in Siberia, called Semenov "the worst scoundrel I ever saw or heard of." Semenov commanded a number of armored trains carrying fuel, weapons, troops, and supplies and thus had the mobility to move quickly through the vast open spaces of Siberia.

Semenov also had a number of prison trains used to transport Bolshevik prisoners of war. His prisoners often either were executed along the way or slowly starved to death. U.S. Soldiers guarding the railroad learned to dread the appearance of these trains because of the awful stench of the dead and dying prisoners coming from the railcars.

Ironically, after the Reds completed the conquest of Siberia, Semenov fled to the United States seeking asylum. When his request was refused, he returned to Asia. He was eventually captured and hanged by the Soviet Army after the end of World War II.

Initially, the Bolshevik leaders in Siberia had avoided direct confrontation with the U.S. forces, preferring to stay away from those areas where the American Soldiers were stationed. In the summer of 1919, this relatively peaceful period came to an end when the 31st Infantry Regiment fought a series of small but violent battles against Red units.

Attempting to keep the rail lines to the coal mines near Novitskaya open, the "Polar Bears" (as the members of the 31st soon became known) quickly found themselves in a struggle against the local Red forces. The coal mines were a critical fuel source for the Trans-Siberian Railway, and the scattered units of the 31st fought a series of sharp outpost skirmishes attempting to maintain access to the coal supply. The 31st suffered the highest American casualties of the entire campaign during these actions, with over 30 Soldiers killed and more than 50 wounded. They also lost 139 Soldiers to disease and accidents.

Disenchantment and Withdrawal

By January 1920, most of the U.S. Soldiers in Siberia had come to doubt the true value of their presence in Russia. The logistics stockpiles they had been sent to protect and distribute were dwindling more from pilferage than from being issued to anticommunist forces. Of the supplies they managed to send westward to support Kolchak's forces, many were captured by the advancing Red Army. In one dismal episode, the Whites lost 40 cannons, nearly 1,000 machineguns, and several thousand railcar loads of supplies before they could even be issued.

Supplies required by the U.S. forces to support their own operations defending the rail lines often took 6 weeks to arrive. At times, the temperature was 40 degrees below zero, and while the Soldiers were equipped with fur boots, hats, and gloves, they had no furlined coats. The troops subsisted primarily on a diet of corned beef and hardtack crackers, and they learned to survive by trading with local inhabitants whenever possible. One Soldier wrote that his basic pay came to "about eighty-six cents a day," and even that was usually 6 weeks late in arriving.

Even worse, the railroad the U.S. Soldiers had been ordered to guard and maintain was being used by Semenov's renegade White Russian forces to prey on the local population. As could be expected, each atrocity committed by the White forces drove more of the local citizens into the Bolshevik camp. As a result, one White Russian officer reported, "Even women and twelve-year-old children are fighting against us." In fact, relations between Allied and White forces reached an all-time low when U.S. Soldiers from the 27th Infantry Regiment (still known today as the "Wolfhounds" because of their Siberian service) attacked and captured the *Bronovik*, one of Semenov's heavily armored trains, at the cost of four American lives.

Fortunately for the U.S. forces in Siberia, the U.S. Government had also finally reached the same opinion of the expedition that the Soldiers had. In April 1920, the U.S. forces were withdrawn from the Russian mainland and returned to their bases in the United States and the Philippines. The large Japanese contingent remained in Siberia for 2 more years, supporting the remnants of the White forces and still serving as part of Japan's plan for expanding its influence in that region.

Lessons Learned

What lessons can we take away from the U.S. campaign in Siberia? We believe there are several.

In coalition operations, pick your teammates wisely. Don't fall for the popular saying, "The enemy of my enemy is my friend." On the contrary, sometimes avoiding a fight altogether is the best strategy. It should be obvious, in hindsight, that the U.S. Government had no business sending the Army to Siberia in 1918. Granted, the British and French had proven themselves to be staunch Allies on the Western front, but for the good reason that American manpower and American industrial strength were needed in their fight against the Germans. While most of the world was sympathetic to the plight of the Czech Legion, the addition of U.S. forces to the volatile mix in Siberia did little or nothing to resolve that problem.

Preventing Japanese expansion into Siberia would have required many more U.S. Soldiers than were available for the task. With the Japanese islands only a few hundred miles from Vladivostok, Japan's ability to deploy and sustain a force in Siberia was much greater than that of the U.S. Army, whose supply chain stretched much farther—to the Philippines and several thousand miles beyond to the west coast of the United States.

In a quirk of fate, the 31st Infantry Regiment encountered the Japanese Army again only 22 years later while defending the Philippines against Japanese invasion. Sadly, this time the 31st was forced to surrender to their former Siberian expedition comrades. Even more sadly, the American intervention in Siberia (and in Northern Russia) later became valuable fuel for the Communist propaganda machine. In a tirade against U.S. imperialism, Soviet Premier Nikita Khrushchev would boast, "Never have any of our soldiers been on American soil, but your soldiers were on Russian soil. Those are the facts."

The inherent value of military supplies cannot be overestimated. Far beyond just the dollar cost to purchase them, military supplies being provided to another nation become a national resource for both the giver and the receiver. Recovering and protecting those supplies is a valid military mission, provided that it can be accomplished. All of the U.S. and Allied efforts to keep the Trans-Siberian Railway secure and send supplies across several thousand miles of Siberia eventually failed because the White Russian commanders lacked the capability and the desire to issue the supplies to their troops.

As the United States would unhappily discover again in China during World War II, to a warlord, large amounts of military supplies and modern weapons are actually more valuable in storage than in the hands of his troops. In storage, they provide tangible evidence of the support of "powerful" friends, whereas, if issued to soldiers, they actually might be turned against the warlord.

Protecting and operating a logistics pipeline is the key to operational success, but maintaining discipline within that pipeline is equally important. At various times during the Siberian campaign, military forces and supplies being moved to the front were delayed to allow refugee or dignitary trains priority passage on the rail lines. Even the deployment of the paramilitary Railway Service Corps to operate the railroad was plagued with problems. The chaotic conditions they encountered in December 1917 upon arriving at Vladivostok caused them to leave the country. It was another 3 months before they would return to begin their work.

Given an impossible mission, U.S. Soldiers proved resilient and performed admirably under the most extreme conditions. Their ability to persevere despite daily uncertainty about who their real allies were and to maintain security for their assigned section of the Trans-Siberian Railway is unquestioned. The eventual collapse of White forces and the final victory by the Reds were most likely inevitable because of circumstances well beyond the control of any of the Allied forces.

In the article in the March–April 2012 issue of *Army Sustainment*, we will see that the Americans who were deployed to northern Russia took a much more active role in fighting against the Reds under even harsher environmental conditions. Ultimately, that campaign also led to many painful, frustrating, and controversial episodes in dealing with coalition operations and "logistics in reverse."

For now, we can wrap up the Siberian campaign by using the observations of two of the actual participants. One Soldier wrote a poem describing his Siberian experience that included the stanza, "And the average American soldier/Would rather be quartered in hell." Another participant commented many years later, even more poignantly, while talking about the death of his best friend from pneumonia, "He was buried in a wooden box about three feet in the ground . . . As far as I know, his remains are still in Siberia."

***Alexander F. Barnes is a logistics management supervisor in the Enterprise Systems Directorate of the Army Combined Arms Support Command at Fort Lee, Virginia. A former enlisted Marine and Army warrant officer, he holds a master's degree in archeology from the State University of New York at Binghamton. He is the author of* In a Strange Land: The American Occupation of Germany 1918–1923.**

Cassandra J. Rhodes is an inventory management specialist for the Defense Logistics Agency. She holds a bachelor's degree in international studies with a concentration in Russian and Eastern European studies from Virginia Commonwealth University and a master's degree in national security studies from American Military University.

Army Logistics and Its Historical Influences

BY MAJOR MICHAEL F. HAMMOND

In "The Western Way of War," the introduction to the textbook *The Cambridge History of Warfare*, Geoffrey Parker describes the characteristics of the western way of war as having five distinct features. First, western armed forces have relied on superior technology to compensate for numerically inferior forces. Second, discipline, rather than kinship, religion, or patriotism, is the primary factor in building organized military units. Third, the western way of war and traditions have shown a continuity of military theory. Fourth, the western way of war preserves the ability to change as well as conserve military practices as the need arises. Lastly, western armies have the resources to finance those changes.

All five of Parker's characteristics of the western way of war can be applied when examining the rise of the large, nationally sponsored armies of Napoleon's France and the Prussian Empire. Superior technologies in both armies led to their success in war. The extreme discipline in their ranks was distinctive when measured against other armies of their time.

Learning From the Past

Antoine-Henri Jomini and Carl von Clausewitz were French and Prussian military theorists, respectively, and their practices were used for decades after their time. In terms of logistics, their military procedural innovations greatly influenced planning and execution during the French and Prussian wars of the 19th century. Napoleon's generals and Prussia's leaders preserved their abilities to change logistics practices to meet the challenges of sustaining large armies.

From a historical perspective, Napoleon's and Prussian military leaders' procedural revolutions in the application of logistics in warfare directly influence the modern-day functions of military sustainment in Iraq and Afghanistan. The opportunity for American military planners to study and learn historical logistics practices leads to the success of American military planners in sustaining extended periods of combat.

Napoleon's Logistics Innovations

The logistics deficiencies faced by Napoleon in fielding a large national army presented problems on a scale not seen before. To address these problems, Claude-Louis Petiet, head of the French Army's organization responsible for supply, developed four war commissionaires: baking of bread, transportation, foraging, and meat processing. Each commissionary was related to an element of supply.

Before these military reforms were instituted, Napoleon's commanders did not allow French Army units to forage for fear of large-scale desertions. However, the new separate logistics system allowed French soldiers to forage.

Military campaigns and operations were tied to regular supply and sustainment by wagons or supply magazines. French commanders exercised restraint in movement in order to not outrun supply trains and lines of communication. Movement required extensive planning to ensure the safety of lines of communication and supply.

Before Napoleon's campaign at Austerlitz in 1805, his Ministry of War, divided into commissionaires of supply and transportation, dealt with the administration and logistics issues for a large Army. Although Napoleon's army suffered huge losses in battle, the logistics innovations by Petiet sustained French soldiers until the onset of the Russian winter during Napoleon's invasion of Russia in 1812.

Napoleon encouraged the study of military practices and instituted several logistics-related reforms. He realized that the importance of requisitioning supplies by instituting a formal system makes up a large part of the art of war. His revolutionary practice of breaking a once unitary army into corps and divisions with allocated support units was critical to the success of future campaigns.

Antoine-Henri Jomini, a French military theorist, is most famous for his writings on the Napoleonic Wars. Like Clausewitz, his insights were influential for decades after his time and are still studied by military students today. *(Photo courtesy of Clausewitz.com)*

Carl von Clausewitz, an early 19th century Prussian military strategist, is widely accepted as one of the most important strategic theorists. *(© Clausewitz.com)*

Prussian Logistics Transformation

The examination and conservation of military practices continued in the works of military leaders such as Clausewitz and Jomini, who analyzed Napoleon's campaigns and recognized that logistics was a crucial factor in military victories. In response to the writings and influences of these theorists, Prussian military leaders began a logistics transformation within their army. Defeats at the hands of Napoleon led Prussian leaders to reexamine the practices of their own army and institute reforms across a wide spectrum.

Gerhard von Scharnhorst and August Neidhardt von Gneisenau developed a comprehensive program of reform within the Prussian Army, beginning with the formation of the quartermaster general staff to handle logistics issues. Scharnhorst proposed the creation of the German general staff and cadet schools and promoted the idea that Prussian soldiers serve the nation instead of the longstanding tradition of serving as professional (mercenary) soldiers. He devised a general staff consisting of four divisions, with the quartermaster and adjutant general staffs as subordinate departments, whereas Gneisenau developed the concept of joint operations within the German general staff.

Helmuth von Moltke not only revolutionized the administration and logistics practices of the Prussian Army, he also instituted the use of Prussian railroads for military purposes. Because of Moltke's development of the Prussian Rail Service, Prussian soldiers did not suffer from logistics shortages during the Franco-Prussian War of 1870 to 1871. Moltke's railway innovations were engineering marvels of his time and allowed the Prussian Army to move huge armies to fronts very quickly to meet the French Army.

U.S. Application of French and Prussian Principles

Jomini, in *The Art of War*, defined logistics as a general science forming the most essential parts of the art of war. In keeping with the facets of Parker's "western ways of war" and preserving the ability to change as well as conserve military practices as needed, U.S. forces have responded to the ambiguity of counterinsurgency warfare by transforming logistics units and methodologies in Iraq and Afghanistan. The modern sustainment warfighting function is related tasks and systems emplaced to provide warfighters support and services to extend the freedom of movement, operational reach, and endurance of the force.

The integration of Army logisticians at all levels of command has been critical to U.S. success during military operations in Iraq and Afghanistan. Just as Napoleon and the Prussian General Staff used the concepts of integrating forces and anticipating logistics requirements, today's U.S. logistics units use the same principles in sustaining warfighters in Iraq and Afghanistan. U.S. warfighting doctrine presents a unifying influence and supports the coordination of efforts across levels of command. Joint logistics capabilities include supply deployment and distribution, maintenance, engineering, and health services. These provide critical sustainment and support to joint forces in Iraq and Afghanistan.

Today's Army continues to be a learning organization. Military leaders and planners continually study actions taken in war. Because U.S. forces have retained the ability to conduct change if necessary, they have retained their ability to adapt to enemy actions on the battlefield.

In Iraq and Afghanistan, enemy actions have resulted in significant changes in logistics practices. The United States has formed a brigade-focused Army that employs more logistics capabilities than ever before. Brigade commanders have a sustainment structure that responds to their operational needs. Army logisticians have eliminated redundancy, streamlined logistics support, and removed unnecessary layers of logistics command to extend the operational reach of the brigade commander.

Napoleonic and Prussian innovations in the application of logistics are directly tied to modern U.S. principles of sustainment and the sustainment warfighting function. The science of logistics continues to bridge the ever-changing art of war in the uncertainty of counterinsurgency in Iraq and Afghanistan. The Army can accomplish change in logistics because of its freedom to change when required and continue sound logistics practices.

MAJOR MICHAEL F. HAMMOND IS A STUDENT IN THE SCHOOL OF ADVANCED MILITARY STUDIES AT THE ARMY COMMAND AND GENERAL STAFF COLLEGE. HE HAS DEPLOYED THREE TIMES IN SUPPORT OF OPERATION IRAQI FREEDOM.

Sustainment Essentials of the Persian Gulf War

BY LIEUTENANT COLONEL JOSEPH R. KURZ

Discussions of the logistics of Operations Desert Shield and Desert Storm often concentrate on the problems that logisticians faced when deploying a large amount of material to Saudi Arabia. The author writes that despite these problems, a deployment of this magnitude in such a limited time was an amazing feat.

February 2011 marked the 20th anniversary of the end of the 1991 Persian Gulf War. Four essential factors led to the logistics success achieved during Operations Desert Shield and Desert Storm. First, force projection through strategic lift capacity was tremendous. Second, dedicated logistics command and control structures ensured that effective and efficient leadership existed. Third, joint reception, staging, onward movement, and integration (JRSOI) functions put the right capabilities in the right place at the right time. Finally, adequate sustainment of the Soldiers and their associated systems ensured operational reach and reduced the risk of early culmination for the force.

Strategic Lift

The magnitude of this deployment exceeded any previous deployment in U.S. history. In the span of just 4 months, the United States moved approximately 1,000 aircraft, 60 Navy ships, 250,000 tons of supplies and equipment, and 240,000 military personnel over an aerial distance of 7,000 miles and a nautical distance of more than 8,700 miles.

Pre-positioned ships contained the equipment of 2 Marine expeditionary brigades and 30 days of supplies for the 33,000 Marines who would fly in from the continental United States to provide an initial ground force within 10 days of notice.

The U.S. Cold War strategy built an enormous strategic airlift capacity with Active and Reserve military fleets and the Civil Reserve Air Fleet (CRAF). In activating the Reserve component fleets and CRAF, the United States had used only 39 percent of its full airlift capacity. By 10 March 1991, situation reports from the U.S. Transportation Command (TRANSCOM) reported that 16,203 strategic airlift missions had carried 500,720 passengers and 543,548 tons of cargo for Operations Desert Shield and Desert Storm. TRANSCOM sealift assets had carried 3,048,532 tons of dry cargo and 6,103,015 tons of petroleum.

These were astounding accomplishments by a force of persevering movement managers, considering that transportation management systems were not yet fully automated, early plans did not include exact destinations, and a lack of synchronization created inefficiencies in setting priorities.

In 1993, a RAND study, "Army Experiences with Deployment Planning in Operation Desert Shield," concluded that "support systems hindered operations." The Joint Operation Planning and Execution System at that time focused on deployment and planning and did not fully support mobilization, employment, and resupply activities.

However, at the end of the war, President George H. W. Bush publicly commended the deployment by saying, "No other nation could have even contemplated an airlift of this scale." Power-projection capability was a critical enabler that quickly gave the combatant commander options for arranging missions in anticipation of major combat operations.

Logistics Command and Control

As the number of deploying forces increased, so did sustainment requirements, overall complexity, and lines of communication connecting the combat units with their organic support structures. Because the XVIII Airborne Corps initially deployed its combat forces without its corps support command (COSCOM), the 1st COSCOM (which arrived months later), U.S. Army Central (ARCENT) established a provisional, general officer-level support command. Lieutenant General William G. Pagonis commanded the provisional 22d Support Command, which later became the 22d Theater Army Area Command after the VII Corps arrived along with its 2d COSCOM. Effective logistics command and control was essential for executing the JRSOI tasks.

JRSOI

The Kingdom of Saudi Arabia granted the United States, along with its western allies, essential access to seaports and airports, which allowed them to establish the intermediate staging bases critical to accomplishing JRSOI. Using existing infrastructure proved significant to staging forces after reception. According to a 1991 report by the General Accounting Office, "the Marine Corps used a new [Saudi Arabian] port at Al Jubail as its primary debarkation point and theater supply depot." The Air Force occupied existing Saudi Arabian "air bases that had airfields with hangers, living facilities, and mess facilities."

The U.S. Central Command established six logistics bases along two of the main supply routes (MSRs) within Saudi Arabia. Three logistics bases were set along the Tapline Road that ran generally east to west along the Kuwait-Iraq border, and three more logistics bases were set along MSR Dodge, which arced up through the middle of Saudi Arabia. Both MSRs offered excellent interior lines for the onward movement of forces. Each logistics base offered food, fuel, and ammunition to the onward-moving armored forces.

Integrating the ground forces from the assembly areas into the attack position required over 1,300 heavy equipment transporter trucks, of which only 112 (9 percent) were U.S. Army assets; most of the rest were provided by allied or host-nation partners. Before the start of the ground offensive, the VII Corps moved more than 330 miles and the XVIII Airborne Corps moved more than 500 miles. Moving two corps consisting of a combined eight divisions and two armored cavalry regiments was a monumental feat. Sustaining them was an even bigger one.

Adequate Sustainment

During the 6-month buildup of Operation Desert Shield, the VII Corps conducted maintenance on its vehicles. As a result, on the day that the Operation Desert Storm ground offensive began, operational readiness (OR) rates were 92 percent for M1A1 Abrams tanks, 92 percent for M2 Bradley fighting vehicles, and 95 percent for AH–64 Apache attack helicopters. However, it was not enough simply to build combat power. Logisticians also replaced lost combat potential. By the fourth day of the ground attack, OR rates remained high at 91 percent, 90 percent, and 94 percent respectively.

The XVIII Airborne Corps also maintained high OR rates on the first day of the ground offensive operation: 97 percent for Abrams tanks, 98 percent for Bradley fighting vehicles, and 90 percent for Apache helicopters. By day four, only the Apache helicopter OR rate had declined, down to 88 percent.

Army divisional units deployed with a 30-day supply of repair parts on hand through authorized stockage lists at direct support units and prescribed load lists at end units. The Air Force also benefited from the extensive buildup. Its aircraft OR rates averaged 93 percent despite the number of flight hours being two to five times higher than for normal stateside use. Air Force personnel boasted that they never missed a mission because of a lack of repair parts.

During the 6-months of Operation Desert Shield, each Army division daily consumed 345,000 gallons of diesel fuel, 50,000 gallons of aviation fuel, 213,000 gallons of water, and 208 40-foot trailers of other supplies ranging from barrier materials to ammunition. Saudi Arabia provided supplemental frozen or fresh food, including fruit, juices, and water, to augment the A-rations, T-rations, and meals ready-to-eat from the U.S. military supply systems.

General Colin Powell, the Chairman of the Joint Chiefs of Staff, commented, "Deterrence is only credible if we possess a robust means of power projection and the mobility to deploy and sustain our forces." Adequate force projection, dedicated logistics command and control, viable JRSOI, and vigorous sustainment were essential factors for the overwhelming logistics success achieved during the Persian Gulf War. These four essential factors highlight just a few aspects of the artful balancing of resources during Operations Desert Shield and Desert Storm, in which logisticians planned, coordinated, synchronized, monitored, and controlled logistics excellence.

Today's logisticians, who have been working in a mature theater for several years, can learn from the successes and failures of the logisticians who were responsible for rapidly opening a theater 20 years ago.

LIEUTENANT COLONEL JOSEPH R. KURZ IS THE DEPUTY DIRECTOR OF J–5 FUTURE PLANS FOR THE COMBINED FORCES SPECIAL OPERATIONS COMPONENT COMMAND–AFGHANISTAN. HE HOLDS A BACHELOR'S DEGREE IN PUBLIC ADMINISTRATION FROM THE UNIVERSITY OF CENTRAL FLORIDA, A MASTER'S DEGREE IN LOGISTICS MANAGEMENT FROM FLORIDA INSTITUTE OF TECHNOLOGY, AND A MASTER OF MILITARY ART AND SCIENCE DEGREE FROM THE SCHOOL OF ADVANCED MILITARY STUDIES. HE IS A GRADUATE OF THE ARMOR OFFICER BASIC COURSE, THE COMBINED LOGISTICS OFFICERS ADVANCED COURSE, THE LOGISTICS EXECUTIVE DEVELOPMENT COURSE, AND THE ARMY COMMAND AND GENERAL STAFF COLLEGE.

GFEBS Goes Global

BY FRANK A. DISTASIO, JR.

The most advanced financial management system in Army history, the General Fund Enterprise Business System (GFEBS), is now operational worldwide. When Secretary of the Army John McHugh and then Chief of Staff of the Army General George W. Casey, Jr., presented the 2011 Army Posture Statement to Congress, they stated, "Much more than an accounting system, GFEBS is the Army's new business system. It gives managers a greatly improved capability to manage the cost, schedule and performance of their programs and, at the same time, is the centerpiece in our progress toward full auditability of our financial statements."

The Army's new business system will provide the core financial systems capability to support an unqualified audit opinion for the Army's General Fund in compliance with the Chief Financial Officers Act and other statutory requirements. Mary Sally Matiella, the Assistant Secretary of the Army for Financial Management and Comptroller (ASA [FM&C]), noted, "We know what an audit-ready financial environment looks like and our audit readiness plan incorporates the necessary steps to get us there. . . . Fundamental to supporting an audit is being able to support every financial transaction all the way down to the details and supporting documentation."

GFEBS records financial transactions with supporting documentation, tracks transactions to the detailed level, and produces an auditable trial balance. The Army Audit Agency's most recent evaluation found that GFEBS complies with 1,054 of 1,113 requirements, or 94.7 percent, of the Federal Financial Management Improvement Act. Ongoing development of GFEBS will complete the remaining 5 percent for full compliance in FY 2012.

As the Army Posture Statement notes, GFEBS is much more than an accounting system because it capitalizes on the financial accounting structure to provide the first Army-wide cost accounting system. This allows allocating or assigning costs, producing full cost data, relating costs to outcomes and performance, and enabling cost planning and cost controlling. GFEBS also provides visibility of transactions in real time and of historical data, which enables the performance of analyses both to leverage available resources and to better inform program and budget decisions.

Kristyn Jones, the director of financial information management under the ASA(FM&C), recognized the transformational nature of GFEBS when she observed, "What we are talking about is a cultural change that involves moving away from success being measured by obligating 99.9 percent of funds. Instead, the focus must be on effective stewardship and making decisions that use resources wisely." She also noted that Army success "requires good data and good analytic skills on the part of our personnel—and again, not just the resource management staffs. Effective cost management is a leader's responsibility."

To develop a new system with the scope of GFEBS and to implement the solution worldwide with hundreds of organizations and thousands of users, GFEBS applied an incremental approach to both development and deployment. Development focused on a series of "releases," and deployment involved a series of "waves." GFEBS began implementation with a single organization at a single location on 1 October 2008; this was followed by a slightly larger implementation on 1 April 2009.

Since then, additional, larger-scale implementation waves have occurred in tandem with continuing development. On 1 April 2011, the Army added more than 7,600 new users in locations in the United States, Europe, and Korea. Then on 1 July, another 12,100 users from the Army National Guard were added—the single largest addition of new users—to complete the deployment in all 50 states and 4 territories. On 1 October, the Army added another 4,200 users.

GFEBS now has nearly 40,000 users from the Active Army, Army National Guard, and Army Reserve. It is the most widely implemented of the Army's Enterprise Resource Planning (ERP) systems. When fully deployed, GFEBS will engage close to 60,000 users at some 200 locations worldwide and have an impact on almost every Army organization and function.

GFEBS involves fully or partially replacing 106 information systems, interfacing with other systems (presently 45 systems), and reengineering business processes and data structures. With its latest release, GFEBS added functionality that includes an interface with the Army's Deployable Disbursing System (DDS), which enables GFEBS to support financial operations in overseas locations.

The second phase of the Army's federated concept for integrating ERP systems was completed between GFEBS and the Global Combat Support System-Army (GCSS–Army). This included synchronizing funds management and cost management master data between the two systems and consolidating cost management and execution reporting and funds management and financial reporting in GFEBS.

On 24 June 2011, GFEBS received a full deployment decision from Elizabeth McGrath, the program's milestone decision authority. This decision affirmed the deployment readiness of the GFEBS solution and authorized system implementation Army-wide. GFEBS deployment will conclude in 2012, resulting in a core system for managing a significant portion of the Army's General Fund and ushering in a new era in Army financial management.

For more information on GFEBS, visit the milWiki page at https://www.milsuite.mil/wiki/Portal:GFEBS.

FRANK A. DISTASIO, JR., IS THE GFEBS COMMUNICATIONS LEAD.

Campaign Planning Efforts in the 1st Sustainment Brigade

BY LIEUTENANT COLONEL TYRONE C. BENTINCK

The 1st Sustainment Brigade developed a campaign plan to help the brigade focus on how to achieve its strategic and operational objectives.

The 1st Sustainment Brigade deployed from Fort Riley, Kansas, to Kuwait in early spring 2010 and embarked on its mission as the Kuwait-based theater sustainment brigade. There it assumed responsibility for the largest retrograde mission since World War II.

To inspire the brigade, known as the "Durable Brigade," and prepare it for this monumental task, the brigade commander assembled some of his key leaders and staff, including the deputy commander, support operations officer (SPO), and operations officer, to develop a plan to focus and synchronize actions and emphasize unity of effort.

Soldiers from the 1st Sustainment Brigade practice combat drills, including changing tires on vehicles that have been disabled by improvised explosive devices. *(Photo by SFC Matthew Veasley)*

Planning Efforts

When we think of campaign plans or planning efforts, we conjure up images of service members in World War II, the Vietnam War, and Operations Desert Shield and Desert Storm being stuck in rooms draped with maps on the floors and walls. However, Field Manual (FM) 3–0, Operations, defines a campaign as a "series of related major operations aimed at achieving strategic and operational objectives within a given time and space." Therefore, a campaign plan is a document that depicts how a unit will achieve its strategic and operational objectives.

Campaign plans are normally found at the operational level—expeditionary sustainment commands (ESCs), theater sustainment commands (TSCs), or division headquarters—and the strategic level. Rarely do we find campaign plans at the tactical level (brigade or below). The 1st Sustainment Brigade, in its role as the Kuwait-based theater sustainment brigade, broke new ground among the Army's 14 active-duty sustainment brigades with its sustainment brigade campaign plan initiative.

Developing the Durable Campaign Plan

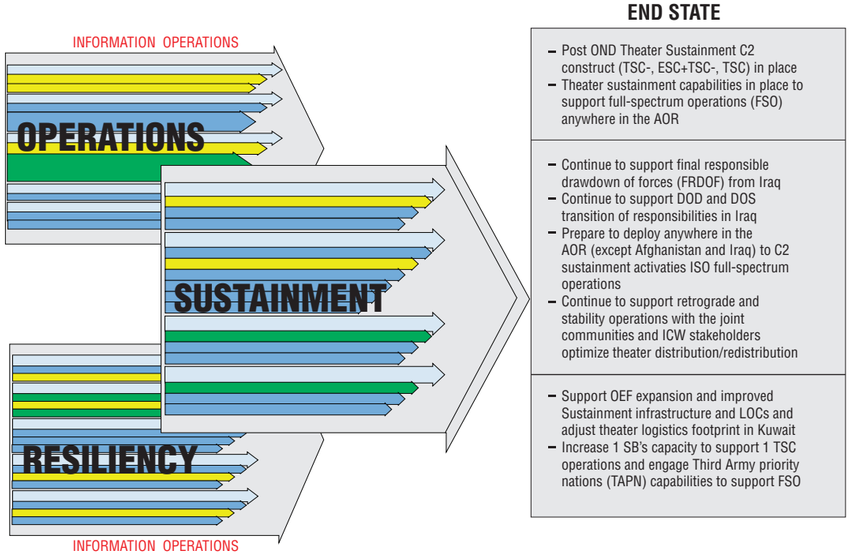
To facilitate the synchronization of efforts, the brigade SPO sat down with me, the SPO chief of plans, and crafted what would later become known as the "Durable campaign plan." FM 3–0 describes a line of operation (LOO) as "a line that defines the directional orientation of a force in time and space in relation to the enemy and links the force with its base of operations and objectives." The Durable campaign plan had three LOOs:

- ❑ Operations (supporting effort).
- ❑ Sustainment (main effort).
- ❑ Resiliency (supporting effort).

Each LOO had an assigned officer primarily responsible for it. The operations officer was responsible for the operations LOO, the SPO was responsible for the sustainment LOO, and the deputy commander was responsible for the resiliency LOO.

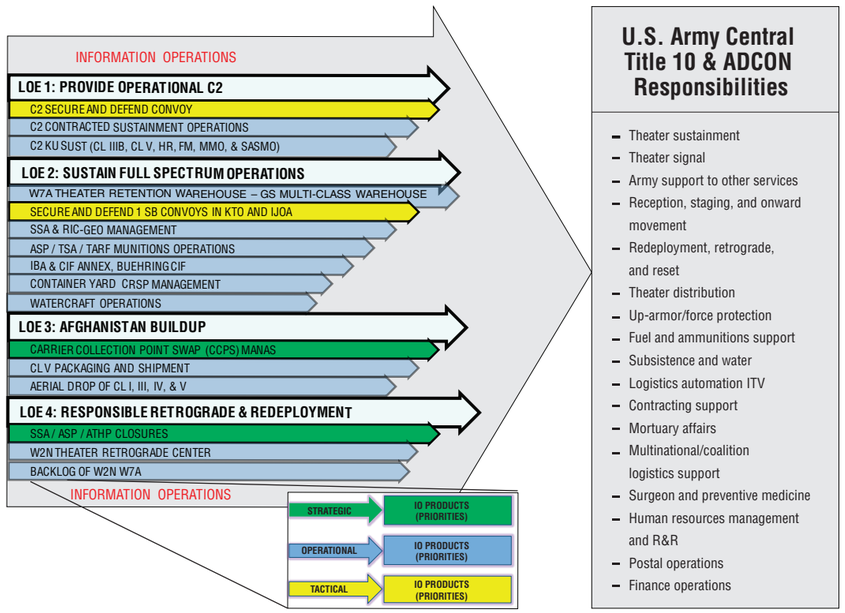
Resiliency was a key component in our quest to maintain our Soldiers' well-being. The resiliency LOO reminded us of one of Napoleon's maxims, "Moral is to physical, as three is to one." It was imperative that we

DURABLE CAMPAIGN PLAN



These charts provide a visual representation of the Durable campaign plan. Each line of effort is color-coded as strategic, operational, or tactical to focus the brigade efforts based on the level of operations.

SUSTAINMENT LOO



Legend:

ADCON	=	Administrative control
AOR	=	Area of responsibility
ASP	=	Ammunition supply point
ATHP	=	Ammunition transfer holding point
C2	=	Mission command
CIF	=	Central issue facility
CL I	=	Subsistence
CL III	=	Petroleum, fuels, and lubricants
CL IV	=	Construction materials
CL V	=	Ammunition
DOD	=	Department of Defense
DOS	=	Department of State
FM	=	Financial management
HR	=	Human resources
IBA	=	Individual body armor
ICW	=	In coordination with
IO	=	Information operations
IJOA	=	Iraq joint operations area
ISO	=	In support of
ITV	=	In-transit visibility
KU	=	Kuwait
KTO	=	Kuwait theater of operations
MMO	=	Maintenance management operations
OEF	=	Operation Enduring Freedom
OND	=	Operation New Dawn
RIC–GEO	=	Routing identifier code–geographic
R&R	=	Rest and recuperation
SASMO	=	Sustainment automation support management office
SSA	=	Supply support activity
SUST	=	Sustainment
TARF	=	Theater ammunition reclamation facility
TSA	=	Theater storage area
W2N	=	Theater retrograde center
W7A	=	Theater retention warehouse
1 SB	=	1st Sustainment Brigade
1 TSC	=	1st Theater Sustainment Command

never discount the importance of this to combat operations.

The three LOOs defined the path to achieve the end state, which included having theater sustainment capabilities in place to support full-spectrum operations, having continued support for retrograde operations, supporting Operation Enduring Freedom expansion, and increasing the 1st Sustainment Brigade's capacity to support 1st TSC operations.

FM 3–0 defines a line of effort (LOE) as a line that "links multiple tasks and missions using the logic of purpose—cause and effect—to focus efforts toward establishing operational and strategic conditions." Officers primarily responsible for LOOs developed LOEs within their specific LOOs to create synergy for the Durable campaign plan and provide linkage between current and future operations. Each LOE was color coded as strategic, operational, or tactical to focus the brigade efforts based on the level of operations.

Sustainment as the Main Effort

How often do you hear that sustainment is the main effort during offensive, defensive, or stability operations? Your answer is probably "never." However, to support retrograde operations of this magnitude, priorities had to change. FM 3–0 defines sustainment as the "provision of the logistics, personnel services and health service support necessary to maintain operations until mission accomplishment." This definition provided the cornerstone and purpose for the development of the campaign plan. The 1st Sustainment Brigade ensured that the sustainment LOO, with its 4 LOEs supported by 15 sub-LOEs, became the main effort and was nested 2 levels up and down.

Weekly Key Focus Briefing

In order to highlight the operational focus for each week on the sustainment LOO, I highlighted and briefed at least 1 of the 15 sub-LOEs and actions or steps taken to address a specific LOE. This method, through the use of the cognitive hierarchy (which, according to FM 6–0, Mission Command, is "a model used to explain the progressive transformation of data into understanding"), provided the synergy needed for the 1st Sustainment Brigade commander to understand, visualize, describe, and direct operations. The key to success was the unity of effort among the 1st Sustainment Brigade leaders, brigade staff, and all subordinate battalion leaders and staffs.

Information Operations as an Enabler

FM 3–13, Information Operations: Doctrine, Tactics, Techniques, and Procedures, defines information operations as the "the employment of the core capabilities of electronic warfare, computer network operations, psychological operations, military deception, and operations security, in concert with specified supporting and related capabilities, to affect or defend information and information systems." The 1st Sustainment Brigade SPO effects officer was responsible for the integration of information operations into the campaign plan and sustainment operations.

The Durable campaign plan was nested with both the 1st TSC and U.S. Army Central (ARCENT) campaign plans. It directly supported 12 of the 17 Title 10 responsibilities of ARCENT. While campaign planning efforts in a sustainment brigade may be an arduous task, with the right leadership, command emphasis, and focus, it can pay big dividends in the synchronization of the unit.

Lieutenant Colonel Tyrone C. Bentinck was the support operations chief of plans for the 1st Sustainment Brigade at Fort Riley, Kansas. He previously served as the brigade S–4 and support operations officer for the Combat Aviation Brigade, 1st Infantry Division, during Operation Iraqi Freedom 07–09 and support operations distribution division chief for the 1st Sustainment Brigade during Operation Iraqi Freedom 07–09. He is a graduate of Baruch College, City University of New York, and holds a master of science degree in human relations with a concentration in organization leadership from the University of Oklahoma.

The Completion of the Ordnance School Campus

The Army Ordnance School marked the completion of the 2005 Base Closure and Realignment Commission projects at Fort Lee, Virginia, with the dedication of eight educational buildings and a dining facility on 15 September 2011. Each facility was named after a Soldier or Marine who made a significant contribution to the Ordnance Corps through innovation or leadership.

Billingsley Hall is named for Brigadier General John D. Billingsley, who was a professor and head of the Department of Ordnance at the U.S. Military Academy from 1951 to 1968. Stever Hall is named after Staff Sergeant Robert A. Stever who was awarded the Silver Star posthumously in 2003 for his combat actions as a machinegunner on a convoy during Operation Iraqi Freedom. Both of these buildings belong to the Wheel Maintenance Training Department.

Retired Colonel Donaldson Tillar assists in the dedication of Billingsley Hall, a Wheel Maintenance Training Department building on the Army Ordnance School campus at Fort Lee, Virginia. Tillar is the nephew of the late Brigadier General John Billingsley. The building was one of eight educational buildings dedicated on 15 September 2011. *(Photo by Keith Desbois, CASCOM PAO)*

Judkins Hall and Rose Hall are Munitions and Explosive Ordnance Disposal (EOD) Training Department buildings. Judkins Hall is named for Staff Sergeant Roy Judkins, who served during the Vietnam War and is the highest decorated EOD service member in the Department of Defense. Rose Hall honors Chief Warrant Officer 3 Alvin Rose. Rose was a former chief doctrine officer in the Munitions Branch of the Army Ordnance Missile and Munitions Center and School.

Toftoy Hall and Boyd Hall are Armament and Electronic Maintenance Training Department buildings. Major General Holger N. Toftoy was a pivotal figure in Army missile development, and Staff Sergeant James P. Boyd was a World War II combat hero.

Vincent Hall is named for Brigadier General Thomas K. Vincent, a former commanding general of Redstone Arsenal, Alabama, who directed the development of Army rockets and guided missiles. This building belongs to the tracked-vehicle portion of the Track/Metal Working/Service Recovery Training Department.

Randolph Hall is a Marine Corps training facility named for Corporal David M. Randolph, who was killed in the terrorist bombing on the Marine barracks in Beirut, Lebanon, on 23 October 1983. Randolph was a small-arms repairman.

The dining facility on the Army Ordnance School campus, the second largest in the Army, is named in honor of Samuel L. Sharpe, a 17th century colonial Soldier who was the first master gunner in what is now the United States.

Five more buildings—those forming the centerpiece of the campus—were dedicated on 5 May. Miley Hall and Hatcher Hall are Armament and Electronic Maintenance Training Department buildings. Miley Hall is named for General Henry A. Miley, the first ordnance Soldier to attain the rank of 4-star general. Hatcher Hall is dedicated to Major General Julian S. Hatcher, the first commanding general of the Ordnance Training Center at Aberdeen Proving Ground, Maryland.

Dickson Hall, a Wheel Maintenance Training Department building, is dedicated to Brigadier General Tracy C. Dickson, a pioneer of gun construction.

Porter Hall is an Track/Metal Working/Service Recovery Training Department building dedicated to Brigadier General Horace Porter, a Medal of Honor recipient and aide-de-camp to Generals Ulysses S. Grant and William T. Sherman during the Civil War.

Cohen Hall, an Armament and Electronics Maintenance Training Department building, is dedicated to Chief Warrant Officer 2 Bernard Cohen, whose inventions allowed otherwise irreparable vehicles to be returned to combat.

The Army Ordnance School projects began with a groundbreaking in 2007 and developed into a 3-million-square-foot campus with 30 buildings, where 4,000 Soldiers and Marines will train each year.

—Story by Julianne E. Cochran

Department of Defense Releases Operational Energy Strategy for Military Operations

For the first time, the Department of Defense (DOD) has published a strategy to transform the way it consumes energy in military operations. The strategy, called "Energy for the Warfighter: Operational Energy Strategy," was prepared by the newly established Assistant Secretary of Defense for Operational Energy, Plans and Programs and was released in May 2011. The mission of this new office is to promote the energy security of military operations through guidance and oversight of DOD activities and investments.

DOD defines operational energy as the resources used in military deployments across the full spectrum of missions, in direct support of military deployments, and in training in support of unit readiness for military deployments. This includes energy used by tactical power systems and generators and weapons platforms. Approximately 75 percent of the energy consumed by DOD in 2009 meets this definition. Fixed installations, mostly facilities and nontactical vehicles, account for the other 25 percent.

The operational energy strategy is intended to "guide the Department of Defense in how to better use energy resources to support the Department's strategic goals and the Nation's energy security goals" while lowering risks to warfighters and saving U.S. taxpayers money.

According to the strategy, the Armed Forces used more than 5 billion gallons of fuel in 2010 for military operations. To create a stronger force, the document sets out three guiding principles to reduce energy dependence and use:

- ❑ Reduce the demand for energy in military operations.
- ❑ Expand and secure the supply of energy for military operations.
- ❑ Build energy security into the future force.

To reduce energy consumption, the services will document actual and projected energy consumption for current and planned military operations and accelerate the adoption of technological and management innovations to reduce demand and increase efficiency. The latter will include applying investments in rapid fielding and mid-life upgrades of platforms, systems, and equipment and long-term development of new capabilities. Priority will also be placed on innovations that can benefit current operations.

To expand and secure operational energy supplies, the services will diversify and develop new energy sources for expeditionary use and ensure that reliable energy supplies are secure for critical operational missions at fixed installations.

To build energy security into the future force, units will report lessons learned from current operations to help with future planning. The services are expected to apply those lessons to future planning, budgeting, and acquisition tasks.

Details on how DOD will execute this strategy will be published in an upcoming implementation plan.

Army Chief of Staff Addresses Upcoming Budget Constraints During AUSA Annual Meeting

Top among this year's topics at the Association of the United States Army annual meeting, held in Washington, D.C., from 10 to 12 October 2011, was upcoming potential budgetary constraints.

"I know that our Nation expects us [the Army] to be part of the solution to our debt," said General Raymond T. Odierno, the new Chief of Staff of the Army. "We should be and we will, but we also must be honest with the Nation about the risks such decisions bring with them."

General Odierno explained that the Army faces "a strategic environment that is increasingly complex and unpredictable." He said that threats like terrorism, failed and failing states, manmade disasters, narcotrafficking, and cyber threats "are compounded by the growing scarcity and competition for energy, food, and water."

"The challenge for our leaders, therefore, is to successfully chart a path to manage this uncertainty with fewer resources," said General Odierno. "I only see one way to do this: to set priorities, channel resources, and prevent conflicts before they become too costly."

General Odierno explained that the Army must achieve the right balance of end strength, modernization, and readiness. To do this, in the coming months Army leaders will be reviewing the service's "force mix" for the future, including heavy, medium, light, and airborne forces; capabilities shared between the Active and Reserve components; and military personnel, Department of the Army civilians, and contractors.

General Odierno stressed that as this review happens, it is important to the Army to continue to resource the Reserve component. "It would be foolish to let that progress unravel. We know that we must preserve the readiness of our National Guard and Army Reserves as a highly skilled operational force, and as we get smaller, the Reserve component will become integral to our ability to manage risk. We must ensure we have continued access and the ability to get the most out of this powerful partnership."

General Odierno said that during past periods of austerity Army leaders emphasized doing more with less. "As we move ahead under significant budget restrictions, we'll have to do less with less," he said. "All of us have to realize and understand that we will get smaller. That is fiscal reality, but it's the 'how' that's

critical. If we go too fast, we risk the future current readiness of the force and lose the flexibility to react to the uncertain security environment."

Equipping and Maintaining the Force on Tight Budgets Highlighted During AUSA Meeting

During a session on responsible and agile modernization presented at the Association of the United States Army annual meeting, Army leaders discussed what steps the Army would take to continue modernization under budget constraints.

Lieutenant General William N. Lennox, the Army Deputy Chief of Staff, G–8, said that any cuts are likely to affect modernization. "Major costs for us are end strength, and because we're fighting wars, you can't draw down your end strength fast enough to offset those cuts," said General Lennox. "So, the brunt of those cuts will come in modernization and training accounts. It's just math."

To guide the Army in conducting continued modernization on a reduced budget, General Lennox laid out seven commandments for a budget-restrained environment:

- ❑ Set and enforce priorities.
- ❑ Revalidate and adjust requirements as needed.
- ❑ Make sure that affordable requirements are examined at the portfolio level.
- ❑ Use affordability as an independent variable.
- ❑ Eliminate redundancies.
- ❑ Leverage mature technologies.
- ❑ Match procurement quantities to the pace of modernization.

"We can't forget we have Soldiers in combat today," said General Lennox. "They require our attention. We have to equip them for the current fight, and we have to make sure that they have the best equipment in the world."

The Army Acquisition Corps has played a significant role in equipping the force in recent years. Lieutenant General William N. Phillips, the military deputy director of the corps, said, "We [the Army Acquisition Corps] have our challenges, but our Army and the industry that supports our Army [have] done remarkable work to field, to put capability in the hands of our Soldiers, so that they can be successful on the field of battle."

General Phillips used the mine-resistant ambush-protected (MRAP) vehicle, its follow-on (the MRAP all-terrain vehicle), and the M–4 carbine (which has received more than 60 improvements) as examples of acquisition success.

"The baseline requirement for the M–4 is about 600 mean rounds between failures. The experience that we are having downrange is about 3,600 rounds between failures, so it's 6 times the requirement, so the M–4 carbine is doing great work today."

According to General Phillips, one challenge the corps faces is team support and partnership. Program executive officers (PEOs) and product managers (PMs) learned some hard lessons when requirements were not carefully scrutinized upfront and they tried to deliver programs with only the resources provided.

"We can no longer afford to do that," said General Phillips. "We have to take advantage of every tax dollar that we get from the American public . . . that requires PEOs and PMs to work with the TCMs [Army Training and Doctrine Command (TRADOC) capability managers] in the TRADOC community and to make sure that we've got it right for our Soldiers."

Not only must the force be effectively equipped; it also must be maintained. Lieutenant General Mitchell H. Stevenson, then Army Deputy Chief of Staff, G–4, highlighted an area that is improving readiness and providing the Army cost savings at the same time—conditioned-based maintenance (CBM). "We're not where we want to be in our end state, but we have the basics of conditioned-based maintenance in two-thirds of our aircraft," said General Stevenson. "We have documented cases—I know four of them off the top of my head—where we have stopped an accident before it happened because we got information from the platform telling us that a component was about to go bad and we needed to take action."

CBM also is being used in weapon systems. According to General Stevenson, this saves time and keeps more vehicles operational.

Lieutenant General Dennis L. Via, the deputy commanding general of the Army Materiel Command, said that since the initiation of combat operations in Operation Enduring Freedom, stateside depots, arsenals, and national maintenance facilities have serviced over 2,500,000 pieces of equipment across the enterprise. That includes 7,300 tracked vehicles, 3,800 aircraft, 46,000 high-mobility multipurpose wheeled vehicles, 39,000 night-vision devices, 192,000 single-channel ground and airborne radio systems, and 30,000 generators. He explained that these numbers are solely for maintenance done at arsenals and depots and do not include the number of missions depot personnel have performed at units' home stations or in the theater of operations.

Movement Tracking System Office Realigns Under PEO C3T

Program Executive Office (PEO) Command, Control and Communications–Tactical (C3T) assumed full management responsibility for the Army's Movement Tracking System (MTS) Product Office from PEO Enterprise Information Systems on 30 April 2011. Personnel, resources, and program management oversight for MTS are now provided by the Project Manager Force XXI Battle Command Brigade and Below (PM FBCB2) at Aberdeen Proving Ground, Maryland.

MTS will transition to the Battle Command Product Line Task Force software that is being developed by PM FBCB2. This transition will provide efficiencies such as shared network management and operations elements.

The organizational change will not affect MTS fielding, and MTS will continue to meet logistics-specific requirements and have separate funding. MTS is expected to be fully deployed by the end of fiscal year 2013.

The MTS office also is working closely with PM FBCB2 and the logistics community to adopt a new software version, Joint Capabilities Release-Logistics (JCR–Log), which uses a software baseline used by Blue Force Tracker and has the same functionality as MTS version 5.16.2. The software is expected to be available for use in the field sometime in fiscal year 2012.

RECENTLY PUBLISHED

Army Doctrine Publication (ADP) 3–0, Unified Land Operations, published on 10 October 2011, is the first ADP published by the Army under the Doctrine 2015 initiative. The ADP replaces Field Manual 3–0, Operations, as the Army's capstone doctrine on operations. It defines unified land operations as "how the Army seizes, retains, and exploits the initiative to gain and maintain a position of relative advantage in sustained land operations through simultaneous offensive, defensive, and stability operations in order to prevent or deter conflict, prevail in war, and create the conditions for favorable conflict resolution." The ADP also explains that the concept is an "intellectual outgrowth" of operations doctrine and recent combat experiences.

New Strategy to Change Doctrine Structure by 2015

The Army Training and Doctrine Command (TRADOC) has launched "Doctrine 2015," a new concept that provides a road map for harnessing emerging technology to accelerate and modernize the doctrine development process. Doctrine 2015 changes the Army's doctrinal structure, adding 4 new types of publications: Army doctrine publications (ADPs), Army doctrine reference publications (ADRPs), Army techniques publications (ATPs), and applications.

There will only be 15 ADPs, each limited to about 10 pages. An ADRP will be published to complement each ADP and will include multimedia educational tools.

Field manuals (FMs) will continue to exist, but their number will be reduced from 350 to 50, and each will be limited to 200 pages. The FMs will lay out tactics and procedures and will describe how the Army executes the operations described in the ADPs.

Below the FM level, ATPs will provide nonprescriptive ways to perform missions, functions, or tasks. ATPs will be wiki-based and will be accessed, updated, and maintained on the Internet. By providing the document through this type of platform, more experts in the functional areas will be able to contribute to the knowledge provided in the documents and the information can be updated as changes happen.

Another doctrinal tool, called "applications," will include interactive media, podcasts, and mobile applications that can be downloaded to smartphones, electronic tablets, and other portable devices.

The first new publication, ADP 3–0, Unified Land Operations, was published on 10 October 2011. TRADOC plans to have all ADPs and their supporting ADRPs completed by the fall of 2012. The supporting FMs are slated to be finished by the summer of 2014.

CALL Issues Responsible Drawdown Study

The Center for Army Lessons Learned (CALL), in partnership with the Army Combined Arms Support Command (CASCOM), has released the first-ever handbook on drawdown operations written for all levels of Army sustainment. The special study, titled Responsible Drawdown and Reset, became available online in September 2011 and is designed to guide future leaders and planners in the tasks associated with the drawdown and reset of units.

CALL stresses that the information contained in the handbook "reflects the actions of units in the field and may not necessarily be approved U.S. Army policy or doctrine."

In the handbook's foreword, the CASCOM commander, Major General James L. Hodge, notes, "This document will continue to evolve as new lessons are derived; we encourage units to continue to support this effort by providing constant feedback from the field to the Center for Army Lessons Learned . . . , further closing the information gap between the generating and operational force."

This information not only is for use by U.S. Soldiers but also is available to coalition and allied partners. To access the digital version of the study, go to https://call2.army.mil/toc.aspx?document=6788.

ROWPU RODEO Challenges Water Purification Teams

The Army Forces Command G–4 and the Army Quartermaster School cohosted the annual Sergeant

Major John C. Marigliano Reverse Osmosis Water Purification Unit Regulated On-site Demonstrated Efficiency Objective (ROWPU RODEO) at Fort Story, Virginia, from 21 to 27 August 2011.

The lanes-based evaluation of team skills is designed to train and educate water purification teams. Commanders also can use the event as a training management tool to assess the competence and readiness of water teams.

Six teams representing the Active Army, Army National Guard, Army Reserve, and Marine Corps competed in this year's event. The 20th Quartermaster Company from Fort Campbell, Kentucky, took home the Sergeant Major John C. Marigliano Award for Excellence.

The next competition will be held from 20 to 24 August 2012 and will be conducted in two phases. The first phase will be held at Fort Story and the second at Fort Lee, Virginia.

Soldiers from the 610th Quartermaster Company, Saint Thomas, U.S. Virgin Islands, deploy the cyclone separator for a 3,000-gallon-per-hour ROWPU as part of the ROWPU RODEO competition at Fort Story, Virginia. *(Photo by SGT Paul Kindzierski, 262d Quartermaster Battalion)*

Base Closure and Realignment 2005 Finishes on Time

The Army has completed 440 projects as part of the 2005 Department of Defense Base Closure and Realignment Commission (BRAC) program—all before the 15 September 2011 BRAC deadline.

These projects closed 12 Active component installations, 1 Reserve installation, and 387 National Guard and Army Reserve centers. They also reduced the Army's occupancy of 8 leased facilities and returned 70,363 acres of property and facilities to local communities for redevelopment.

The Army Materiel Command, in addition to moving its headquarters to Redstone Arsenal, Alabama, closed ammunition plants and chemical demilitarization sites, realigned depot maintenance functions, and reconstituted new laboratories and administrative spaces, consolidating into four main centers at Huntsville, Alabama; Rock Island Arsenal, Illinois; Warren, Michigan; and Aberdeen Proving Ground, Maryland.

BRAC 2005 was the Army's largest organizational transformation since World War II.

Army War College Sponsors Strategic Landpower Essay Contest

The Army War College and the Army War College Foundation are sponsoring the 2012 Strategic Landpower Essay Contest. The competition is designed to advance professional knowledge of the strategic role of landpower in joint and multinational operations.

This year's topics of interest for the contest include the future of landpower, the strategic role of landpower, and the Army's role in national security.

Essays must be original and must not be previously published or exceed 5,000 words. All entries must be postmarked by 17 February 2012 in order to be accepted. Everyone except those involved in the judging is eligible to enter and win.

For more information or for a copy of the essay contest rules, contact Dr. Michael R. Matheny at the college's Department of Military Strategy, Planning and Operations by telephone at (717) 245–3459 or DSN 242–3459 or by email at michael.matheny@us.army.mil.

CORRECTION

On page 26 of the November–December issue of *Army Sustainment*, the opening blurb of "Human Resources Operations Branch: Doctrine Versus Reality," by Major David L. Godfrey, Jr., and Warrant Officer 1 LaMika D. Brown, incorrectly stated that the 1st Sustainment Brigade was deployed to Iraq. The brigade was deployed to Kuwait.

Index of *Army Sustainment* Articles–2011

May–June

July–August

September–October

November–December

ISSN 2153-5973
DEPARTMENT OF THE ARMY
ARMY SUSTAINMENT
US ARMY LOGISTICS UNIVERSITY
2401 QUARTERS ROAD
FORT LEE VIRGINIA 23801-1705

Official Business

**PERIODICALS POSTAGE
AND FEES PAID
AT PETERSBURG VIRGINIA
AND ADDITIONAL CITIES**

Coming in Future Issues

- ❑ The Provincial Reconstruction Team S–4
- ❑ Who Pays the Bill?
- ❑ Responsible Contracting in a Counterinsurgency Campaign
- ❑ Distribution in the Future
- ❑ Training Movement Control Teams
- ❑ A Commander's View From the Tip of the Logistics Spear
- ❑ GCSS–Army: A User's Perspective
- ❑ The Second Half of the Life Cycle
- ❑ Boat to Plane to Foxhole: Seven Steps to Intermodal Operations
- ❑ Moving Liquid Gold
- ❑ The Horn of Africa's New Spice Route