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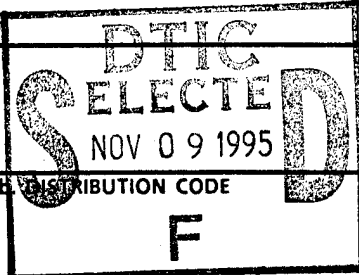
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POWER PROJECTION LOGISTICS: WHAT THEATER SUPPORT UNIT?

A Monograph
By
Major John R. Tibbetts
Armor

School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenwoth, Kansas

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<u>Major John R. Tibbetts</u>

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Approved by:

_____ Monograph Director
Richard M. Swain, Ph.D.

_____ Director, School of
COL Gregory Fontenot, MA, MMAS   Advanced Military
                                  Studies

_____ Director, Graduate
Philip J. Brookes, Ph.D.   Degree Program

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ABSTRACT

POWER PROJECTION LOGISTICS: WHAT THEATER SUPPORT UNIT? By MAJ John R. Tibbetts, US Army, 59 pages.

From the Korean War to the most recent deployment to Haiti, each time the U.S. Army has begun an operation, the operational logistics organization has been pieced together *ad hoc*. In the force projection, U.S. Army, division support commands (DISCOM) or corps support commands (COSCOM), even their subordinate elements, are likely deploy to provide traditional army component (ARFOR) theater of operations logistics support. Corps and the division have neither the force structure nor the training to accomplish this mission. This monograph will focus on identifying whether emerging doctrine addresses functional and organizational requirements for operational-level logistics support of future force projection operations.

The initial chapter of this monograph is a review of doctrine including, FM 100-5, Operations, FM 100-7, Decisive Force: The Army in Theater Operations (Final Approved Draft), Field Manual 100-10, Combat Service Support, FM 100-16, Army Operational Support (Final Approved Draft), and Joint Publication 4-0, Doctrine for Logistics Support of Joint Operations. The chapter examines how each manual approaches the requirements of operational logistics and identifies some discontinuities in the body of doctrine.

Next the study examines historical experiences of operational logistics to identify logistical threads of continuity, and significant differences, especially with respect to any departures from the procedures of current doctrine; to illuminate doctrinal army service component command (ASCC) support functions; and to identify additional functions necessary to augment the doctrinal set.

The third portion of the monograph looks at possible organizational problems suggested by the historical examples and the doctrinal concept of modular units. Even if the historical examples validate the doctrinal approach to operational logistics, modified command structures and standing logistical organizations may provide better alternatives to meet future logistical support missions.

The monograph concludes that despite a lack of precision in terminology between the various manuals, the body of doctrine generally is congruent with the definition of operational logistics, articulated in the 1993 FM100-5. The historical examples generally validate the doctrine as well. As to the issue of organizational requirements, the monograph suggests that the formation of a standing ASCC organization is desirable to provide a more responsive operational logistic capability in a force projection Army.

Table of Contents

I. INTRODUCTION

> Logistics provides the ability to mass combat power. It is a way of structuring a battle, campaign or strategic setting. It is calculated to create possibilities for future force utilization. Logistics determines how, when and where the force arrives in a theater; where and when combat power can be massed. Logistics underwrites the concept of operations and the scheme of maneuver and is the fulcrum upon which leverage can be created
>
> <div align="right">LTG William G. Pagonis
and Michael D. Krause[1]</div>

During OPERATION DESERT STORM, despite the presence of joint and combined, multi-corps forces in the theater of operations, a theater level command and control logistics headquarters not was mobilized. The 22d Support Command, led by LTG Pagonis, was formed *ab initio* and assumed all theater logistics responsibilities. When viewed from a theater prospective, the 22d Support Command enjoyed great success despite the *ad hoc* composition of the organization.

Since the end of DESERT STORM, the United States Army deployed troops to Northern Iraq (1992), Somalia (1993-1994), Rwanda (1994), and for numerous other operations short of war, including a return to Kuwait in the fall of 1994, in reaction to threatening gestures by Iraqi armed forces. Troops are currently deployed in Haiti and a task force-sized unit is operating in Macedonia. None of these deployments compared in scale to DESERT STORM, but all were logistics intensive operations. Despite these challenges, each time an operation has begun, the operational logistics organization has been pieced together *ad hoc*. In each instance noted, the organization assigned the responsibility for logistics support started from scratch, performing theater supply, distribution, and support functions, whether or not they were structured for the mission.

At least as early as the 1968 version of FM 100-10, Combat Service Support, the Army recognized that corps, and even divisions, might deploy as the senior Army element in

<div align="center">1</div>

a theater, responsible both for service component obligations well as normal combat missions.[2] This idea reappeared in doctrine in the 1986 version of FM 100-5, Operations.[3]

Army organizations are likely to continue to deploy to locations with undeveloped or non-existent logistics infrastructures. If recent trends continue, division support commands (DISCOM) or corps support commands (COSCOM), even their subordinate elements, are likely deploy to provide traditional army component (ARFOR) theater of operations logistics support. FM 100-7, Decisive Force: The Army in Theater Operations (1995), notes,

> As the ARFOR, the corps or division may be tasked to assume operational-level specific Army responsibilities within its area of operations. Under such circumstances the corps/division is not only responsible for all Army units but could be responsible as the Army "executive agency" under agreements and memorandums of understanding previously established between services to provide support to all services...[4]

This is a mission for which the corps and the division have neither the force structure nor the training to accomplish. This monograph will focus on identifying whether emerging doctrine addresses functional and organizational requirements for operational-level logistics support of future force projection operations.

The meaning of the term *functions* as used in this paper, is derived from the definition found in TRADOC Pamphlet 11-9, Blueprint of the Battlefield: "activities or processes that occur over time without implying how they will be accomplished or what instruments or methods will be used to perform them."[5] This paper will address only combat service support functions of a theater of operations and, with the exception of engineer support as it pertains to infrastructure development, will not address combat support.

The initial chapter of this monograph is a review of doctrine. There are four Army manuals that establish doctrine for echelons above corps (EAC) support (excluding doctrine for organizations at the theater army level): FM 100-5, Operations, FM 100-7,

Decisive Force: The Army in Theater Operations (Final Approved Draft), Field Manual 100-10, Combat Service Support, and FM 100-16, Army Operational Support (Final Approved Draft). In addition, Joint Publication 4-0, Doctrine for Logistics Support of Joint Operations, promulgates joint logistics doctrine. The doctrine chapter of this monograph states how each manual approaches the requirements of operational logistics and identifies some discontinuities in the body of doctrine.

Next the study shifts to historical experiences of the operational logistics. The paper examines the Korean War, Vietnam, OPERATION DESERT STORM, and the more recent operations in Somalia, Rwanda, and Haiti, from the perspective of problems unique to a theater of operations, significant issues, lessons learned, and the command and logistics support structure employed. The goal here is to identify logistical threads of continuity, and significant differences, especially with respect to any departures from the procedures of current doctrine. These examples illuminate doctrinal army service component command (ASCC) support functions and may identify additional functions necessary to augment the doctrinal set.

The third portion of the monograph looks at possible organizational problems suggested by the historical examples and the doctrinal concept of modular units. Even if the historical examples validate the doctrinal approach to operational logistics, modified command structures and standing logistical organizations may provide better alternatives to meet future logistical support missions.

II. DOCTRINAL REVIEW

If war is to be waged. . . . in which troops move back and forth for years in the same province, subsistence is likely to become the principle concern. In that case, the quarter-master-general becomes the supreme commander, and the conduct of war consists of organizing the wagon trains.

Clausewitz[6]

Current theater logistics doctrine dates back to cold war scenarios. Although contingency operations are mentioned, the preponderance of our doctrine envisioned

3

or assumed operations in an area with a well developed logistics infrastructure, established sea and airport facilities, and existing organizations responsible for theater support. The army is developing new operational doctrine, as evidenced in the new manual, FM 100-7. The new doctrine anticipates Army participation in a range of scenarios throughout the spectrum of conflict, including operations in war and operations short of war.

The emerging logistics doctrine, for the most part, follows the concept of operational logistics expressed in the 1993 version of FM 100-5. That is, it sees operational logistics as the interface between strategic and tactical logistics, focusing on reception operations, infrastructure development, and the management and distribution of materiel, movements, personnel, and health service.[7] There is, however, a lack of precision in language among pertinent doctrinal publications that can create difficulty. One manual may call an item a function, another a task, and another an element or principle. Even what comprises operational logistics may vary from manual to manual. This introduces confusion because of an apparent lack of a common point of departure. The discovery of the differences and similarities enables one to formulate a set of doctrinal functions and responsibilities for operational logistics, more or less independent of size of force deployed.

Army doctrine must be considered in light of joint logistics doctrine, codified in Joint Publication 4-0, published in September 1992. However, joint doctrine was only beginning to emerge when the 1993 FM 100-5 was being developed. At the time, joint doctrine was "authoritative but not directive."[8] The specific focus of operational-level logistics differs between the two manuals, though the scope and intent appear to be congruent. Because operational-level doctrine articulated in FMs 100-7 and 100-16 are derived from FM 100-5 the definition of operational logistics from FM 100-5 will be adopted as a basis of comparison. The differences which arise between FM 100-5 and

4

Joint Pub 4-0 are noted and the functions from the latter are incorporated in the review at the end of the chapter.

Joint Pub 4-0, Doctrine for Logistic Support of Joint Operations

The army "relies on joint - and sometimes combined - support to project forces."[9] It is also has responsibility, under various Department of Defense directives and agreements, for extra-service logistic functions -- that is, above the tactical-level, the Army always acts as a part of a joint command and, therefore, operational logistics must encompass consideration of joint, as well as service doctrine. Joint Publication 4-0 identifies, "six broad functional areas," for logistic support requirements: "supply systems, maintenance, transportation, general engineering, health services, and other services. . . .(i.e., aerial delivery, laundry, clothing exchange and bath, and graves registration.)"[10] The publication notes that at the "operational level, specific considerations include identification of operational requirements and establishment of priorities for the employment of the resources provided."[11] These functions, however, are the routine logistic staff work required at all levels. They are by no means unique to operational logistics.

Although not specifically cited as such, one finds the focus for the conduct of operational logistics in the planning chapter of the publication. The manual calls for,

a. Providing common or joint service for maintenance, medical, salvage, transportation, and mortuary affairs. This includes support for subsistence, selected POL and munitions, field fortification and construction materiels (Class IV), personnel support items (Class VI), medical supplies and blood (Class VIII A/B), and selected repair parts (Class IX).

b. Locations and functions suitable for contractor support.

c. Contingency planning to respond to destruction or damage to the theater infrastructure.

d. Long lead-time special projects.

e. Coordination for wartime host nation support.[12]

Joint doctrine also places emphasis on planning considerations for force expansion, critical supply and materiel handling, mode operations that can cause bottlenecks and constrain operations, movement control, and identification and integration of civilian sources of supply.[13]

FM 100-5, Operations

FM 100-5 only enumerates and defines logistics functions for the tactical-level of war. These are, manning, arming, fueling, fixing, moving the force, and sustaining soldiers and their systems.[14] Strategic and operational logistics doctrine does not refer to functions as a category of discussion. However, according to the manual, logistics at the strategic-level, "deals with mobilization, acquisition, projecting forces, strategic mobility and the strategic concentration of logistics in the theater and COMMZ. It links a nation's economic base to its military operations in a theater."[15] Operational logistics, "focus on force reception, infrastructure development, distribution, and the management of materiel, movements, and personnel and health service."[16] Operational logistics is the "bridge" between the national industrial and military logistics bases and the combat zone. Operational logistics provide the interface in the theater of operations between strategic and tactical sustainment efforts.

At the strategic-level, the "centralized management and distribution of supplies and materiel"[17] facilitates logistics operations at the operational and tactical-levels. One can extend this concept easily to the operational-level where the centralization of control of certain services, supplies and materiels, will facilitate execution of logistics at the tactical-level. The principles for logistic functions at the strategic-, operational- and tactical-levels of war are shown in Table 1.

6

Table 1

LOGISTIC FOCUS (FM 100-5)

STRATEGIC	OPERATIONAL	TACTICAL FUNCTIONS
Mobilization	Force reception	Manning
Acquisition	Infrastructure	Arming
Projecting forces	development	Fueling
Strategic mobility	Distribution and	Fixing
Strategic concentration	management of:	Moving
of logistics	Materiel	Sustaining soldiers and
	Movements	their systems
	Personnel	
	Health service	

FM 100-10, Combat Service Support

The army's "keystone manual for combat service support of maneuver and combat support forces,"[18] published in 1988, has not been updated to reflect the 1993 FM 100-5 description of operational logistics. This is not to imply the manual is obsolete, however the document's conceptual apparatus reflects the perspective of the cold war period in which it was written.[19]

In its discussion of operational sustainment, the manual states that sustainment at the operational-level differs from the tactical-level,

> ...only in that a longer planning and preparation period is normally available and that the supported operation lasts over a longer time period. ...Operational sustainment is largely a CSS command and staff function because the actual physical work is performed by companies to which moving supplies or maintaining equipment is the same at either the tactical or operational level.[20]

In the paper, Theater Army Support Command: Support for the Non-Forward Deployed Force, Colonel Peter W. Lictenberger stated,

> If there is any basic lesson to be learned from the Gulf War, it is that operational sustainment needs more definition and explanation. ... as experienced in Desert Storm, operational sustainment is much more than a staff and command function planned and controlled at echelons above corps.[21]

FM 100-10 views operational logistics as support provided by operational units; however, the units are "operational" only in that they operate within the traditionally

7

accepted limits of operational boundaries. That is, units operating behind the corps

rear boundary, or in the COMMZ are designated operational units and thus perform

operational logistics. Units operating in the area from the corps rear boundary

forward are designated tactical units and thus perform tactical logistics. However, as

FM 100-5 points out, "Each level [of war] is defined by the outcome intended - not by the

level of command or size of the unit. . . . the intended purpose, not the level of

command, determines whether an Army unit functions at the operational level."[22]

FM 100-7. Decisive Force: The Army in Theater Operations

FM 100-5 describes how the army thinks about the conduct of operations and

undergirds all of the army's doctrine.[23] As noted earlier, FM 100-5 lists three areas for

the focus of operational logistics, force reception; infrastructure development; and the

distribution and management of materiel, movements, personnel, and health services.

A new manual, FM 100-7, provides more definition to the army's doctrine for operations

in a theater of operations. In the discussion of operational support to the force, FM 100-

7 lists the focus of the operational logistician as being on reception, positioning of

facilities, materiel management, movement control, distribution management,

reconstitution and regeneration, and redeployment.[24] This list differs somewhat from

a later listing of specific support requirements that the army service component

commander executes: "base development; engineer support [primarily infrastructure];

replacement training; support; reception, staging and onward movement; and

reconstitution."[25]

The second list introduces a new requirement for operational support, replacement

training, which might be broadly categorized under the function force reception.

Such training is important in training and qualifying replacement crews, or larger

units, for weapon system replacement operations (WSRO) or reconstitution that might

be best done in-theater for reasons of timing or acclimatization.[26] Such training was

8

Table 2

OPERATIONAL LOGISTICS

FM 100-5	FM 100-7	
FOCUS	**FOCUS**	**REQUIREMENTS**
Force reception	Reception	Reception
Infrastructure development	Positioning of facilities	Base development
Distribution and management of:	Materiel management	Engineer support
	Movement control	Support
Materiel	Distribution management	Staging and onward movement
Movements	Reconstitution and regeneration	Replacement training
Personnel		Reconstitution
Health service	Redeployment	

also important in the Korean War for arriving personnel who had to learn how to operate with the theater-unique mixed force structure of U.S.-Korean military and civilian contract personnel.

The designation of a corps or division as the theater or joint command ARFOR will entail certain responsibilities, under the Army "executive agency," to provide support to all services in accordance with agreements and memoranda of understanding previously established between services or directed by the combatant commander. The combat service support responsibilities could include mortuary affairs, casualty operations, postal operations, finance, communications, environmental protection and cleanup, NBC decontamination, rear area protection, base security, transportation and distribution of Class I, III, V, and VII supplies, real estate and contract support, theater topography support, and general engineering and real property maintenance activities.[27]

The overall headquarters for functional, operational and support responsibilities in a theater is known as the Army Service Component Command (ASCC), formally called the Theater Army.[28] "If a developed support infrastructure is absent or eliminated in

an area, an ASCC could serve as the nucleus for a theater base development process."[29] In addition, if the ASCC commander is designated as the joint rear area commander by the unified commander, he is responsible for "organizing and operating the theater support base and conducting rear operations for all services," as well as for managing the Army's support base in a developed theater.[30]

"The ASCC headquarters conducts planning and coordinates major operations and support through flexible combinations of area and functionally oriented organizations."[31] FM 100-7 provides for the establishment of functional commands as the theater matures. These commands include both combat support and combat service support units. Among the latter are personnel service support, finance, transportation, health service support, and civil affairs, petroleum functions, ammunition supply and storage, movement control, and materiel management.[32] In a contingency operation, with a corps or division designated as the ASCC, it is unlikely that functional commands would be created, either because the requirements would not exceed their capabilities, or due to caps on theater strength. Units within the COSCOM or DISCOM, or modular elements assigned to either, would likely pick-up responsibilities for those requirements. A brief discussion of the operational focus for functional commands follows.

Personnel service support. "The Army service component commander, through the [theater] personnel chief (DCSPER), manages critical personnel systems and synchronizes personnel network operations throughout the theater."[33] Among the operational-level personnel tasks are: "strength accounting, replacement operations, postal operations, casualty operations, personnel information systems and personnel readiness."[34] With the exception of casualty, postal, and replacement operations, the COSCOM and DISCOM should be capable of performing these tasks.

Finance. At the operational-level, finance units provide commercial vendor and contractor payments, various pay and disbursing services, and essential accounting.

10

They also may provide, "centralized theater support missions such as currency funding, commercial accounts, foreign national pay, and appropriated and non-appropriated fund accounting."[35] Finance elements assigned to the corps and division require augmentation to perform these missions.

Transportation. The operational-level transportation function, "includes mode operations that involve inland waterways, rail, motor, and air terminal services to include water, beach, air, motor transport, and rail."[36] It also involves interface with USTRANSCOM for inter-theater movements and interaction with joint and allied transportation managers. This ties in closely with the theater distribution system and as such, may involve both central receiving point operations and the movement of personnel, materiel, and supplies from point of arrival in theater to the combat zone.[37] As a headquarters, the "ASCC assists in establishing and adjusting theater LOCs. The ASCC receives, equips, marshals, stages and moves units forward to the tactical assembly areas for employment."[38]

Doctrine provides for a transportation group headquarters outside the COSCOM when three or more transportation battalions are included in the force structure.[39] This group is only a command and control headquarters. It seems unlikely that three or more battalions would be deployed in an operation with a corps or division as the army component headquarters. If terminal or rail operations were required, the COSCOM would have to be augmented by EAC rail or terminal battalion(s). While not organic to the COSCOM structure, it is within the capability of the COSCOM to receive such organizations in its force structure.

A vitally important part of the transportation system is the Movement Control Agency or movement control center (MCC) in the corp and division. Either coordinates and administers transportation policy, manages theater-wide transportation assets, prepares movement and port clearance plans, conducts liaison with higher and lower movement control elements and commands, and controls transportation battalions and

11

movement control teams. Either may also coordinate and validate theater airlift for Army units.[40] Because ground transportation is the responsibility of the Army component, by DOD Directive,[41] the COSCOM might be required to contribute to, or act as a Joint Movement Center (JMC). In the latter case, the corps movement control center (MCC) would form the nucleus of the JMC and likely be augmented by personnel from other services.[42]

Health service support (HSS). Operational-level HSS encompasses patent evacuation and medical regulation, hospitalization, health service logistics/blood management, dental services, combat stress control services, preventive medicine services, veterinary services, area medical support, and medical laboratory services.[43] An expanded discussion of this area of support is deferred until discussion of HSS under FM 100-16.

Civil affairs. The theater Civil Affairs organization coordinates a host of activities designed to protect civil populations in the path of military operations. These include: civil defense, civilian labor, legal services, public administration, public education, public finance, public health, public safety, public welfare, civilian supply, economics and food aid, agricultural assistance, property control, public communications, public transportation, public works and utilities, civil information, dislocated civilian control, arts, monuments, archives and cultural affairs.[44] If a division or corps is designated as the ARFOR, an augmentation unit of some size would have to be assigned to perform the traditional civil affairs function.

Two other important functional organizations are normally assigned at theater level, a Materiel Management Center and a Petroleum Group.

Materiel Management Center (MMC). The Material Management Center is critical to the theater supply, maintenance and distribution systems. It manages the theater's supply and maintenance operations to include balancing maintenance efforts and ensuring visibility of critical item shortages. The MMC is the primary interface with

12

the CONUS-sustaining base.[45] The COSCOM and DISCOM have an MMC organic to their organization. The corps MMC should be capable of performing the theater materiel management function.[46]

Petroleum. A petroleum group is important at the theater level because, in accordance with DOD directive, the Army component must provide centralized distribution of bulk petroleum products for all US forces in theater. The operational-level petroleum organization receives petroleum products in theater and distributes them throughout the COMMZ and rear of the combat zone. The organization operates or coordinates interface with any petroleum pipeline in theater.[47] The COSCOM does not normally have a petroleum group; therefore, an operation-level petroleum organization must be assigned. If pipelines are used, a petroleum pipeline and terminal operating company is required with the operational-level organization.[48]

Reception and onward movement. FM 100-7 also posits that the ASCC provides "reception and operation staging to units located in or passing through the COMMZ."[49] This is congruent with the provision in FM 100-5 which states, "Theater logistics capabilities support units located in and passing through the COMMZ."[50] The ASCC may establish a logistics command and control headquarters in the COMMZ to provide a full range of logistical and administrative support to those units to include personnel and administration support, DS maintenance, the provision of classes of supply, field services and local transportation.[51] This level of support is essentially tactical in nature, though it is not provided by a tactical-level headquarters.

FM 100-16, Army Operational Support

FM 100-16, Army Operational Support (Final Approved Draft), dated 17 February 1995, replaces FM 100-16, Support Operations: Echelons Above Corps, dated April 1985. The manual still maintains a distinction between operational support and tactical CSS according to, "the longer planning and preparation time required to support extended

operations."[52] Notably absent from this manual are organizational charts for theater army organizations. Instead, certain sections, such as manning and personnel service support, and a *Notional* Operational-Level Army Movement Control Agency (emphasis added),[53] contain block diagrams, not to be confused with unit organizations. The organizational diagrams are now found in FM 100-7. The importance of this is that the Army Service Component Command (ASCC) for force projection operations is a concept, not an actual unit. It does not exist within the active component to be deployed to a theater of operations, though existing units may be assigned the ASCC responsibilities.

FM 100-16 states that,

Operational logisticians focus on establishing and maintaining lines of communications and sustaining the force in the theater of operations... [further they] focus on reception of forces and the onward movement of units and personnel; planning, coordinating, managing and directing the positioning of supply, maintenance, and field service activities; management of theater reserves; creating transportation networks and providing movement assets; providing health service support; and other support required...

This definition of the focus of operational logistics differs from that expressed in FM 100-7. Like FM 100-7, these logistic activities can be broadly categorized under the functions in FM 100-5. They are listed in Table 3.

FM 100-16 and FM 100-7 were produced at about the same time. However, not only does the definition of the focus of operational logistics vary between FM 100-16 and FM 100-7, but common definitions differ as well. As an example, consider the focus of operational personnel support:

FM 100-7 - strength accounting, replacement operations, postal operations, casualty operations, personnel information systems, and personnel readiness.[54]

FM 100-16 - Operational personnel support focuses on reception and onward movement, allocation, management, redeployment of units and military personnel, and reconstitution.[55]

These two definitions are only in approximate agreement with each other. Such discontinuities dilute the clarity and precision of doctrinal concepts, and create the

Table 3

OPERATIONAL LOGISTICS ACTIVITIES

FM 100-7		FM 100-16
FOCUS	**REQUIREMENTS**	**FOCUS**
Reception	Reception	Reception and onward movement
Positioning of facilities	Base development	Positioning supply,
Materiel management	Engineer support	maintenance, and
Movement control	Support	field service activities
Distribution management	Staging and onward movement	Force sustainment
Reconstitution and regeneration	Replacement training	Theater reserves management
Redeployment	Reconstitution	Lines of communications
		Transportation networks and movement assets
		Health service support
		Other support

potential for organizational confusion due to differing interpretations of doctrine.

Health Services Support (HHS). The final area for consideration is operational-level HHS. Operational HSS involves two broad functional areas under which the functions addressed in FM 100-7 can be categorized. First, ASCC HHS provides the interface between medical assets in the theater and CONUS, or other out of theater medical facilities, to include patient evacuation. Second, it provides for consolidated health services resources such as blood management and medical laboratory services within the theater.[56] The latter is especially important from the operational perspective. In addition, an area medical laboratory is established in the COMMZ. It's primary role is "evaluating the total health environment in the theater, rather than providing individual patient care." Subject-matter experts provide expertise regarding "risk management, preventive measures, and the medical management of patients caused by

endemic agents and conditions or those introduced by threat forces" to include the effects of NBC.[57]

In a force projection operation, an area medical laboratory might not be included in the task organization at all and, if not, one expects its function would be accomplished through a split-based operations, by periodically cycling assets into theater, or by positioning an essential cell forward in theater as needed. The same can be expected for other broad theater health support functions such as combat stress control and veterinary services. The important point is due consideration be given theater support in these areas, not necessarily the physical positioning of the actual assets in theater.

Three Roles and the Organization of the Army in an Area of Operations

There are then three operational roles which the ASCC commander must perform. He must:

1) Establish liaison with joint, multi-national, interagency, and non-governmental organizations (NGO), private voluntary organizations (PVO), or United Nations operations, and advise the CINC on Army capabilities.

2) Support operations by executing Title X responsibilities, to include operating the ground transportation system, providing common classes of supply, and infrastructure construction.

3) Conduct operations in support of the joint campaign. If designated as an operational-level commander, the ASCC commander designates, sustains and shifts subordinate ground forces to support the joint or multi-national plan.[58]

There are any number of ways to organize an army force to carry out these three operational roles. The discussion in FM 100-7 is ambiguous and provides no clear guidance.[59] It would seem that once a force is tasked to operate at the operational-level, what ever the size of the force, whether army, corps, division, or detachments of

16

those organizations, the critical decision is which operational role(s) the force commander will perform. The CINC may assign responsibility for one, or any combination of the three operational roles. Unstated in the doctrine is that in any event, the theater ASCC commander retains ultimate responsibility for support and linkage roles. Once this decision is made, the commander will exercise his perogative of command to organize his assigned forces to best accomplish the mission.[60] The structure will depend largely on "the degree of participation within the AOR [area of responsibility] required by Army forces."[61,62]

From this discussion, one finds the doctrinal manuals for operational logistics do not always agree. This is not surprising given that they have been written at different times by different organizations, for different purposes. The differences serve to highlight the sometimes confusing nature of doctrine.[63] The list at Appendix A, while not all encompassing, shows the doctrinal foundation of operational logistics.

III. HISTORICAL PERSPECTIVE

"I don't know what the hell this logistics is that Marshall is always talking about, but I want some of it."

Admiral Ernest J. King

The focus now shifts from the examination of doctrine to an analysis of historical examples of operational logistics. This begins with the Korean War and the Vietnam War, then shifts to the more contemporary examples of OPERATION DESERT STORM, Somalia, Rwanda, and Haiti.

Korea

One of the more glaring deficiencies in the Korean War was the absence from the beginning of a prepared plan for logistical support of operations in Korea. "No base plan existed in June 1950 for combat operations in Korea, a logistical support system

17

was developed from emergency to emergency"[64] Detailed planning did begin as soon as the decision was made to commit troops; however, had there been a base plan or assumptions with which to begin, the support effort might have gone more smoothly. It is safe to assume that at least the difficulties with transportation, a major limiting factor in logistical operations in Korea, could have been foreseen.[65]

Anticipation is foremost of the five logistics characteristics in the army's doctrine.[66] The anticipation of requirements helps to minimize the need for improvisation, of which there was no shortage in the Korean War. Anticipation would likely have led to better coordination between the logisticians in the Far East Command and the operational planners there. Dr. James Huston notes that affirmative responses by the Far East Command to questions raised by the Department of the Army about the logistical feasibility of a campaign in Korea were, "based more upon faith than upon studied inquiry."[67] Thus the lack of logistical planning in the Far East Command meant the logistical and operational schemes were uncoordinated at the outset; logistical support would be reactionary rather than anticipatory; and logistics would be likely be a limiting factor to maneuver operations.

In The Lifeblood of War, Sir Julian Thompson, argues that the most serious logistic problem facing Lieutenant General Walker's Eight Army, was the shortage of ammunition.[68] Ammunition shortages, however, were more attributable to problems of distribution, than to actual shortages of stocks. Indeed, Huston notes, "supply quickly caught up with demand, and some of the loading facilities [in the U.S.] were deactivated when it appeared that the war was about to be carried to a successful conclusion."[69] There was so much ammunition in Japan by November 1950 that the facilities there could not handle it all; two ammunition ships were even diverted to the European Command. Huston asserts, "The whole [distribution] operation there was pretty much of an improvised affair."[70]

18

LTG Joseph M. Heiser, in <u>A Soldier Supporting Soldiers</u>, notes materiel shortages
were also the result of an acute shortage of trained personnel, ammunition units, and
storage space.

> A large part of the needed ammunition was listed in our inventory, but in the
> absence of trained ammunition personnel, boxes of ammunition had been
> unloaded and piled on the docks, not always together, and incorrect estimates
> had been made of the number of rounds received. Our records [merely told] us
> we had ammunition that we could not find.[71]

Huston notes five principal limitations on transportation in Korea: limited port

facilities and a lack of airfields, limited rail roads, the overall poor condition of both the

railroads and the rolling stock, shortages of fuel and water for the railroad engines,

and poor roads.[72] The transportation infrastructure had to be repaired, improved, and

maintained to improve the distribution problem, especially as forces moved out of the

Pusan perimeter. Bridges had to be rebuilt or improved, railroads and railroad rolling

stock had to be repaired, and roads improved. Pipelines, of which there were

practically none at the beginning of the war, terminals, and storage facilities, were

constructed to provide flexibility to the transportation system and reduce reliance on

rail and truck transportation.[73] The infrastructure construction effort, while

conducted by engineers, a combat support branch, was critical to the improvement of

the logistical situation in Korea, as it would later be in Vietnam.

The organization for logistic support in Korea was less than optimal, which is not

surprising, given the short notice and accelerated tempo for starting the operation.

The rear headquarters of the Eighth Army provided both logistical support for the

army in Korea and area administration in Japan for the first two months of the war. On

August 25, 1950, it became the Japan Logistical Command (JLC) and was, in effect, a

theater communications zone organization. Eighth Army in Korea submitted its

requisitions to the JLC which, in turn, requisitioned supplies from the United States.

JLC operated ports, depots, and other installations in Japan for logistic support.

19

In Korea, the Pusan Base Command was organized on July 4th to supervise the port activities. In September, the 2nd Logistical Command replaced the Pusan Logistical Command with a primary mission to receive, store, and forward supplies for the Eighth Army. It also forwarded most Eighth Army requisitions to JLC, except for ammunition, petroleum and perishable foods, which Eighth Army requisitioned directly. The 3rd Logistical Command was organized after the Inchon landing to provide the same type of support for X Corps. In October, it was attached to the 2nd Logistical Command and then moved to Pusan after the evacuation of Inchon in January 1951. At Pusan, it remained a subordinate element to the 2nd Logistical Command. The 2nd's responsibilities then included logistic support of the combat forces, administration of the area around Pusan, the Inchon-Seoul area, and the port of Kunsan on the west coast, relations with civil authorities of the Republic of Korea, and administration of prisoners of war.[74]

Huston notes that one of the great limitations of this organization was a lack of command authority. By January 1951, nearly 260 units were attached; a command relationship which did not provide the commander with the flexibility to reassign personnel and units as he saw fit. Later, most were assigned, but the commander still lacked full authority to reassign subordinate elements.[75]

The Eighth Army was a field army, but it's responsibilities included many tasks which, in World War II, had belonged to the communications zone. It's logistic mission included logistic support for all U.N. forces in Korea, except for ammunition and technical services for the Air Force units, Marine Corps' specific equipment, items supplied by the governments of other U.N. forces, and X Corps while it was in the Inchon area of operations. The latter operated directly for the General MacAurthur. The X Corps submitted requisitions directly to JLC, however its supplies were delivered to Pusan to be processed by Eighth Army.[76] Eighth Army was responsible for receiving and storing supplies and materiel as they landed, as well as moving the

20

supplies forward. Such logistic operations would have occurred behind the army's rear boundaries in World War II.[77]

The theater support structure underwent a number of evolutionary changes from January 1951 until the end of 1952. In September 1951, the Eighth Army formed an army base area immediately behind the army service area. This divided the area into the combat zone and the base area. The delineation gave 2d Logistical Command responsibility for all the base area. It continued it's logistic mission and in addition, now had five area commands under it for local administration.

This organization for support changed in August 1952 when General Mark W. Clark established the Korean communications zone (KCOMZ) to relieve Eighth Army of responsibility for logistical and territorial operations not immediately related to the conduct of combat operations. With this decision, 2d Logistical Command became a doctrinal logistic command and could focus on its logistic support mission for Eighth Army as the operating agency for the Korean base section. Responsibility for area administration, prisoners of war, and civil affairs passed to the KCOMZ. The KCOMZ now had four subordinate commands: Korean base section (2d Logistical Command), 3d Railway Service, U.N. Prisoner of War Command, and U.N. Civil Assistance Command.

On 1 October 1952, Headquarters, U.S. Army Forces, Far East absorbed the Japan Logistical Command and became the base section of a theater communications zone as well as playing the role of theater communications zone headquarters and theater army forces headquarters. Doctrinally, KCOMZ should have been subordinate to the theater army forces headquarters, but initially it was afforded equal status with U.S. Army Forces, Far East, as a major subordinate command of Far East Command.

A final reorganization took place on 1 January 1953 regularizing the theater organization. Far East Command became a joint headquarters with three major subordinate commands, U.S. Army Forces, Far East, naval forces, Far East, and Far East air forces. Eighth Army, KCOMZ, Headquarters and Service Command (which provided

21

services and supplies in the Tokyo area), and Ryukyus command all came under U.S. Army Forces, Far East. The Army was the executive agency for the Joint Chiefs of Staff in the Far East, making U.S. Army Forces, Far East, the executive agency for logistics and administration. U.S. Army Forces, Far East, joint responsibilities were support from army sources for American, South Korean, and other U.N. forces, nonmilitary agencies and activities, and the Mutual Defense Assistance Program; supply of common items for naval and air forces, Far East; local procurement for Japanese security forces; matters pertaining to reparations equipment, petroleum supply, real estate management, ports and port facilities, health policy, and graves registration service. All of these could be the responsibility of the army service component command in a theater of operations today.[78]

Vietnam

The 1970 report, "Military Supply Systems: Lessons from the Vietnam Experience," by the U.S. House of Representatives Committee on Government Operations notes,

> One central fact that thrusts its way to the foreground of any evaluation of Vietnam supply support is that for more than 3 years it was relatively uncontrolled. The zeal and energy and money that went into the effort to equip and supply U.S. forces in Vietnam generated mountainous new procurements, choked supply pipelines, over burdened transportation systems, and for a time caused complete loss of control at depots in Vietnam.[79]

The congressional study notes a number of contributing factors to the problems of supply control in Vietnam. First and foremost, was the decision to put troops in the field as quickly as possible without waiting for a logistics build-up or deploying logistical personnel in sufficient numbers to cope with the amounts of supply on the ground.[80] The report notes the decision was made with the knowledge of the risks associated with it. This decision is one which the Army has repeated in almost every operation since. The Joint Logistics Review Board, in its detailed review of the Vietnam

War, listed as its first priority, the need for the earlier introduction of a theater

logistical command in support of a non-forward-deployed force[81]

The second factor was the austere port facilities in Vietnam.

Vessels waiting to get into port became floating warehouses. . . . [then] to avoid
demurrage charges and release ships for the next run, the pressures were
strong to unload and get out. Supplies were dumped on the docks as ships by the
score waited their turn. . . . Port authorities wrestled with the competing
demands of space to unload supplies for economic aid as well as military
requirements. . . . [pressures] were strong to move supplies away from the port
area and make way for incoming loads. Vast amounts of supplies were jammed
into depots or placed in open areas.[82]

The lack of adequate ports, and an effective management and distribution system,

caused a bad situation to get worse. Materiel was stacked at random, often out in the

weather. Documentation was lost or became illegible; packaging was damaged and

weathered; markings became illegible; and equipment could not be identified or

cleared out of storage areas. At the tactical-level units simply ordered what they

needed, many times in quantities in excess of the actual requirement and usually with

an improper (inflated) requisition priority. When supplies and equipment were not

received, the units simply re-requisitioned. This, in turn, led to increased supplies

added to the quantities already in country. The system could not keep up and

accountability was lost.[83]

Spot checks of supplies showed as much as 50 percent of the items received had not

been recorded and on-hand quantities often listed as zero. As an example, in 1968 the

equivalent of a whole ship load of toilet paper (12,000 tons) was observed in one

location. The books showed zero-balance. Hundreds of connexs were filled with 69,000

mattresses, again the books showed zero-balance.[84]

After three years of trying to identify, count and gain control of the inventory in

theater "draconian measures" were taken to staunch the flow. In 1968, certain

categories of material not considered essential for combat operations were cancelled;

another program held up specific bulk items at various points in the supply pipeline;

then entire Federal supply classes were blocked. Not until the spring of 1969 were stockages brought down to a manageable level.[85]

A commonly know maxim pertaining to inventory management is reinforced by the Vietnam experience: 20 percent of the items ordered will account for 80 percent of the demand. Specifically, the Joint Logistics Review Board chaired by General Besson determined that:

> 20,000 lines will satisfy 65 percent of all requisitions and should be stocked in theater. These 20,000 lines generate 83 percent of the annual tonnage; 2,200 of these lines, or 11 percent of total demanded generate 75 percent of the tonnage and should move by surface unless they are high value items.[86]

Of the annual demands, 5,000 items accounted for 50 percent. When one considers that in 1966 the Army stock list in Vietnam contained nearly 200,000 line items, the impact on logistics infrastructure, transportation, and personnel requirements is clearer.[87] Even at the height of force strength, the army in Vietnam never had the capability to adequately manage that many line items. The implication is that management of the supply system at the operational-level can have significant strategic impact on transportation and personnel requirements, and a tactical impact on the efficiency of the supply system to deliver equipment and materiel.

Finally, the magnitude of the task in Vietnam required significant infrastructure development. Few expect there will ever again be a requirement to cycle more than two million U.S. military personnel in a five-year period into a theater of operations; however, in OPERATION DESERT STORM, the largest troop deployment since, the armed forces used Saudi Arabia's very modern sea and air port facilities. In Vietnam, the facilities had to be constructed: seven deep-water ports and eight major air bases, not to mention millions of square feet of storage space, major tactical bases, roads, bridges, etc.[88] In an austere theater of operations, infrastructure development is a major undertaking unto its own, and impacts significantly on the tempo of operations and overall logistical capabilities. Construction materials, which must be brought into

theater, compete with the ammunition, vehicles, equipment and supplies necessary to build the force, for often limited space and materiel handling equipment at the port facilities, limited transportation assets, and limited manpower.

As noted above, and reinforced by the Army's official studies of the Vietnam war, the lack of coherent organization for logistical support led to an absence of an integrated logistic system. Prior to 1964, logistic support was largely decentralized and came from a number of organizations including Headquarters, Support Activity, Siagon--largely a Navy organization, U.S. Army Support Group--attached to U.S. Army, Ryukyu Islands, and U.S. Army Support Group, Vietnam--supported mainly out of Okinawa.[89]

The 1st Logistical Command was deployed in 1964 and came under the control of U.S. Army Support Group, commanded by General Stillwell, who was also the deputy army component commander. The initial mission of the command was to provide support for all U.S. Army forces. Later, it assumed responsibility for common-user supply services south of Chu Lai.

Near the end of 1965 the command was setting up logistic support areas at Qui Nhon, Nha Trang, and Vung Tau, and developing a depot and port complex at Cam Ranh Bay. The command had grown to over 22,000 men and was a Type-B command, capable of supporting an independent corps command and approximately 100,000 troops.[90] Later, it had four support commands responsible for each of the four regions of Da Nang, Qui Nhon, Cam Rhon Bay, and Siagon. Although technically part of the 1st Logistical Command, in the opinion of the commander, LTG Heiser, they operated in reality as corps support commands. Each had direct responsibility to support the combat corps (field forces) in the region.[91]

"In both Korea and Vietnam, the Army operated under the doctrine where all logistical support, other than that in division trains or the DISCOM, came from the

theater logistics command. Both were much like Desert Storm, very distant from the United States, with no forward US presence."[92]

Desert Storm

The example of DESERT STORM provides an opportunity to view the three roles of the army service component commander mentioned in the previous chapter. LTG Yeosock viewed Third US Army/US Army Forces Central Command to be, in fact "three armies": the Army component command and a theater army [now referred to in doctrine as the army service component command], and a numbered army. None of these concepts were unique to Army or joint doctrine; that their missions were rolled up under one headquarters was.[93] As a component command, Third Army was involved in:

1. Planning for ground operations.

2. Operating the communications zone.

3 Coordinating with other services and allies for joint and combined operations.

4. Supporting the other services with common supplies such as fuel and ammunition.

5. Providing civil affairs support.[94]

As a theater army,

Third Army formed EAC units when a requirement existed for specific missions and functions outside of the corps' tactical warfighting capabilities, or where functional organizations could better coordinate or supplement existing corps capabilities. The theater air defense brigade (11th Air Defense Artillery Brigade) and the 513th military Intelligence Brigade are examples of the former. The Third Army Medical Command, Personnel Command, 416th Engineer Command, and 352d Civil Affairs Command are examples of the latter. The Support Command (SUPCOM) units were able to supplement corps sustainment efforts directly and operate the theater communications zone.[95]

One of the primary tasks of Third Army was to build the army forces in theater. The build-up was accomplished by first deploying forces of the XVIII Corps in reaction to Iraq's initial invasion of Kuwait. Due to the unstable nature of the enemy situation and the belief that Sadaam Hussien would likely continue his attack into Saudi Arabia, the

decision was made, as it had been in Korea and Vietnam, to deploy the maneuver forces first and then to deploy the logistical forces as the situation stabilized.[96] Later, when VII Corps deployed into theater, the forces were sequenced more logically largely with the support forces leading.[97]

The deployment was no small undertaking. As LTG Yoesock noted, Third Army "generated a force in 80 days equivalent to that committed in Vietnam in one year after the first deployment of US combat forces."[98] LTG Pagonis, himself "drafted" almost over night from his month-old position as FORSCOM J4 to become the ARCENT Deputy Commanding General for Logistics, with a contingent of twenty hand-picked "deputies" and other forces he commandeered, was the only logistical operation in theater. Within eight days of Pagonis's arrival, his element was designated ARCENT SUPCOM (Provisional).[99]

The initial deployment provides four lessons for functions of the operational logistician: force reception, host nation support coordination, contracting, and infrastructure development. The four are closely related. The problem of force reception, in absence of logistical elements to facilitate the operation, relied heavily upon host nation support and contracting. Despite Saudi Arabia having robust air and sea port facilities, the country had little or no infrastructure to house a U.S. Army corps' worth of soldiers and materiel. King Fahd, in accepting the deployment of American troops to Saudi Arabia, also offered the full cooperation and resources of his country.[100] This meant unlimited access to and use of the airfields and ports as well as the cooperation of the merchants and businessmen of Saudi Arabia. LTG Pagonis characterized reception as the first logistical challenge of the operation, feasible, "only if we had unlimited access to and use of the airfields and ports to receive personnel and supplies . . ."[101] and further, that host nation assets would have to suffice until military logistical forces could arrive.[102]

27

This latter point meant an extremely large effort in the area of contracted support, to include food service, petroleum, refrigeration, transportation, and buildings, both for administrative and troop housing, not only during the initial period, but throughout the entire operation. During both Desert Shield and Desert Storm, the support command under LTG Pagonis drew up, executed and monitored over 70,000 contracts.[103] The established Saudi economy was able to respond with fairly robust support in relatively short order.

The problem of troop housing and sanitation proved to be another problem all together, solved largely by improvisation. The command procured 10,000 bedouin tents to provide immediate housing relief. More than 5000 soldiers slept at one Saudi facility designed to accommodate 200 personnel and their families; 1000 soldiers slept at another designed for 100 people. Hastily constructed Vietnam-era portable latrines and showers, the prototype provided by the movie Platoon, solved a sanitation problem for hundreds of thousands of people not only in the early days of the deployment, but throughout the operation. "We focused on taking small steps each day to create a humane and livable environment. . . .with whatever resources were available (empty buildings, water and refrigeration units, stacks of Bedouin tents)."[104]

As the ground offensive campaign plan was developed, and a second corps introduced into theater, Third Army was faced with the problem of having to build a substantial theater and host-nation logistic support structure simultaneously.[105] This phase of DESERT STORM highlights a number of operational logistic functions. First, large supply depots had to be stocked and positioned to support the plan. This entailed establishing a major operating and logistics base in the vicinity of King Khalid Military City[106] and five theater army logistic bases in the desert to support the operational plan.[107] Second, the movement and repositioning of two corps had to be meticulously planned and executed. This was complicated by the sheer numbers of vehicles involved, the existence of only one paved road across the northern portion of

28

Saudi Arabia,[108] and the limited capability for operational ground movement due to critical shortages of heavy wheeled vehicles, heavy equipment transports (HETs), fuelers, and heavy expanded mobility tactical trucks (HEMTTs).[109] As LTG Pagonis noted, "We needed HETs in large numbers. . . and the Army had a grand total of 112 HETs in-theater. . . . We were able to assemble a fleet of nearly 1300 . . . most of which came equipped with experienced third-country national drivers."[110]

The third function demonstrated was the sustainment of the ground forces. All food, fuel, repair parts, and supplies and equipment, had to be trucked into an area of vast barren desert nearly devoid of civilization and virtually without any commercial infrastructure. Pagonis's command, "pieced together a schedule incorporating the movement of the two corps, movement of the Coalition forces and transport of fuel, equipment, and supplies to support the troops. . ."[111]

As the ground attack began, the problem of enemy prisoners of war (EPWs) surfaced; Iraqi soldiers surrendered in droves, sometimes outnumbering their captors. "We coped with the massive burden of caring for and transporting over 60,00 EPWs"[112] The divisions had limited capability to gather the EPWs in holding areas and then transport them to rearward; in many cases the attacking maneuver units could only disarm the Iraqis, provide them with an MRE and water, and point for them to walk to the rear of the attacking coalition forces.

The final lesson is the redeployment effort, dubbed "Desert Farewell," by LTG Pagonis. It "was the first close-out of a theater of war by United States forces in this century."[113] In previous conflicts, a continued American presence, or in the case of Vietnam, a virtual abandonment, had meant that a good portion, if not all of the equipment, was to be left in theater. For DESERT STORM, some equipment was eventually shipped to Kuwait for storage; the rest was retrograded back to the units or was placed on maritime prepositioning ships. This effort attempted to transition "two corps' combat power - the tanks, artillery, and ammunition . . . .and the movement of

29

some 365,000 troops, along with their equipment in less than ninety days." 22d SUPCOM also had to "account for, segregate, clean and load onto vessels and planes all of the equipment and supplies that were left behind by the departing forces."[114] Water (for washing equipment) was brought to the sites by either truck or pipeline; asphalt had to be laid down; and some equipment had to be shrink-wrapped.[115]

The 22d SUPCOM had command and control of eight subordinate combat support and combat service support brigades and groups during Operation Desert Storm. These units operated prisoner of war camps and provided sustainment support in the areas of transportation, ammunition, petroleum, direct and general supply maintenance, field services and procurement. Except for the fact that 22d SUPCOM did not always exercise command and control over the medical, personnel and finance functions, it was for all intents and purposes a Theater Army Support Command (TASCOM), although the headquarters was organized under a Table of Organization and Equipment for a theater army area command (TAACOM). Without arguing how 22d SUPCOM should have been organized, whether as a TAACOM or a TASCOM, it is sufficient to say that it was not organized or employed in accordance with current Army doctrine.[116]

Somalia

OPERATION RESTORE HOPE began for army forces with elements of the 10th Mountain Division arriving on 12 December 1995 (D+3). The division deployed with elements of its DISCOM. At D+5 the 13th COSCOM was directed to establish a Joint Task Force Support Command (JTFSC).[117] The support command included 7th Transportation Group, 593rd Area Support Group, 62nd Medical Group, 54th GREGG Company (-), 49th MMC, and 4th MCC.[118] The operation provides a number of issues for consideration as operational support functions: infrastructure development, contracting support, movements management, and the designation of a COSCOM as the JTF support command.

After years of civil and clan warfare, the country of Somalia had a fractured, nearly non-existent infrastructure. Naturally, a major focus of the support effort was the improvement of the infrastructure, to include construction and improvement of 2,000 kilometers of roads, upgrading and maintaining airfields, and building base camps.[119]

DISCOMs and COSCOMs have a very limited number of organic contracting officers.[120] The units can support theater contracting only if augmented. The lack of a viable economy in Somalia, however, presented a new contracting challenge. The RESTORE HOPE Lessons Learned Report noted that few supplies and services were available in Somalia for purchase or contracting. As a result, contracting operations were supported from Kenya. The distance meant contracting support had to become the responsibility of a higher headquarters, almost by default. Contracting support became essentially a split-based operation. This problem, in an economically austere theater, has significant implications for communications requirements, transportation of supplies between areas, and finance support.[121]

No Joint Movement Control organization deployed to Somalia to provide joint and combined movement support. As a result, a control staff was put together ad hoc. There was also no capability for World-Wide Military Command and Control System until 25 days (D+25) after the deployment began. This meant Time Phased Force Deployment Data (TPFDD) and air and sealift movement data was not available, hindering intransit visibility and adequate preparation for reception and onward movement of forces arriving in theater.

The lack of a JMC caused confusion over who was responsible for transportation responsibilities in theater. This led to problems in sequencing ships at the seaport of debarkation, a delay until D+47 for management of theater highway movements, and confusion through mid-February over responsibility for intertheater air and sealift movement.[122]

31

The decision to form a Joint Task Force Support Command (JTFSC) was unprecedented, even though the designation of a single service as the executive agent for logistics in a theater is provided for in joint doctrine.[123] The 13th COSCOM was designated as the headquarters; however, none of the major subordinate commands of the COSCOM were deployed with the headquarters. Some units assigned to the command were composites of units, as well. The ad hoc nature of the JTFSC meant that establishing command relationships were "time-consuming and not as efficient as deploying a CSS command, trained and prepared as a team to support theater operations."[124]

The lessons learned report noted that, conceptually, the JTFSC creates economies of force, even though the command's unit composition did not include representatives from other services. In RESTORE HOPE, army units directly replaced MARFOR units and in most cases, fell in on Marine equipment left in theater. The JTFSC was able to take over certain capabilities, such as hospital support, as capabilities became available. This served to smooth the transition between responsibility between the MARFOR and the JTFSC, and eventually between the JTFSC and UN forces.[125]

Rwanda

The recent mission to provide humanitarian relief in Rwanda, OPERATION SUPPORT HOPE, is an example of a successful operation other than war. Like previous operations, this operation took place in an austere environment, in an area with an almost non-existent infrastructure, and was logistics intensive. The specific mission was:

> Provide assistance to humanitarian agencies and third nation forces conducting relief operations in theater to alleviate the immediate suffering of Rwandan refugees;
> Provide immediate assistance to ongoing or planned efforts for the establishment and operations of water distribution and purification systems in Goma;
> Establish an airhead and distribution capability at Entebbe, Uganda;
> Provide 24-hour airfield support services as required to Goma, Kigali, and other airfields as the situation unfolds;

32

Establish overall management of logistics for humanitarian relief in support of UNHCR and other nations;
Protect the force.[126]

In addition to this guidance from CINCEUR, there were a number of national objectives made public by the US national leadership. The logistics specific objectives were: Increase the capacity to receive, transfer and distribute goods at the airfields; assist in the deployment of the full contingent of UN peacekeeping forces; and coordinate the flow of all supplies/consider a log management structure for the entire relief effort.[127]

The commander of the JTF believed the mission to be functionally oriented and developed the task organization to be geographically based. As tasks were completed in a particular location, the forces were relocated out of the theater vice sending them to another location to begin a new phase or mission. Specific sub-JTFs were built for each location. As such, the JTF did not have the traditional ARFOR organization. This enabled the commander to enter into a country emotionally charged by a recent civil war, conduct humanitarian service missions, and reposition the forces out of theater without becoming involved in the Rwanda civil war or its aftermath, and without becoming a peacekeeping force.[128]

There was no theater army support unit in the JTF task organization. The non-standard organization of the JTF makes it difficult to cleanly discern what ASCC functions were performed; however, some functions in evidence correspond to other operations. One is the reliance on host nation support. "U.S.-standard contractor support was not available for some activities like large-scale messing or sanitation."[129] Such support would normally be obtained through host nation contracting.

Another area for comparison is the build-up of the area around Bukavu in preparation for a refugee surge. Storage facilities had to be prestocked and camps prepared, similar to the build up of a logistics base in anticipation of future operations in an area. At Entebbe, the JTF had difficulty maintaining itself. Because there were

no sanitary facilities, latrines and showers had to be built. Specific mention is made in the AAR of the need to, "address seriously the deployment and sustainment of JTF headquarters and infrastructures."[130]

A third operational-level concern was the lack of a joint effort for common finance support such as, currency conversion, money order/check cashing and TDY advances. The AAR noted the Army finance office provided support to all soldiers, sailors, airmen, marines, and civilians in the area of operations; the Air Force element would support only airmen. In an operation of this size, with small sub-JTFs operating in disparate locations, the support provided should have been a joint venture. Similarly, contracting personnel were not joint in their approach resulting in inequities in the support provided to various service elements.[131]

Finally, the deployment flow of certain logistical control/support units into the theater was not well sequenced. Despite the mission to provide humanitarian support into an infrastructure-austere environment, clearly requiring a robust logistical effort, movement control teams, material management teams (MMT), and airfield arrival and departure control groups (A/DACG) were not "front loaded" into the TPFDD. Specific mention is made that the MMT and A/DACG did not arrive until C+21 hindering the maintenance of accurate accountability and distribution of supplies and equipment[132]

Haiti

As with the Rwanda mission, there were problems with the sequencing of critical support elements to facilitate reception operations. Movement control teams (MCT), Arrival Port of Debarkation (APOD) teams, and A/DACG were bumped from their flights causing delays in off loading equipment, disorganization at the port, problems with property accountability, safety problems, and non-existent personnel reception operations.[133]

34

Some of the sequencing problems are attributable to the change in the scheme of maneuver immediately prior to the beginning of the mission. Successful eleventh hour negotiations by Former President Jimmy Carter, Senator Sam Nunn, and General (Ret.) Colin Powell necessitated the change from forced entry operations to permissive entry operations creating time-phased force and deployment data (TPFDD) problems. While planners closely managed both entry option's TPFDDs, and measures were taken to coordinate the two, discontinuities did occur.[134]

Sanitation requirements were an infrastructure problem in UPHOLD DEMOCRACY as in other operations. Unlike DESERT STORM, where makeshift toilets had to be hastily constructed as a emergency measure, portable toilets were used; however, adequate consideration was not made for the number of toilets required, for proper assembly of the toilets, nor for an appropriate number of Sucker Service Trucks to service the units. Engineers had to divert materials from base camp construction sites to build temporary latrines and showers. The problem was not solved until D+24 when additional service trucks arrived in theater.[135]

·The historical examples appear to validate the focus of operational logistics as force reception, infrastructure development, and a broad mixture of the management and distribution of materiel, movements, sustaining soldiers, and health services. One is struck by the similarities this wide range of examples demonstrate. A number of operational functions and concepts were common to almost every operation. In each case, maneuver units were front-loaded into the theater, which required force reception operations to try to catch up with the ever increasing flow of personnel and materiel. Each operation involved a significant effort towards infrastructure development which, in most cases, meant that construction materiels also had to be brought into the theater in addition to equipment and other supplies. This added to the confusion and difficulties associated even with permissive entry operations. Each

35

operation involved a substantial reliance on host nation support and contracting. This was significant because civil affairs and host nation liaison expertise was not always present. Sufficient support for contracting was also a problem. Finally, in each case, the organization for operational support was put together ad hoc. In LTG Heiser words, "'the Past is Prologue.' Time and environment change, but basic logistics problems and human nature remain the same."[136]

IV. ORGANIZATIONAL APPROACH

Many logisticians in today's Army look to total asset visibility and in-transit visibility of materiel as answers to the recurring distribution and materiel management problems in theaters of operations. These may not be the "silver bullet" to solve supply problems. In a statement which might just as well have been coined as part of the Army's Force XXI lexicon, the U.S. House of Representatives Committee on Government Operations stated in 1970,

> New technologies are putting wondrous new tools at the disposal of military managers--huge computers to do in seconds what human hands and brains cannot do in decades; lightning fast communication of logistics data through satellite relays in the sky; giant cargo aircraft and fast, new ships to move the men and material of war in hours and days instead of weeks and months. . .what challenges do they make, to the conventional ways of getting goods to the fighting men?[137]

The implication is that even as far as we have come in 25 years, much in the logistics world has remained the same. Recent operations in war and operations other than war suggest that technology may not be the answer to our logistical shortcomings. Technology will not fix organizational or doctrinal deficiencies. Technology may enhance, speed, and compress capabilities and enable us to handle volumes of data; however, the processes essentially remain unchanged. If technology enhances and speeds up bad processes, then organizations will need only to have the capability to fix faster, larger errors more quickly.

36

The previous chapters provide a markedly different view of operational logistics from the cold war era definition that the operational-level differs from the tactical only by factors of time and scope. Both the new FM 100-7 and FM 100-16 offer modular unit design as a concept for logistical organizations.[138] This notion appears to be a natural outgrowth of the logistical characteristic, responsiveness. In British logistic doctrine, this concept is the principle of flexibility. According to Sir Julian Thompson, in The Lifeblood of War, flexibility means, "in a fast moving battle, . . . the system must be supple and quickly and easily adaptable to meet the new circumstances."[139] In principle, this is not far afield of U.S. Army doctrine for responsiveness, "The logistics system must react rapidly in crises. . . . Logistics commanders and staffs must adapt units to requirements, often on short notice."[140] However, the American concept goes further:

> Tailoring organizations will be the rule, often units will operate with troop lists different from normal garrison and home station training situation. Provisional units might need to be formed. . . . tasked organized for force-projection requirements that will be difficult to forecast with complete accuracy.[141]

From this, the army tends to define responsiveness as meaning an adaptable organization and hence the move toward modularity, vice the British description of a "supple" system. Unfortunately, the application of modularity leads to the notion that the organization should be kludged together as the situation arises, pieces and parts to make the whole, instead of the doctrinal definition of a modular unit which means to start with a base organization and add or subtract assets as the situation dictates.[142]

General Pagonis chose a team of twenty soldiers for his initial deployment to Saudi Arabia because those trusted agents, "had worked with me before and . . . understood my management style. . ."[143] His reasoning was simple, "Would I rather have the world's best port operation officer, if he was someone who didn't already know my style? Or

would I rather have the world's second best port operation officer, who knew my style intimately and was comfortable with it?"[144]

This same concept applies to organizations. The inference can be drawn from Pagonis that there is much to be said for having an organization with habitual relationships with staffs and leaders who have and understand standard operating procedures and systems, gained through training and operating together. This issue was specifically noted in the Somalia after action review.[145]

One of the luxuries of the logistical unit is that whenever it is training, it is also conducting its war-time mission. At the same time, it performs daily at least a portion of its real world mission and thus is able to train on a daily basis. The nature of logistics dictates that anytime support organizations are involved in operations, they must at once deploy, plan, and simultaneously conduct their mission. This is unlike the preponderance of the maneuver force which is able to plan and usually rehearse before operations are launched. This suggests the conclusion that organizations are a better solution to responsiveness than ad-hoc modularity.

On the 12th of August, four days after his arrival in county, Pagonis's twenty "deputies" arrived. That enabled him to, "go from being reactive to being anticipatory--when we would stop being firemen and start being logisticians."[146] However, it was not until at least mid-September that LTG Pagonis's organization was truly able to conduct long-term planning, instead of dealing with only the near-term needs.[147] One can posit that had an organization been employed from the beginning, instead of individuals, the logisticians might have been better positioned to get ahead of the "power curve" because of already established command relationships and training. A unit would have entered the theater postured to provide support as quickly as possible through established procedures.

We should expect that a standing organization, as the result of normal training and planning, will have considered how it would deploy and quickly get up and running in

38

any operation. Such foresight on the part of an organization means that planners for an operation are relieved of solving many of the myriad of immediate problems involved with logistically sequencing the broader operation; a unit is assigned instead of a collection of experts, and the unit's own previous considerations indicate how they will operate. Certainly, no two situations are alike, but it is not difficult to recognize the types of generic situations -- austere vice developed infrastructure, forced vice permissive entry, etc. --"in which forces would be involved.

The army uses the Joint Strategic Capabilities Plan (JSCAP) to apportion forces. From it, one can predict the types of maneuver units that will require support and thus predict the nature of the support units required as well. Planning reveals an appreciation for the environment and type operation in which forces will be employed and thus an appreciation can be gained for the robustness of the required support.

In the study, Strategic Logistical Doctrine in the Gulf War, Lieutenant Colonel Dwight E. Phillips recommended establishing an active duty Joint Separate Area Support Group (JSASG) based in CONUS, similar to the Army's separate combat brigades. The JSASG could be an expanded version of the 100 active duty soldier TAACOM recommended by LTG Pagonis in Moving Mountains.[148] Phillips envisioned a JSASG package made up of a ready-to-deploy headquarters, commanded by a brigadier general, with liaison personnel from other services, assigned active-duty units, designated on-call active duty units, and round-out support battalions. The headquarters would have the mission to deploy early to a theater to establish in-country reception capabilities, begin planning and coordination for reception, onward movement, and sustainment for the theater, to include coordination of host nation support and contracting.[149] His idea is essentially to form the nucleus of the ASCC.

LTC Phillips's solution may not be the complete answer; certainly one could challenge each aspect of his proposed organization beginning with whether it should be labeled "joint." However, as an active duty unit, it would likely provide critical

39

stopgap support for contingency operations allowing time for execution of reserve component call up, or the arrival of a more robust logistical structure. Aside from the obvious advantage such an in-place element would provide in terms of actual capability for theater development issues, the headquarters would have the additional advantage of providing a focal point for the development and revision of operational logistic doctrine. Who better to work through the thorny problems of power projection logistics than the headquarters which would have to execute the mission in an actual situation? The general idea is sound, but it is not novel.

The army has long recognized the need to augment organizations with some type of specialized operational support element. The new FM 100-7 calls for an "logistics support element (LSE);"[150] The 1985 version of FM 100-16 referred to it as the Army Support Element - Forward (ASE-F).

> "When the logistics requirement exceeds the capacity of the COSCOM, an EAC tailored ASE-F may be established as a major subordinate command of the COSCOM. This ASE-F will require the addition of GS supply and maintenance capability, a materiel management center element, and a movement control activity. The tailored ASE-F would provide the services of a TAACOM. . ."[151]

These latter organizations are probably somewhat simpler alternatives to a separate brigade-sized organization (the JSASG), and would be attached to an existing modular unit. Neither the LSE or the ASE-F are standing organizations, nor are their organizational structures outlined in doctrine.

As noted in the second chapter, doctrine posits that corps and divisions may be designated as ARFOR headquarters for a contingency. Both organizations have structured support commands which, by doctrine, will be augmented to meet the mission requirements. It may well be simpler to augment one or more corps headquarters with a standing ASCC cell, either in the form of a separate TOE organization, such as is suggested by the ASE-F, or at the very least a large staff

40

element. The important distinction from either the LSE or the ASE-F is that the organization should be a standing, not a conceptual unit.

LTG Pagonis suggests that, "logistics is a field that is particularly prone to suboptimization."[152] As the argument over army endstrength rages, standing up new organizations must be done with a recognition that it is unlikely that the force to grow in size. One organization can be formed only at the expense of another. However, it is equally as clear that forming ad hoc organizations has costs measurable in efficiency, readiness and capability.

V. CONCLUSION

This monograph examined whether emerging doctrine addresses functional and organizational requirements for operational-level logistics support of future force projection operations. The answer to the first part of the question is a qualified yes; the answer to the second portion, organizational requirements, a qualified no.

The analysis of the historical examples of U.S. involvement in operations in war and short of war, spanning 43 years, served to generally validate current operational logistics doctrine, articulated in the 1993 version of FM 100-5. The manual does not emphasize the importance of contracting and host nation support, two recurring requirements from the historical examples.

The analysis of the body of operational logistics doctrine demonstrated a lack of precision in terminology between the various manuals. These doctrinal shortcomings should be corrected to prevent confusion, both in the definition of operational logistics itself, and in specific definitions of sub-functions, such as operational personnel support. Army doctrine does not completely agree with the doctrine articulated in joint publications, and this too, must be addressed. As operations become increasingly more joint and involve the armed forces of our allies, precision of language can serve to

41

lessen confusion and improve understanding and the ability to cooperate in joint and combined operations.

The answer to whether emerging doctrine addresses the organizational requirements of force projection operations, is less apparent. Current doctrine for the Army Service Component Command is only conceptual. The clear trend is toward the use of modular units; units organized from among disparate parts vice employing a standing organization, with established command relationships and developed operating procedures. Experience would seem to indicate that, the use of a standing unit would provide, initially, a more responsive organization, one in which adaptability enhanced normal operating activities as opposed to dominating the daily operating routine.

The Army is called upon to act in an increasing number of situations, not to provide overwhelming combat capability, but because it is the only standing organization capable of providing an deployable logistic infrastructure with a robust command and control capability. At the operational-level of war, the clear delineation between logistics and maneuver operations, present in tactical operations, begins to merge. The capability for operational logistics is important to every mission the Army performs, whether in combat, or operations short of war. It is too important to our capability as an army, to be allowed to fall victim to suboptimization.

APPENDIX A

OPERATIONAL LOGISTICS CONCEPTS

Force reception	FM 100-5, FM 100-7, 100-16
-Redeployment	FM 100-7
-Replacement training	FM 100-7
Infrastructure	
development	FM 100-5
-General engineering	JCS Pub 4.0, FM 100-7
-Positioning of facilities	FM 100-7, FM 100-16
-Base development	FM 100-7

Distribution and management of:

Materiel (includes MCC)	FM 100-5, FM 100-7
-Supply systems	JCS Pub 4.0
-Theater reserves	FM 100-16
-Force sustainment	FM 100-16
Movements	FM 100-5
-Transportation	JCS Pub 4.0
-Staging and onward moves	FM 100-7
-Movement control	FM 100-7
-Lines of Communications	FM 100-16
-Transportation networks	FM 100-16
-Movement assets	FM 100-16
Personnel	FM 100-5
-Reconstitution	FM 100-7
Health service	FM 100-5, JCS Pub 4.0, FM 100-16
Maintenance	JCS Pub 4.0
Civil Affairs	FM 100-7
Support to other services	FM 100-5, FM 100-7, 100-16

ENDNOTES

[1] William G. Pagonis and Michael D. Krause, "Operational Logistics and the Gulf War," Land Warfare Paper No. 13, (Arlington, Virginia: Association of the United States Army, Institute of Land Warfare, 1992), p. 4.

[2] U.S. Department of the Army, Combat Service Support, Field Manual 100-10, (Washington, D.C.: U.S. Government Printing Office, 1968), p. 2-11.

[3] U.S. Department of the Army, Operations, Field Manual 100-5, (Washington, D.C.: U.S. Government Printing Office, 1986), p. 65, as cited in Peter W. Lictenberger, Theater Army Support Command: Support for the Non-forward Deployed Force, (Carlisle Barracks, Pennsylvania: U.S. Army War College, Military Studies Program, 1992), p. 30.

[4] U.S. Department of the Army, Decisive Force: The Army in Theater Operations (Final Approved Draft), Field Manual 100-7, (Washington, D.C.: U.S. Government Printing Office, 1995), p. 6-7.

[5] U.S. Department of the Army, Blueprint of the Battlefield, TRADOC Pamphlet 11-9, (Washington, D.C.: U.S. Government Printing Office, 1991), p. Glossary-4.

[6] Carl von Clausewitz, On War, trans. Peter Peret and Michael Howard, (Princeton, New Jersey: Princeton University Press, 1976, 1984), pp. 338-339.

[7] U.S. Department of the Army, Operations, FM 100-5, (Washington, D.C.: U.S. Government Printing Office, 1993) p. 12-3.

[8] U.S. Department of the Defense, Doctrine for Logistic Support of Joint Operations, Joint Publication 4-0, (Washington, D.C.: U.S. Government Printing Office, 1992), p. iii.

[9] FM 100-5, p. 12-1.

[10] Joint Publication 4-0, pp. I-2 and I-3.
"Supply systems acquire, manage, receive, store and issue the materiel required by the operating forces to equip and sustain the force from deployment through combat operations and their redeployment.
Maintenance includes actions taken to keep materiel in a serviceable condition, to return it to service, or to update and upgrade its capability.
Transportation is the movement of units, personnel, equipment, and supplies from the point of origin to the final destination.
General engineering provides the construction, damage repair, and operation and maintenance of facilities or logistic enhancements required by the combatant commander to provide shelter, warehousing, hospitals, water and sewage treatment, water and fuel storage distribution, etc., in order to enhance provision of sustainment and services.

44

Health services include evacuation, hospitalization, medical logistics, medical laboratory services, blood management, vector control, preventive medicine services, veterinary services, dental services, and the required command, control, and communications.

Other services are associated with nonmateriel support tasks provided by service troops and the logistic community that are essential to the technical management and support of force (i.e., aerial delivery, laundry, clothing exchange and bath, and graves registration.)" Joint Pub 4-0, pp. I-2 and I-3.

[11] Ibid, p. I-4.

[12] Ibid, p. III-3.

[13] Ibid, pp. III-3 - III-5.

[14] FM 100-5, p. 12-11.

[15] Ibid, p. 12-2.

[16] Ibid, p. 12-3.

[17] Ibid.

[18] U.S. Department of the Army, Combat Service Support, Field Manual 100-10, (Washington, D.C.: U.S. Government Printing Office, 1988), p. iv.

[19] The manual in many cases describes the process by which a particular sub-function is executed from the CONUS base to the lowest level. In the discussion of sub-functions of the CSS tasks, FM 100-10 does not delineate the differences between task definitions for the operational and tactical levels. As an example, replacement operations are tracked from the CONUS replacement system, operated by TRADOC, into the theater system, operated by the theater army personnel command, through replacement companies at TAACOM or corps, down to division replacement sections and into battalions where replacements are eventually moved to units.

[20] FM 100-10, pp. 2-2 and 2-3.

[21] Lictenberger, p.48.

[22] FM 100-5, pp. 6-1 and 6-2.

[23] Ibid, Introduction, p. v.

[24] FM 100-7, p. 5-36.

[25] Ibid, pp. 7-30.

[26] Ibid.

[27]Ibid, pp. 6-7 and 6-8.

[28]Ibid, p. A-1.

[29]Ibid, p. A-8.

[30]Ibid, p. A-9.

[31]Ibid.

[32]Ibid, p. A-14.

[33]Ibid, p. A-17.

[34]Ibid.

[35]Ibid, pp. A-21 and A-22.

[36]Ibid, p. A-25.

[37]Ibid.

[38]Ibid, p. A-9.

[39]U.S. Department of the Army, Corps Support Command, Field Manual 63-3, (Washington, D.C.: U.S. Government Printing Office, 1993), p. 8-8.

[40]FM 100-7, p. A-38.

[41]William H. Taft, IV, Deputy Secretary of Defense, Department of Defense Directive 5100.1, Subject: Functions of the Department of Defense and Its Major Components, dtd September 25, 1987, p. 14.

[42]FM 63-3, p. 8-20.

[43]FM 100-7, p. A-25.

[44]Ibid, p. A-30.

[45]Ibid, p. A-39.

[46]FM 63-3, p. 3-1.

[47]FM 100-7, p. A-36.

[48]FM 63-3, p. 6-3.

[49]FM 100-7, p. A-11.

[50]FM 100-5, p. 12-8.

[51]FM 100-7, p. A-11.

[52]U.S. Department of the Army, Army Operational Support, Final Approved Draft, Field Manual 100-16, (Washington, D.C.: U.S. Government Printing Office, 1995), p. 3-11.

[53]Ibid, pp. 6-8 and 5-7, respectively.

[54]FM 100-7, p. A-20.

[55]FM 100-16, p. 6-5.

[56]Ibid, pp. 7-4 and 7-5.

[57]FM 100-16, pp. 7-14 and 7-15.

[58]FM 100-7, pp. 2-34 through 2-36.

[59]"The first option [for how the Army organizes within the AOR] is for the [theater] ASCC to provide an operational-level C^2 capability."
   "A second option is the formation and deployment of an operational-level headquarters (for example, a numbered army) to control the conduct of operations."
   "The third option is internal to the ASCC and concerns the organization of the Army operational-level component." FM 100-7, p. 2-39.
   Further confusing the issue, five more possible "organizational options" are offered as permutations of the first option, listed on above. See also, FM 100-16, p. 2-19.

[60]FM 100-7 states that any of the six COCOM options from Joint Pub 2-0, Unified Action Armed Forces (UNAAF), 11 August 1994, including combining options, may be selected for the organization of forces. The six options are: service component command, functional component command, subordinate unified command, joint task force, single service force, and direct command. pp. 2-17 and 6-5.

[61]FM 100-7, p. 2-39.

[62]The author's interpretation is derived from the following discussions: COL Robert L. Baldwin, Director, Army Doctrine, Office of the Deputy Chief of Staff for Doctrine (DCSDOC), U.S. Army Training and Doctrine Command (TRADOC), personal interview, Fort Leavenworth, Kansas, 17 May 1995;
   LTC Christine Thompson, Army Doctrine Directorate, DCSDOC, TRADOC, personal interview, Fort Leavenworth, Kansas, 17 May 1995;
   MAJ Bill Karaktin, Army Doctrine Directorate, DCSDOC, TRADOC, personal interview, Fort Leavenworth, Kansas, 16 May 1995;

LTC Myron Griswald, Advanced Operational Arts Studies Fellowship, School of Advanced Military Studies, U. S. Army Command and General Staff College, Fort Leavenworth, Kansas, 17 May 1995;

Dr. Richard M. Swain, Director, Advanced Operational Arts Studies Fellowship, School of Advanced Military Studies, U. S. Army Command and General Staff College, Fort Leavenworth, Kansas, 17 and 18 May 1995;

BG Morris J. Boyd, Deputy Chief of Staff for Doctrine, TRADOC, personal interview, Fort Leavenworth, Kansas, 18 May 1995.

[63] While the discussions of operational logistics in FM 100-7, FM 100-16, and Joint Pub 4-0 contained many of the same concepts, the definitions did not agree totally nor include all the same elements. The requirements of joint doctrine to provide certain categories of maintenance and support to other services were not explicitly included in FM 100-5; additionally, civil affairs was identified as a function of operational logistics in FM 100-7 but was not included in FM 100-5.

[64] United Sates Army Forces, Far East and Eighth United States Army, "Logistics in the Korean Operations," Volume I, (Camp Zama, Japan: United Sates Army Forces, Far East and Eighth United States Army (Rear), 1955), Chapter II, p. 5.

[65] James A. Huston, "Korea and Logistics," Military Review, (February 1957), pp. 20 and 22.

[66] FM 100-5, p. 12-3.

[67] Huston, p. 22.

[68] Julian Thompson, The Lifeblood of War, (London: Brassey's (UK), 1991), p. 119.

[69] James A. Huston, Guns. Butter. Powder and Rice, (Selinsgrove: Susquehanna University Press, 1989), p. 157.

[70] Ibid, p. 159.

[71] Joseph M. Heiser, Jr., A Soldier Supporting Soldiers, (Washington, D.C.: Center of Military History United States Army, 1991), p. 61.

[72] Huston, Guns. Butter. Powder and Rice, p. 242.

[73] Ibid, p. 261 - 262. See also Eighth U.S. Army Korea (EUSAK), "Logistical Problems and Their Solutions," (Headquarters, Eight United States Army Korea, 1952), p. 80.

[74] Ibid, pp. 59-61.

[75] Ibid, p. 61.

[76] Ibid, p. 62.

[77]Eighth U.S. Army Korea (EUSAK), p. 23.

[78]Huston, Guns, Butter, Powder and Rice, pp. 62-65.

[79]U.S. House of Representatives Committee on Government Operations, Military Supply Systems: Lessons from the Vietnam Experience, (Washington, D.C.: U.S. Government Printing Office, 8 October 1970), pp. 4-5.

[80]Ibid, p. 5.

[81]U.S. Department of Defense, Logistic Support in the Vietnam Era, (Washington, D.C.: U.S. Joint Logistics Review Board, 1970), p. 6, as cited in Lictenberger, p. 50.

[82]U.S. House of Representatives Committee on Government Operations, pp. 5-6.

[83]Ibid, p. 6.

[84]Ibid.

[85]Ibid, pp. 8-9.

[86]Ibid, p. 44.

[87]Ibid, p. 44.

[88]Ibid, p. 24.

[89]George S. Eckhardt, Vietnam Studies: Command and Control 1950-1969, (Washington D.C.: Department of the Army, 1974), pp. 27-43.

[90]Ibid, pp. 44-45.

[91]Heiser, p. 148.

[92]Lictenberger, p. 49.

[93]John J. Yeosock, "H+100: An Army Comes of Age in the Persian Gulf," Army 41, No. 10 (October 1991), p. 47.

[94]Ibid, p. 50.

[95]Ibid, p. 48.

[96]William G. Pagonis with Jeffrey L. Cruikshank, Moving Mountains, (Boston Massachusetts, 1992), p. 89.

[97]Ibid, p. 127.

[98]Yeosock, p. 47.

[99]Pagonis and Cruikshank, pp. 97 - 98.

[100]Ibid, p. 74.

[101]Ibid, p. 71.

[102]Ibid, p. 76.

[103]Ibid, p. 9.

[104]Ibid, pp. 96 and 97.

[105]Richard M. Swain, "Lucky War" Third Army in Desert Storm, (Fort Leavenworth, Kansas: U.S. Army Command and General Staff College Press, 1994), p. 84.

[106]Ibid, p. 88.

[107]Ibid, p. 108.

[108]Pagonis and Cruikshank, p. 9.

[109]Swain, p. 105.

[110]Pagonis and Cruikshank, p. 123.

[111]Ibid, p. 142.

[112]Ibid, p. 10.

[113]Ibid, p. 156.

[114]Ibid, p. 151.

[115]Ibid, p. 157.

[116]U.S. Department of the Army, Operation Desert Storm Sustainment, (Washington, D.C.: Office of the Deputy Chief of Staff, Logistics, 1991), p. 7, as cited in Lictenberger, p. 43.
Lictenberger, p. 43, ". . .the only major difference is the level at which selected combat and combat service support functions are integrated. The **TASCOM** separates the theater army commander from the daily operations of combat service support and allows him to more evenly balance his other responsibilities, especially those directed to warfighting when he exercises operational control of the subordinate corps. . . under the **TAACOM** concept, the theater army commander and his staff are directly

responsible for integrating the combat service support functions that would otherwise be assigned to the TASCOM commander and his staff [emphasis added]."

[117]Center for Army Lessons Learned, RESTORE HOPE Lessons Learned Report, Fort Leavenworth, Kansas: U.S. Army Combined Arms Command, November 1994), pp. 1-3.

[118]Ibid, Appendix E and F.

[119]Ibid, pp. VII-17 -VII-25.

[120]One contractor is allocated to each division support command per U.S Army Quartermaster School, Operational Concept-Contracting for the Army in the Field," 8 May 92, as quoted in Center for Army Lessons Learned, V-12.

[121]Ibid, p. V-12.

[122]Ibid, p. V-28 and V-29.

[123]"The combatant commanders may determine that common servicing would be beneficial within the theater or a designated area. If so, the combatant commander may delegate the responsibility for providing or coordinating service for all Service components in the theater or designated area to the Service component that is the dominant user." Joint Pub 4-0, pp. I-6 and I-7.

[124]Center for Army Lessons Learned, p. IV-13.

[125]Ibid, pp. IV-11 - IV-14.

[126]OPERATION SUPPORT HOPE After Action Review (Draft), United States European Command, undated, p. 16.

[127]Ibid, pp. 15 and 16.

[128]Ibid, pp. 4 and 15.

[129]Ibid, p. 30.

[130]Ibid, p. 43.

[131]Ibid, pp. 7-5 and 7-9.

[132]Ibid, pp. 8-1 and 8-4.

[133]Center for Army Lessons Learned, OPERATION UPHOLD DEMOCRACY: Initial Impressions, (Fort Leavenworth, Kansas: U.S. Army Training and Doctrine Command, December 1994), pp. 209, 217, 220.

[134]Ibid, p. 213.

[135]Ibid, p. 214.

[136]Heiser, p. 264.

[137]U.S. House of Representatives Committee on Government Operations, p. 4.

[138]FM 100-7, p. 5-31 and FM 100-16, p. 2-19.

[139]Thompson, p. 8.

[140]FM 100-5, p. 12-4.

[141]Ibid.

[142]From FM 100-5, p. Glossary-6, Modular units are "units comprised of multiple capabilities; depending on the requirements, modules can be added or subtracted from the unit or force package."

[143]Pagonis and Cruikshank, p. 76.

[144]Ibid, p. 78.

[145]See page 32. (Center for Army Lessons Learned, RESTORE HOPE Lessons Learned Report, p. 213.)

[146]Ibid, p. 92.

[147]Ibid, p. 103.

[148]Ibid, p. 208.

[149]Dwight E. Phillips, Strategic Logistical Doctrine in the Gulf War, (Carlisle Barracks, Pennsylvania: U.S. Army War College, Military Studies Program, 1993), pp. 29 - 30.

[150]FM 100-7, p. 4-17. The LSE is a multi-facetted logistical organization with a work force of DA civilians, military and contractors that is easily tailored to meet theater logistics requirements. The LSE can control the interface between strategic, operational, and tactical logistics." FM 100-7, p. Glossary-13 and 14.
An Army support element (ASE) would provide operational-level, tailored support package to a unit executing a deep operational maneuver or deploying to a geographically separate area. See FM 100-7, p. A-43.

[151]U.S. Department of the Army, Support Operations: Echelons Above Corps, Field Manual 100-16, (Washington, D.C.: U.S. Government Printing Office, 1985), p. 1-13.

[152]Pagonis and Cruikshank, p. 214.

GLOSSARY

A/DACG – airfield arrival and departure control groups

AAR – after action review

AOR – area of responsibility

APOD – arrival port of debarkation

ARCENT – Army Central Command

ARFOR – Army Forces

ASCC – army service component command; army service component commander

ASE – army support element

ASE-F – army support element forward

C^2 – command and control

CINC – commander in chief

CINCEUR – Commander in chief European Command

COMMZ – communications zone

CONUS – continental United States

COSCOM – corps support command

CSS – combat service support

DCSDOC – Deputy Chief of Staff for Doctrine

DCSPER – Deputy Chief of Staff for Personnel

DISCOM – division support command

DOD – Department of Defense

EAC – echelons above corps

EPW – enemy prisoner of war

EUSAK – Eighth U.S. Army Korea

FORSCOM – Forces Command

GREGG – graves registration group

GS – general support

HEMTT - heavy expanded mobility tactical trucks

HET - heavy equipment transport

HSS - health services support

J4 - joint deputy chief of staff for logistics

JLC - Japan Logistical Command

JMC - joint movement center

JSASG - Joint Separate Area Support Group

JSCAP - Joint Strategic Capabilities Plan

JTF - joint task force

JTFSC - joint task force support command

KCOMZ - Korean communications zone

LOC - line of communication

LSE - logistic support element

MARFOR - Marine Forces

MCC - movement control teams

MCT - movement control teams

MMC - material management center

MMT - material management teams

MRE - meal-ready-to-eat

NGO - non-governmental organization

PVO - private voluntary organizations

SUPCOM - support command

TAACOM - theater army area command

TASCOM - theater army support command

TOE - table of equipment

TPFDD - time phased

TRADOC - Training and Doctrine Command

UN - United Nations

UNHCR - United Nations High Commissioner for Refugees

USTRANSCOM - US Transportation Command

WSRO - weapon system replacement operations

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