

Basing and Operational Reach

**A Monograph
by
Major William J Parker, III
Logistics Corps**



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

AY 2012-02

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YYYY) 09-25-2012		2. REPORT TYPE SAMS Monograph		3. DATES COVERED (From - To) JAN 2012 – DEC 2012	
4. TITLE AND SUBTITLE Basing and Operational Reach				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Major William J. Parker, III				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) School for Advanced Military Studies 320 Gibson Avenue Fort Leavenworth, KS 66027-2301				8. PERFORMING ORG REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Command and General Staff College ATTN: ATZL-SWD-GD Fort Leavenworth, KS 66027-2301				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution is Unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT Basing is a critical component of American warfare, and the expeditionary posture of the United States military poses challenges to operational planners and logisticians alike. Force projection is a key requirement for the US Army, and the use of basing directly speaks its success. From the "iron mountains" of Operation Desert Storm, to forward operating bases along the zone of separation in Bosnia-Herzegovina, to forward logistics bases and combat outposts of Iraq and Afghanistan, basing provides a critical position to deploy, stage, project, and fight forces. A lack of clear guidance for the use of bases at the operational level and below is a concern looking at current sustainment doctrine. Basing is a critical component of sustainment that, when included with operational and sustainment planning, has the capability to provide the maneuver commander the ability to extend operational reach and provide increased freedom of maneuver. While LOGCAP has emerged as a viable solution for contingency and steady state basing, it fails to meet the needs of an expeditionary force and the demands of the initial entry force. The sustainment community needs to reevaluate its limited inclusion of basing at and below the operational level, and utilize the existing force structure to fill gaps in expeditionary basing capability. A greater emphasis on basing in doctrine and organizational structure will extend operational reach and increase freedom of maneuver.					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF: Unclassified / Releaseable			17. LIMITATION OF ABSTRACT (U)	18. NUMBER OF PAGES 81	19a. NAME OF RESPONSIBLE PERSON
a. REPORT (U)	b. ABSTRACT (U)	c. THIS PAGE (U)			19b. PHONE NUMBER (include area code)

SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

Major William J. Parker, III

Title of Monograph: Operational Basing

Approved by:

Bruce E. Stanley, PhD

Monograph Director

Robert J. Dixon, COL, LG

Second Reader

Thomas C. Graves, COL, IN

Director,
School of Advanced
Military Studies

Robert F. Baumann, Ph.D.

Director,
Graduate Degree
Programs

Disclaimer: Opinions, conclusions, and recommendations expressed or implied within are solely those of the author, and do not represent the views of the US Army School of Advanced Military Studies, the US Army Command and General Staff College, the United States Army, the Department of Defense, or any other US government agency. Cleared for public release: distribution unlimited.

Abstract

OPERATIONAL BASING by Major William J. Parker, III, United States Army, 81 pages.

Basing is a critical component of American warfare, and the expeditionary posture of the United States military poses challenges to operational planners and logisticians alike. Force projection is a key requirement for the US Army, and the use of basing directly speaks its success. From the “iron mountains” of Operation Desert Storm, to forward operating bases along the zone of separation in Bosnia-Herzegovina, to forward logistics bases and combat outposts of Iraq and Afghanistan, basing provides a critical position to deploy, stage, project, and fight forces. A lack of clear guidance for the use of bases at the operational level and below is a concern looking at current sustainment doctrine. Basing is a critical component of sustainment that, when included with operational and sustainment planning, has the capability to provide the maneuver commander the ability to extend operational reach and provide increased freedom of maneuver. While LOGCAP has emerged as a viable solution for contingency and steady state basing, it fails to meet the needs of an expeditionary force and the demands of the initial entry force. The sustainment community needs to reevaluate its limited inclusion of basing at and below the operational level, and utilize the existing force structure to fill gaps in expeditionary basing capability. A greater emphasis on basing in doctrine and organizational structure will extend operational reach and increase freedom of maneuver.

Table of Contents

Introduction	1
Literature Review	10
Army Operational Doctrine	11
Joint Engineering Doctrine	11
Sustainment Doctrine	12
Sustainment Unit Doctrine	13
Methodology	15
Operation Desert Shield/Storm, 1990-1991	16
Introduction and Purpose.....	16
Analysis	31
Summary.....	32
Operation Joint Endeavor, 1995-1996.....	33
Introduction and Purpose.....	33
Analysis	48
Summary.....	50
Operation Iraqi Freedom, 2003	52
Introduction and Purpose.....	52
Analysis	68
Summary.....	70
Findings.....	71
Conclusion and Recommendations	73
Bibliography	77

Introduction

As the United States Army shifts from eleven years of persistent conflict in Afghanistan and Iraq to restructuring its forces for the next strategic conflict, the overarching focus is on budget constraints and the impending drawdown of forces.¹ However, one critical aspect that need not get lost during this new interwar period is the reassessment of how we go to war; more specifically, the methods and resources we use during initial combat operations and the sustainment requirements to ensure successful mission completion. At the introduction of AirLand Battle in 1982, the United States Army focused on linear tactics that supported ground maneuver operations. As such, doctrine produced tactics that included terms such as the forward edge of the battle area (FEBA) and a forward line of troops (FLOT), as well as combat service support (CSS) graphical control measures that overlay maneuver battle space with brigade and division support areas. Theater Army Area Command's (TAACOM), Area and Corps Support Groups (ASG, CSG), as well as Division Support Command's (DISCOM) provided linear distribution to forward logistics units in the Division Support Area (DSA) and Brigade Support Area (BSA).

While maneuver doctrine has since evolved from the Army of Excellence to Force XXI and finally the Modular Force, and accounted for lessons learned since AirLand Battle, sustainment structure has arguably changed in name only. The Force XXI sustainment doctrine published in the early 2000's adopted new names like Theater Support Command (TSC) from TAACOM's, Sustainment Brigade (SB) from ASG's and CSG's, and did away with DISCOM's

¹ From the 2012 Army Posture Statement: "Today's global fiscal environment is driving defense budgets down for our partners and allies, as well as our Nation. Historically, defense spending has been cyclic with significant reductions following the end of major conflicts. The Army understands it cannot be immune to these fiscal realities and must be part of the solution. Our focus areas for the FY 13 budget demonstrate our concerted effort to establish clear priorities that give the Nation a ready and capable Army while being good stewards of all our resources." United States Army, "2012 U.S. Army Posture Statement - Homepage," United States Army Webpage, Feb 17, 2012, https://secureweb2.hqda.pentagon.mil/VDAS_ArmyPostureStatement/2012/Default.aspx (accessed Feb 29, 2012).

and Main Support Battalion's (MSB) while converting Forward Support Battalion's (FSB) to Brigade Support Battalion's (BSB). (See figure 1) Yet the doctrine still retained antiquated concepts as late as 2009 with the release of Field Manual (FM) 4-93.2: *The Sustainment Brigade* and 4-94: *Theater Sustainment Command*.²

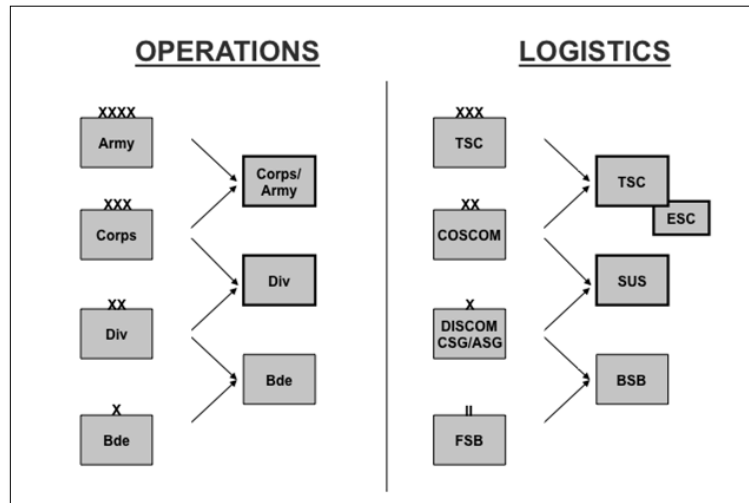


Figure 1: Force Structure Transformation from Army of Excellence to Modularity³

As noted in doctrine, the TSC operates from fixed facilities collocated with the Army Service Component Command (ASCC) to perform its duties as the senior operational logistics command in a given theater of operations. The TSC retains the option of forward deploying the Expeditionary Sustainment Command (ESC) as the operational level sustainment command post. This is lightly detailed in both *The Sustainment Brigade* and *Theater Sustainment Command*. Of specific concern is the acknowledgement of the ESC's limitations: it lacks the planning

² While it did update based on technological advances in logistics with regards to the material management and commodity tracking, the tactics outlined still reflect fighting in a linear, contiguous battlefield.

³ Ronald G. Isom, "The Modular Army and its Logistical Implications" (Powerpoint Presentation, US Army Training and Doctrine Command, Futures Division, 2005).

capabilities and material management capabilities of the TSC.⁴ By utilizing this structure, the TSC provides operational level sustainment capabilities for an assigned Army Service Component Command or Joint Force Commander (JFC), as well as command and control of sustainment in the theater down to the brigade level.

Current US Army sustainment doctrine and force structure is postured to fight past conflicts while failing to account for critical requirements easily identifiable for future warfare. While the Combined Arms Support Command (CASCOM) Reverse-Collection and Analysis Team (R-CAAT) program has provided critical analysis and lessons learned, most sustainment leaders have attributed deficiencies in current doctrine and force structure to “growing pains” that force redesign and modularity inherently bring.⁵

Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF) provide a unique environment to analyze the effectiveness of U.S. Army sustainment doctrine. Included in these two separate operations are the uses of full-spectrum operations (FSO), support to foreign internal defense (FID), stability operations, and counterinsurgency operations (COIN). Of concern is the thought that the US Army adapted its doctrine during OEF and OIF to reflect current operations in those theaters as opposed to taking a broad look at historical tendencies within the US Army over time to establish a viable, long-term approach to sustaining the warfighter. The results of OEF and OIF highlight the growing trend of the US Army to fight from bases, and not in the linear, force-on-force doctrine prescribed in the 1980’s and 90’s. The maneuver community has adapted and is structured to fight from bases or in a linear battlefield. The introduction of

⁴ Headquarters, Department of the Army, Field Manual 4-94: *Theater Sustainment Command*. (Washington, D.C.:Government Printing Office, 2010), 2-20.

⁵ After examining over 20 R-CAAT presentations and transcripts of sustainment commanders returning from Iraq and Afghanistan, a common theme surrounding modularity, command relationship, and force design was that it was simply the way things were, and considerable time was spent discussing command relationship issues between the SB, ESC and TSC, as well as the coordination to the Joint Force and Corps commanders. These are available on the CASCOM Sustainment Knowledge Network site at <https://www.us.army.mil/suite/page/399609> (accessed on: 14 Mar 12)

combined arms maneuver and wide area security in ADP 3-0: *Unified Land Operations* as its basic warfighting doctrine supports that claim.⁶ Tactical level sustainment successfully underwent transformation with the creation and establishment of the Brigade Support Battalion (BSB) and Forward Support Company (FSC), and has successfully complemented the tactical brigade level doctrine with their sustainment doctrine. With such a focus on ensuring the sustainment doctrine is able to execute in concert with the maneuver elements, it is worthy to note that the proponent of that document was the Maneuver Center of Excellence (MCoE) at Fort Benning, Georgia.⁷

So why then is there not a greater emphasis on basing doctrine and its applicable force structure in the sustainment community? The U.S. Army must develop its sustainment doctrine and modify the sustainment force structure to support maneuver forces that operate and fight from bases.

The purpose of this study is to examine how the US Army conducts combat and sustainment operations using modern examples, compare those examples to the corresponding doctrine and then examine if there are any identifiable shortfalls. The current doctrine was born out of transformation and modified during the past ten years out of lessons learned from OEF and OIF. In some cases, the doctrine was published following the establishment of the actual unit it was mean to guide.⁸ Now that Operation Iraqi Freedom is complete and discussions on the transition out of Operation Enduring Freedom is ongoing, it is time to look at ensuring U.S. Army sustainment doctrine accounts for how it is that the U.S. Army executes combat operations, here specifically focusing on sustainment roles and functions, and compare how they operate in

⁶ United States Army, *Army Doctrine Publication 3-0: Unified Land Operations* (Washington D.C.: Headquarters, Department of the Army, 2011), 5.

⁷ Headquarters, Department of the Army, *Field Manual 3-90.6: The Brigade Combat Team* (Washington, D.C.: Government Printing Office, 2010), vii.

⁸ FM 4-93.2 *The Sustainment Brigade* was published in 2009, nearly four years after the transformation of the 3d Sustainment Brigade, the first army logistics unit to complete transformation and deploy as a sustainment brigade.

relation to what doctrine suggests. In doing so, any shortfalls in either force structure or doctrine will be identified with potential solutions addressed.

While the challenge of undergoing transformation under combat situations is a monumental task, it provides the means to mask some deficiencies in sustainment doctrine and allows for issues to remain hidden through the skillful use of the warfighter to improvise and make do. This study intends to provide insight into overlooked but critical responsibilities of the sustainment community's ability to effectively and efficiently support the warfighter and examine the sustainment community's role in conducting basing operations. It is here that this monograph proposes that US Army sustainment doctrine is not adequately covering the topic of basing as it is currently being employed in the operational environment. The Universal Joint Task List (UJTL) operational tasks specify that the Theater and Expeditionary Sustainment Command have the responsibility of providing operational logistics and contract support. Specific subtasks of the operational tasks include being the coordination of all support in the Joint Operational Area (JOA) and the building and maintaining of sustainment bases in that area. However, no current doctrine accounts for basing in the sense that it should provide sustainable facilities and protected locations from which units can conduct combat operations.⁹ This study proposes that the U.S. Army must develop its sustainment doctrine and modify the sustainment force structure to support maneuver forces that operate and fight from bases.

With the emphasis currently on budget-saving procedures, the US Army will be forced to look at measures to streamline the force and utilize efficiencies wherever possible. Within its organizational force structure, every unit must be able to train and execute their assigned tasks. In the sustainment community, those tasks must be in support of the maneuver tasks. In light of this, any sustainment unit must follow the principle of form following function. When used to describe organizational structure, the principle "form follows function" says that an organization's

⁹ Headquarters, Department of the Army, Field Manual 4-94: *Theater Sustainment Command*, 2-2.

function (its primary purpose, goals, strategy) should determine its form or structure.¹⁰ In the case of sustainment units, their existence must promote the progression of the warfighter's mission and advance it through methods of sustainment. Basing, with the supporting doctrine and force structure, will do that by extending the operational reach of supported units.

This study will use the method of structured, focus comparison to analyze case studies in Desert Storm, Bosnia-Herzegovina, and Iraq. General questions will be posed that support the purpose of the research to each of the case studies to provide a standardized method of data collection. This will allow for a systematic comparison across the sample area. Limiting the depth of the research and relying on the proposed research questions to analyze across the breadth of the body of knowledge will focus the study. The research objective is to determine why sustainment doctrine is limited in its discussion of basing operations when historical evidence supports basing as a focal point of operational reach and freedom of maneuver.

This study relies on three hypotheses to test the thesis. First, if sustainment concepts include basing, then doctrine specifies tasks to employ bases at the operational level and below. Second, if sustainment doctrine includes basing, then units are structured with the proper capabilities to conduct basing operations. Third, if sustainment operations that include basing increases, then maneuver unit's operational reach and freedom of maneuver increases.

To test the hypotheses, six questions guide the collection of data. First, how did maneuver units conduct operations? Second, how many bases did U.S. forces use during their respective intervention? Third, what was the sustainment force structure used during that intervention? Fourth, how did sustainment units support maneuver units? Fifth, how did sustainment planners augment the sustainment force structure to support bases? Finally, what sustainment doctrine informed planners during the intervention?

¹⁰ Manie Bosman, *Strategic Leadership Institute*, Mar 09, 2011, <http://www.strategicleadershipinstitute.net/news/let-form-follow-function-for-more-effective-change1/> (accessed Mar 06, 2012).

To avoid confusion, this monograph provides the following definitions to distinguish between terms that may have additional application beyond the scope of this study.

Basing: Current Joint and US Army sustainment doctrine defines basing as “a locality from which operations are projected or supported. The base includes installations and facilities that provide sustainment.”¹¹ Emerging US Army doctrine advances this definition to state: “[b]asing directly enables and extends operational reach, and involves the provision of sustainable facilities and protected locations from which units can conduct operations.”¹² For the purpose of this study, the second definition is used.

Operational Logistics: There has never been an official definition of Operational Logistics in US Army doctrine.¹³ For the purpose of this monograph, the US Marine Corps definition from Marine Corps Doctrinal Publication (MCDP) 4 will be used: *Operational logistics* addresses sustainment within a military theater of operations. It connects the logistic efforts of the strategic level with those of the tactical level. Taking resources provided from the strategic level, it makes them available in sufficient quantities to the tactical commander to support the concept of operations. Operational logistics involves those support activities required to sustain campaigns and major operations. It normally encompasses three tasks: providing resources to the tactical

¹¹ Headquarters, Department of the Army, Field Manual 4-0: *Sustainment* (Washington, D.C.: Government Printing Office, 2009). 4-15.

¹² Headquarters, Department of the Army, Army Doctrine Reference Publication 4-0: *Sustainment* (Washington, D.C.: Government Printing Office, 2012). 12.

¹³ MAJ Michael C. Lopez, "Operational Logistics: A Monograph," <http://www.dtic.mil/dtic>, AY 00-01, <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA393884> (accessed Mar 06, 2012). MAJ Lopez identified the lack of a definition in Army doctrine in 2001. The closest he could find was the following: *Operational CSS (combat service support) links the national sustainment base capabilities to tactical support requirements during campaigns and major operations* from ST 3-0: Operations, CGSC Student Text; *Operational logistics encompasses those support activities required to sustain campaigns and major operations* from the 1993 publication of FM 100-5: Operations; *CSS at the operational level links the strategic and tactical levels* from the 1995 publication of FM 100-10: Combat Service Support; *Operational logistics consists of logistical and other support activities required to support the force during campaigns and major operations within a theater of operations* from the 1995 publication of FM 100-7: Decisive Force: The Army in Theater Operations; and *Operational - level CSS supports the CINCs plan in either a mature or an immature theater. The theater of war base and the theater of operations forward operating bases provide strategic and operational CSS to the tactical CSS bases* from the 1995 publication of FM 100-16: Army Operational Support. There is still no definitive US Army definition in doctrine.

commanders, procuring resources not provided by strategic logistics, and managing the resources necessary to sustain the campaign in accordance with the intent of the operational-level commander.¹⁴

Operational reach: The distance over which military power can be concentrated and employed decisively is operational reach. Reach is influenced by the geography surrounding and separating the opponents. It is extended by locating force, reserves, bases, and logistics forward, by increasing the range of weapon systems, and by improving transportation availability and the effectiveness of lines of communications and throughput. Basing, whether from overseas locations, sea-based platforms, or the continental United States (CONUS), directly effects operational reach.¹⁵

Modularity: TRADOC Pamphlet 525-68: *Concept for Modularity* outlines the concept of modularity for military operations: “Modularity is a force design methodology, which establishes a means of providing force elements that are interchangeable, expandable, and tailorable to meet the changing needs of the Army. Modularity will provide tailored functions and capabilities needed by force projections forces across the range of military operations. Modularity will provide the methodology for the Army to achieve a force structure that will optimize rapid assembly of mission-oriented contingency forces that are effective and efficient. Modularity will provide a means of rapidly identifying, mobilizing, and deploying doctrinally sound, sustainable, and fully mission-capable elements/organizations capable of operating in a joint and combined environment.¹⁶”

¹⁴ Headquarters, United States Marine Corps, Marine Corps Doctrinal Publication 4: *Logistics* (Washington, DC: Government Printing Office, 1997), 50.

¹⁵ Headquarters, Joint Staff, Joint Publication 3-0: *Doctrine for Joint Operations* (Washington, D.C. Government Printing Office, 2011), III-16, III-28.

¹⁶ Headquarters, United States Army. Training and Doctrine Command. Training of Doctrine Command Publication 525-68: *Military Operations: Concept for Modularity* (Fort Monroe, VA: Government Printing Office, 1995), 5.

Transformation: The 2001 Quadrennial Defense Review (QDR) defined transformation as the “evolution and deployment of combat capabilities that provide revolutionary or asymmetric advantage to U.S. forces.”¹⁷ This is in line with Vice Admiral Arthur Cebrowski’s thought that transformation was “those continuing processes and activities which create new sources of power and yield profound increases in military competitive advantage as a result of new, or the discovery of, fundamental shifts in the underlying rule sets.”¹⁸ For the purpose of this study, transformation is defined as the QDR definition.

Form follows Function: Originally derived from modern architecture and industrial design in the 20th century, form follows function is the principle that states the shape of a building or object should be primarily based upon its intended function or purpose. This definition is derived from architect Louis Sullivan’s article in Lippincott’s Magazine in 1896 where he states “It is the pervading law of all things organic, and inorganic, of all things physical and metaphysical, of all things human and all things super-human, of all true manifestations of the head, of the heart, of the soul, that the life is recognizable in its expression, that form ever follows function. This is the law.”¹⁹ This study will utilize this as the foundation of the definition, but expand it from only design and architecture to include organizational design and focus primarily on the notion that a military unit should be organized or structured to accomplish its intended function and purpose. This research is limited to publically available, open source information and is limited by classification. For basing, only land-based basing is considered. The research is limited to U.S.

¹⁷ United States Department of Defense, *2001 Quadrennial Defense Review Report* (Washington, D.C.: Government Printing Office, 2001), VI.

¹⁸ Arthur K. Cebrowski, "Special Briefing on Force Transformation." *The Air University*. Nov 21, 2001. http://www.au.af.mil/au/awc/awcgate/transformation/t11272001_t1127ceb.htm (accessed Sep 05, 2012).

¹⁹ Thomas H. Sullivan, "The Tall Office Building Artistically Considered." [www.ocw.mit.edu](http://ocw.mit.edu). Mar 1896. http://ocw.mit.edu/courses/architecture/4-205-analysis-of-contemporary-architecture-fall-2009/readings/MIT4_205F09_Sullivan.pdf (accessed Sep 05, 2012).

Joint, Marine Corps, and Army doctrine, and focuses on U.S. interventions overseas between 1989 and 2012. Due to the broad scope and length of Operation Iraqi Freedom, for the purpose of this study, only the build-up, invasion, and transition to steady-state operations in late 2003 are covered.

This monograph is presented in five sections. Section I includes the background of the study, statement of the problem, purpose of the study, significance of the study, hypotheses, definition of terms, theoretical framework, research questions, limitations, and assumptions of the study. Section II presents a review of available literature discussing basing, operational logistics, “form follows function” principles, and sustainment transformation, doctrine, and force structure. Section III discusses historical case studies from 1991 to the current day, examining tactical and sustainment doctrine, and looks at the impact basing had on the operation. Section IV discusses the findings and implications of Section III. Section V provides a summary of the research, recommendations for future studies, and conclusions.

Literature Review

This section aims to present the rationale behind researching basing by highlighting the limited available literature and identifies any trends on the topic based on these sources. With few scattered exceptions, the vast majority of literature discussing basing operations relevant to the scope of this monograph involves strategic-level bases, and the topic is monopolized by military doctrine. With that understanding, available references in Army and Joint operational doctrine will be examined in detail, followed by a look at Joint engineering doctrine, and then an examination and discussion of Army, Joint, and sister-service sustainment doctrine. An examination of the current logistics doctrine of Theater Sustainment Command, Expeditionary Sustainment Command, and Sustainment Brigade will conclude the review.

Army Operational Doctrine

The Army's *Operations* manual discusses basing as a means to shape the security environment at the strategic level by establishing a forward presence to project forces and enhance the ability to engage other nations, and intermediate staging bases as a means to provide strategic responsiveness and force projection.²⁰ *Unified Land Operations* makes no mention of basing whatsoever. *Joint Operations* mirrors *Operations* and emphasizes basing as a use for deterrence and for maintaining operational area access for the Joint Forces Commander.²¹ The overarching focus between Army and Joint operations doctrine is responsiveness and versatility that if required, can venture down into the operational and tactical level and offer a range of scenarios, however the details are limited, and the scope of responsibility is absent.

Joint Engineering Doctrine

The *Joint Engineering Operations* manual provides a number of key statements that further shift the responsibility of managing basing operations over to the sustainment realm. When discussing engineer support throughout the range of military operations, *Joint Engineering Operations* notes that most operations include a large number of forces that require some sort of infrastructure, lines of communications (LOCs), and bases to support their sustainment.²² Consideration is also given to placing the engineer staff wholly under the J4 Logistics section if the operation is there to predominately support the sustainment of the Joint Force.²³ During expeditionary operations, the establishment of expeditionary base camps requires minimal

²⁰ Headquarters, Department of the Army, Field Manual 3-0: *Operations* (Washington, DC: Government Printing Office, 2010), 1-4. This doctrine states: "Forward basing, forward presence, and force projection enhance the ability of Army forces to engage other nations—their people, governments, and militaries."

²¹ Joint Publication 3-0: *Doctrine for Joint Operations*, V-37-8.

²² Headquarters, Joint Staff, Joint Publication 3-34: *Joint Engineer Operations* (Washington, DC: Government Printing Office, 2011), I-1.

²³ *Ibid.*, II-13.

engineering efforts and consists of organic equipment found in the Brigade Combat Team.²⁴ Of specific interest is the statement that each service is responsible to meet its own expeditionary basing requirements to support contingency beddown²⁵ of their forces.²⁶

Sustainment Doctrine

In current Army sustainment doctrine, basing is lightly discussed in the manner this monograph wishes to highlight. Joint and Marine Corps doctrine cover the topic with more thorough and particular definitions. In *Joint Logistics*, base camp services (defined as shelter, billeting, waste management, and common user life support management in an expeditionary environment) are described as a core logistics capability under logistics services, and describe certain aspects as a general engineering task.²⁷ Locations for intermediate staging bases, forward operating stations, and main operating bases are examined in detail during the concept development phase of the joint planning process, and are specified as a logistician's key responsibility.²⁸ In the Marine Corps Manual *Logistics*, basing is also discussed in terms of

²⁴ According to the United States Army Force Management Support Agency website's MTOE for the BSTB engineer company in an HBCT, the primary pieces of equipment that can impact the establishment of expeditionary basing in an HBCT are six M9 Armored Combat Earthmovers (ACE), and three High Mobility Emplacement Excavators (HMEE). The IBCT has one 2.5 cubic yard bucket loader, four HMEEs, two deployable universal light earthmovers (DEUCE), and three Bobcat skid steer tractors. The SBCT has six HMEEs, six DEUCEs, and one Bobcat skid steer tractor. These capabilities, in conjunction with the logistics support assets of a Brigade Support Battalion can provide limited but immediate capability to establish expeditionary basing at the brigade level and below.

²⁵ Headquarters, Joint Staff, Joint Publication 3-34: *Joint Engineer Operations*, GL-9: beddown is defined as the provision of expedient facilities for troop support to provide a platform for the projection of force.

²⁶ Ibid., III-20. This puts the responsibility squarely on the US Army to provide their own expeditionary capability. This monograph argues that the Army currently has a gap in this capability.

²⁷ Joint Publication 4-0: *Joint Logistics*, II-12 discusses the construction and repair of airfields, seaports, and base camps as a key general engineering task during military operations. It is worth mentioning that general engineering is a subset of the Army's principles of sustainment and is featured in Field Manual 4-0: *Sustainment*.

²⁸ Joint Publication 4-0: *Joint Logistics*, III 5-6. At the joint level, the focus for the sustainer is on the identification of accurate port and airfield infrastructure for initial entry operations and the understanding of projected expansion requirements and throughput.

permanent bases, seabasing, and forward bases.²⁹ Similar to the Army, the forward base is meant to increase the responsiveness of the logistics system by moving the source of support as close as possible to the operating forces. One key note is that when discussing basing, the Marine Corps clearly defines it as a logistics function and includes the topic within its doctrine under the logistics distribution system.³⁰

In the Army field manual *Sustainment*, a chapter is devoted to basing and defines it as a locality from which operations are projected or supported.³¹ It is here that the Army definition of the Forward Operating Base is introduced as “bases that extend and maintain the operational reach of a force by providing secure locations from which to conduct and sustain operations. They not only enable extending operations in time and space; they also contribute to the overall endurance of the force. Forward operating bases allow forward deployed forces to reduce operational risk, maintain momentum, and avoid culmination.”³² This is a key focus of this monograph and the notion of using basing and sustainment capability to enhance the operational reach of the maneuver force is not given nearly enough attention. At risk are momentum, freedom of maneuver, and the possibility of culmination.

Sustainment Unit Doctrine

While the doctrine that governs specific sustainment units assigns some basing responsibilities to the Theater Sustainment Command (TSC), the Expeditionary Sustainment

²⁹ MCDP 4: *Logistics* defines permanent bases as those that provide sustained support for large elements of the force. They are normally established within the boundaries of the nation or a close ally where they can be fully developed and protected. Seabasing is the managed provision of sustainment to units ashore from ships offshore. Forward bases, as defined earlier in the definition section of this monograph, are facilities established within an area of operations to provide operational or tactical level logistics support. 54-7.

³⁰ Ibid., 53.

³¹ Field Manual 4-0: *Sustainment*, 4-15. This definition is taken from the Joint Publication 1-02: *Department of Defense Dictionary of Military and Associated Terms* definition.

³² Field Manual 4-0: *Sustainment*, 4-15.

Command (ESC), and the Sustainment Brigade (SB), those responsibilities are limited in their scope and focus on theater opening requirements. In *Theater Sustainment Command*, the TSC's scope includes their role in sustaining full spectrum operations, the operational environment, theater structure, strategic-level support organizations, and support to joint and multinational forces.³³ It also provides the doctrine for the Expeditionary Sustainment Command (ESC), as it is a mirror organization (with minimal changes) and provides the TSC with its forward headquarters in an area of operations. The TSC is given a specific Full Spectrum Operations Mission Essential Task List³⁴ task of providing operational logistics and personnel support with the subtasks of coordinating that support in the Joint Area of Operations (JOA), managing it, and the building and maintaining of sustainment bases in the JOA. Additionally, the TSC headquarters staff has a G-4 Construction Support Branch that is tasked to coordinate for engineering support. In theory, this should provide the framework for the Army sustainment units to spearhead any basing requirements and echelon down to expeditionary basing capability, however this translates into theater base operations executed by a theater opening sustainment brigade.³⁵ In *The Sustainment Brigade*, basing is again detailed at the strategic and theater opening level.³⁶ The notion of the overall sustainment mission is defined earlier in chapter two:

Sustainment is the provision of the logistics, personnel services, and health service support necessary to maintain operations until mission accomplishment. The *endurance* of Army forces is primarily a function of their sustainment. Sustainment determines the depth to which Army forces can conduct *decisive operations*, allowing the commander to seize, retain, and exploit the initiative. *Endurance* is the ability to employ combat power anywhere for protracted periods. *Endurance* stems from the ability to generate, protect, and sustain a force. Sustainment also enables strategic and *operational reach*. Army forces

³³ Field Manual 4-94: *Theater Sustainment Command*, i.

³⁴ Generally referred to as a FSO METL.

³⁵ With the tasks clearly framed, the TSC and ESC have the authority to oversee and manage theater basing operations. The sustainment brigade only has the responsibility for theater opening and theater distribution bases.

³⁶ Headquarters, Department of the Army. Field Manual 4-93.2: *The Sustainment Brigade*, 1-4, 1-15, 1-16.

require strategic and operational reach to deploy and immediately conduct operations anywhere with little or no advanced notice.³⁷

With this definition clearly outlined, and the continuous mention of endurance, the requirement to establish bases could be considered implied. This monograph will argue that the gap in expeditionary basing capability and doctrine for the Army begins here.

Methodology

First, this study uses three case studies to focus the research: Operation Desert Storm, Operation Joint Endeavor, and Operation Iraqi Freedom. Second, several questions guide the case study analyses of basing and US military operations since 1991 and aid in the gathering of data. Those selected were formulated with a set of standardized, general questions, and are grounded in the theoretical and research objectives of the study.³⁸ Third, once answered, they will be applied to each of the selected case studies and help determine the validity of the proposed hypotheses: that basing extends the operational reach of supported units. Finally, the validity of the hypotheses will be determined through a comparison of each case study.

This research uses six questions to guide this study. First, how did maneuver units conduct operations? Here, the type of operation and what the mission was is determined. Given the doctrinal terminology of the conflict, it could be an offensive, defensive, stability, or support operation in addition to military operations other than war (MOOTW), counterinsurgency (COIN), or humanitarian assistance operations. This will assist in determining the level of support required at the onset of the conflict.

³⁷ Italics added for emphasis by author.

³⁸ Alexander L. George and Andrew Bennett, *Case Studies and Theory Development in the Social Sciences* (Cambridge, MA: MIT Press, 2005). 67-8.

Second, what sustainment doctrine informed planners during the intervention? This question aims to frame the initial sustainment requirements and determine the doctrine available and if the employment of support elements fell in line with that doctrine.

Third, what was the sustainment force structure? This is important because the expectation is that the force structure of available units is tailored to meet specific requirements. If not, the form is incorrect.

Fourth, how did sustainment units support maneuver units? This is important as well because of the function each individual unit is tasked to provide. Did this happen or was there a gap filled by an additional unit, agency, or entity?

Fifth, how many bases did U.S. forces use during the operation? This clarifies the number and type of bases used in the operational environment, their roles and functions, how their placement on the battlefield fit into and supported the mission of the supported units, and what impact they had on operations.

Finally, how did sustainment planners augment the sustainment force structure to support bases? What type of augmentation was required (if any) and from what service branch were they pulled? Army Reserve? National Guard? Was host nation support used rather than uniformed service members?

Operation Desert Shield/Storm, 1990-1991

Introduction and Purpose

On August 2, 1990, the Iraqi Republican Guard invaded Kuwait over disputes in slant drilling in the Rumaila oil fields and accusations of Kuwait exceeding OPEC quotas for oil

production, thus driving down the price of oil on world markets.³⁹ After nearly a decade of war with Iran, Iraq had a debt of nearly \$70 billion and its annual interest payments of \$5-6 billion totaled nearly one-third of its annual oil revenues.⁴⁰ The result of Iraq's invasion of Kuwait triggered a swift international response, supported by United Nations Security Council Resolutions 660 and 662 that condemned the move by Iraq and called for the unconditional removal of all Iraqi forces from Kuwait.⁴¹ The United States spearheaded a coalition of over 30 nations and nearly one million soldiers, over half of those being American soldiers, to force the Iraqi removal from Kuwait. By August 7th, coalition forces began pouring into Saudi Arabia and the Persian Gulf, beginning Operation Desert Shield. Over the next six months, these forces would build up along the Saudi Arabia-Iraq border to defend against a possible invasion of Saudi oil fields. This became the largest and most complex projection of US military power since World War II.⁴²

By November of 1990, it was clear that Sadaam Hussein would not give in to international pressure, and President George H.W. Bush announced that additional forces would be committed to transition from a defensive posture to one more offensively oriented.⁴³ The United Nations passed Security Council Resolution 678, setting the no later than withdraw date of all Iraqi forces from Kuwait for January 15, 1991.⁴⁴ The aerial campaign launched on January 17,

³⁹ Frank N. Schubert and Theresa L. Kraus, *The Whirlwind War* (Washington, DC: Center of Military History, 1995), 21-23.

⁴⁰ Schubert and Kraus, *The Whirlwind War*, 21.

⁴¹ *Ibid.*, 23.

⁴² Headquarters, Department of the Army, *War in the Persian Gulf: Operations Desert Shield and Desert Storm August 1990-March 1991* (Washington, DC: Center of Military History, 2010), 3.

⁴³ Richard M. Swain, *Lucky War: Third Army in Desert Storm* (Fort Leavenworth, KS: U.S. Army Command and General Staff College Press, 1997), 27.

⁴⁴ U.S. Department of Defense, *Conduct of the Persian Gulf War, Final Report to Congress* (Washington, D.C.: Government Printing Office, 1992), 369.

1991, began Operation Desert Storm.⁴⁵ On February 24, US Army Central Command (ARCENT) attacked into Kuwait with the US VII Corps while the XVIII Airborne Corps conducted the now-famed “left hook” into the vast Iraqi desert with a combined 330,000 soldiers.⁴⁶

Critical to the success of the rapid buildup was the formation the 22d Support Command (SUPCOM). Stood up in October of 1990 as a provisional unit and fully activated that December, the 22d SUPCOM became the theater support operations manager and was tasked with planning a responsive logistics system. Key to the effectiveness of the 22d SUPCOM’s planned responsive logistics system was the establishment of reception and forward logistics bases throughout Saudi Arabia to support the massive buildup and the eventual ground campaign.⁴⁷ The massive logistical requirements and the use of bases throughout the ground war provide the context for this case study.

How did maneuver units conduct operations? Once President Bush ordered the deployment of ground forces into Saudi Arabia on 7 August, the first US soldier was on the ground in 31 hours.⁴⁸ Soldiers and equipment from the XVIII Airborne Corps and the VII Corps flew from the United States and Germany into designated aerial port of debarkations (APOD) in Saudi Arabia, namely Riyadh’s King Khalid International Airport, the Dhahran International Airport and the King Fahd International Airport.⁴⁹ The bulk of their equipment was deployed through two main seaports of debarkations (SPOD) in Saudi Arabia at Ad Damman and Al

⁴⁵ Headquarters, Department of the Army. *War in the Persian Gulf: Operations Desert Shield and Desert Storm August 1990-March 1991*, 29.

⁴⁶ Richard M. Swain, *Lucky War: Third Army in Desert Storm*, 349.

⁴⁷ Ibid., 108.

⁴⁸ U.S. Department of Defense, “Conduct of the Persian Gulf War, Final Report to Congress,” E-2.

⁴⁹ Stephen A. Bourque, *Jayhawk! The VII Corps in the Persian Gulf War* (Washington, DC: Center of Military History, 2002), 49-50.

Jubayl.⁵⁰ After arriving into Saudi Arabia, soldiers and equipment would move by convoy or busses to designated tactical assembly areas (TAA) and forward staging bases out in the desert.⁵¹

Once at their designated assembly areas, the focus turned to defending Saudi Arabia from an Iraqi attack. The bulk of the Army troops on the ground were light infantry from the 82nd and 101st Airborne Divisions, with the 24th Infantry Division (Mechanized) deploying to provide additional firepower in their team of M1A1 Abrams main battle tanks and M2 Bradley Fighting Vehicles.⁵²

On 8 November 1990, additional troops deployed to support the elements of the XVIII Airborne Corps, the 1st Cavalry Division, and the 3d Armored Cavalry Regiment already established in Saudi Arabia. While forces in the Gulf were still operating to defend against Iraqi aggression, the possibility of offensive operations to push Iraqi forces out of Kuwait should diplomatic means prove unsuccessful loomed large. The initial CENTCOM ground plan called for a single corps attack reinforced with attack aviation and armored elements. After additional planning and analysis, it was determined that a one corps attack would be inadequate against a substantial Iraqi force. Thus, the VII Corps out of Germany deployed to provide a two-corps assault option, along with a Marine Expeditionary Force (corps equivalent).⁵³

By January 1991, forces were set along the Saudi Arabian border with Kuwait in two main TAA's. Following the launch of the air campaign of Operation Desert Storm, the XVIII Airborne and VII Corp's shifted across the Saudi Arabian desert, beyond the Wadi al Batin, and

⁵⁰ Stephen A. Bourque, *Jayhawk! The VII Corps in the Persian Gulf War* (Washington, DC: Center of Military History, 2002), 51.

⁵¹ U.S. Department of Defense, "Conduct of the Persian Gulf War, Appendices A-S" *DTIC Online*: <http://www.dtic.mil/cgi-bin/GetTRDoc?Location=U2&doc=GetTRDoc.pdf&AD=ADA249390> (accessed May 03, 2012) F-15

⁵² Schubert and Kraus, *The Whirlwind War*, 55.

⁵³ *Ibid.*, 108.

into their forward assembly areas (FAA).⁵⁴ Logistics bases Charlie and Echo, established to support each corps, grew out of the desert. GEN Schwarzkopf mandated that their establishment coincide with the corps movements as to not alert the Iraqi military to coalition plans. Once in position, maneuver forces would executed a three-point attack along the Saudi Arabian border with Iraq and Kuwait, using the XVIII Airborne Corps for envelopment on the coalition left flank and to establish support bases in Iraq,⁵⁵ the US VII Corps in center to attack north and conduct a right-turn east into Kuwait, and Marine and coalition forces on the right flank would attack into Kuwait itself. The US and coalition forces would follow the basic tenets of AirLand Battle in that they would seize the initiative, use agility and depth across the battlefield, synchronize efforts, and ensure unity of effort throughout the operation while using close, deep, and rear operations to defeat the Iraqi military.

On 24 February 1991, the ground offensive began after thirty-eight days of air attacks on Iraqi targets. The XVIII Airborne Corps led with their massive envelopment on the western flank to secure the Coalition left flank and secure key forward support positions 110 miles into Iraqi territory. Once deep inside Iraq, the XVIII Airborne Corps would move to attack east towards Kuwait.⁵⁶

VII Corps attacked with a feint into the center of the Coalition front with the 1st Cavalry Division. Shortly thereafter, the remainder of the corps attacked with the mission of finding and destroying the Iraqi Republican Guard. Similarly to the XVIII Airborne Corps, VII Corps

⁵⁴ Wadi al Batin formed the western boundary of Kuwait and ran southwest into Saudi Arabia. Initially, planners thought the wadi to be impassible to ground vehicles except for along east-west roads, but this proved to be false.

⁵⁵ Schubert and Kraus, *The Whirlwind War*, 173. The XVIII Airborne Corps consisted of the 82d Airborne Division, the 101st Airborne Division, the 24th Infantry Division (Mechanized), the French 6th Light Armored Division, the 3d Armored Cavalry Regiment, and two aviation brigades. Forward support base COBRA was 110 miles behind enemy lines and provided critical sustainment to elements of the 18th Airborne Corps and assigned units.

⁵⁶ Ibid., 177-9

attacked north into Iraq and conducted a turning movement east, then moved into Kuwait.⁵⁷

Marine and Coalition forces adjacent to VII Corps and covering the eastern flank attacked directly into Kuwait.

Over the next 100 hours, the two army Corps moved rapidly and with little resistance. By the 28 February cease-fire, the XVIII Airborne Corps moved over 260 miles and the VII Corps over 155 miles into Iraq while destroying over ninety percent of the total Iraqi ground force.⁵⁸ The process of redeployment back through Saudi Arabia began shortly after terms establishing the cease-fire were enacted. Throughout March and April of 1991, the first soldiers and equipment moved through a structured process spearheaded by the 22d SUPCOM that allowed them to clear theater.⁵⁹

Initially, each unit withdrew to a designated TAA south of the Iraqi border, accounted for equipment, cleared assigned areas, and destroyed anything of value to the Iraqi military. Here, initial vehicle preparations took place, and excess equipment turned in. Once complete, units would then move to redeployment assembly areas and support bases where additional screening and preparations took place. Upon completion there, equipment and personnel moved to staging areas and finally moved to their designated aerial ports of embarkation (APOE) and seaports of embarkation (SPOE). Finally, both personnel and equipment would begin the trip home.⁶⁰

What sustainment doctrine informed planners during the intervention? AirLand Battle doctrine in 1986's *Operations* stressed the importance of sustainment due to the increase of critical commodity consumption (fuel, food, and ammunition) on the battlefield. Adopting five fundamental imperatives, *Operations* called for anticipation, integration, continuity,

⁵⁷ Schubert and Kraus, *The Whirlwind War*, 178-9.

⁵⁸ Ibid., 201. *The Whirlwind War* states that the Iraqis lost "3,847 of their 4,280 tanks, over half of their 2,880 armored personnel carriers, and nearly all of their 3,100 artillery pieces".

⁵⁹ William G. Pagonis with Jeffrey L. Cruikshank, *Moving Mountains: Lessons in Leadership and Logistics from the Gulf War* (Boston, MA: Harvard Business Review Press, 1992), 150-158.

⁶⁰ Stephen A. Bourque, *Jayhawk! The VII Corps in the Persian Gulf War*, 439-41.

responsiveness, and improvisation.⁶¹ Additional sustainment-specific doctrine available to planners at this time was the 1988 release of *Combat Service Support*. Supporting the concepts in that doctrine was the unit specific doctrine of the *Corps Support Command*, *Corps Support Group*, and *Area Support Group*, as well as the tactical sustainment doctrine of Division and below sustainment units.⁶²

Built into this doctrine is a basic concept of sustainment, outlined in 1988's *Combat Service Support*. The concept outlines the importance of supporting the commander's intent, support maneuver units as far forward as possible, conserve army resources by utilizing outside sources whenever possible, and employ effective leadership to accomplish the mission.⁶³ Sustainment planners during the Gulf War had two doctrinal methods at their disposal for organizing sustainment forces. The first is by task. Similar to current doctrine, certain sustainment units at higher echelons could be task organized to support specific tasks. It would not be out of the norm to form ad hoc organizations to support specific missions at higher echelons. This is frequently the case for units residing within the communications zone (COMMZ), or rear area, of the battlefield.⁶⁴ Further forward into the combat zone (CZ), individual corps would deploy with a designated COSCOM to provide sustainment.

The second doctrinal method is by echelon. Sustainment for corps and below is based on the idea that the level of support provided at each echelon is commensurate with the missions

⁶¹ Headquarters, Department of the Army, Field Manual 100-5: *Operations*. (Washington, DC: Government Printing Office, 1986), 62.

⁶² FM 100-10: *Combat Service Support*, released in 1988, intended to build upon the basic sustainment principles first mentioned in FM 100-5: *Operations*. Subsequent unit-level doctrine expounded upon those principles and discussed the employment of those forces to integrate the sustainment plan into the overall AirLand battle plan. Those included FM 63-3: *Corps Support Command*, FM 54-30: *Corps Support Group*, and FM 54-40: *Area Support Group*.

⁶³ United States Army, Field Manual 100-10: *Combat Service Support*, 1-10-1.

⁶⁴ The battlefield under AirLand Battle was broken down into two specific areas: the combat zone (CZ) and the communications zone (COMMZ). The first is self-explanatory. The COMMZ is what most consider the rear area of an area of operations. This area is also known as echelon above corps (EAC).

required of the maneuver unit, allowing for maximum speed and flexibility.⁶⁵ COSCOM's would establish support areas and sustain their respective corps. DISCOM's would provide the same type of support for their assigned Division. Main Support Battalions would support the Forward Support Battalions, who would in turn support the maneuver brigade and battalions. Doctrine called for sustainment units to support forward with the movement of supplies going from higher echelon to lower echelon (a push system) while allowing combat forces to maintain limited resources at the tactical level. Interspaced throughout the CZ at the commander's discretion and sustainer's behest, would be support bases tailored to the type of unit or mission. Doctrinally, as the maneuver unit advances, so would their support. Forward bases, typically at COSCOM and below, would advance to extend lines of support, but not to the extent that they over-extended these lines.⁶⁶ These bases (called support areas) would be located near Main Supply Routes (MSR) and have clusters of Combat Service Support (CSS) units clustered together for mutual defense.

What was the sustainment force structure used during the intervention? For Operation Desert Shield, the sustainment force structure evolved from a small group of staff officers in early August 1990 to nearly 81,000 soldiers directly under the 22d SUPCOM's control.⁶⁷ Lieutenant General (LTG) William Pagonis was appointed the Army Central Command (ARCENT) deputy commander for logistics that same August, and immediately identified shortfalls in their ability to receive and support the first deploying units of the XVIII Corps into Saudi Arabia.⁶⁸ As such, Pagonis absorbed advance elements of the 7th Transportation Group to assist in command and control of the increasingly large task of receiving units. By the end of August 1990, Pagonis had

⁶⁵United States Army, Field Manual 100-10: *Combat Service Support*, 1-13.

⁶⁶ Ibid., 2-4, 5.

⁶⁷ William G. Pagonis with Jeffrey L. Cruikshank, *Moving Mountains: Lessons in Leadership and Logistics from the Gulf War*, 11.

⁶⁸ Schubert and Kraus, *The Whirlwind War*, 56-7

been designated the commander of ARCENT (Forward), and took control of all non-corps units in the Dhahran port area.⁶⁹ Due to a shortage of strategic lift and issues about reserve call-ups, doctrinal echelon above corps (EAC) units, specifically the 377th TAACOM, did not deploy.⁷⁰ Additional changes to doctrinal task organizations and command structures took place throughout the initial deployment of sustainment forces into Saudi Arabia; commanders were stripped of their staffs in favor of having the units simply fall in on existing commands already in theater. This was especially the case with EAC units.⁷¹ A result of the initial insistence of maintaining a minimum essential force of 250,000 and priority given specifically to maneuver, chemical, air defense, and engineering units, the logistics support structure was severely inadequate to support the demands of the initial deploying forces.⁷²

The advantage in reshuffling units and commands was the ARCENT Support Command under Pagonis. Already executing many of the responsibilities of the doctrinal TAACOM, Pagonis made his case to GEN Schwarzkopf for a single logistics command, and was successful in establishing his provisional command as the overall logistics lead in theater.⁷³ Initially augmented by a robust host-nation support package, he set to work moving the lead elements of the XVIII Airborne Corps into designated assembly areas until their assigned logistics units arrived. Under the XVIII Airborne Corps, the 1st COSCOM had four Corps Support Groups: 46th CSG, the 101st CSG, 171st CSG (NC USAR), and the 507th CSG. They supported the 82d Airborne Division, the 101st Airborne Division, and the 24th Infantry Division (Mech) while the

⁶⁹ Schubert and Kraus, *The Whirlwind War*, 59.

⁷⁰ Richard M. Swain, *“Lucky War” Third Army in Desert Storm* (Fort Leavenworth, KS: US Army Command and General Staff College Press, 1994), 42.

⁷¹ Ibid., 46. Specific examples given in *“Lucky War”* discuss the Signal and Medical commands being absorbed by existing commanders on the ground or by one of the deputy commanding general’s on the ARCENT staff.

⁷² Richard M. Swain, *“Lucky War” Third Army in Desert Storm*, 42.

⁷³ Brad D. Lafferty, “Gulf War Logistics: Theory Into Practice,” [www.dtic.mil](http://www.dtic.mil/cgi-bin/GetTRDoc?Location=U2&doc=GetTRDoc.pdf&AD=ADA328305), <http://www.dtic.mil/cgi-bin/GetTRDoc?Location=U2&doc=GetTRDoc.pdf&AD=ADA328305> (accessed June 3, 2012). 12-3.

507th provided transportation assets to the XVIII Airborne Corps. Later, when the decision was made to increase to a two-corps attack, the 2nd COCSOM and additional sustainment units arrived to support the VII Corps out of Germany. The 2nd COSCOM had five Corps Support Groups: 7th CSG (Fwd Spt), 16th CSG (Rear Area Spt), 30th CSG (NC ARNG) (Rear Area Spt), 43rd CSG, and 159th CSG (MT USAR) (Fwd Spt). They supported the 1st Cavalry Division as well as forward and rear area support. (See Figure 2)

Below the corps level, each division had an assigned DISCOM with a Main Support Battalion, and Forward Support Battalions assigned to support each maneuver brigade. The sustainment force structure for Desert Shield and Desert Storm had the 22d SUPCOM supporting the 1st and 2nd COCSOM's with EAC sustainment units in Saudi Arabia, with the COSCOM's pushing doctrinally forward to the DISCOM's, MSB's, and FSB's.

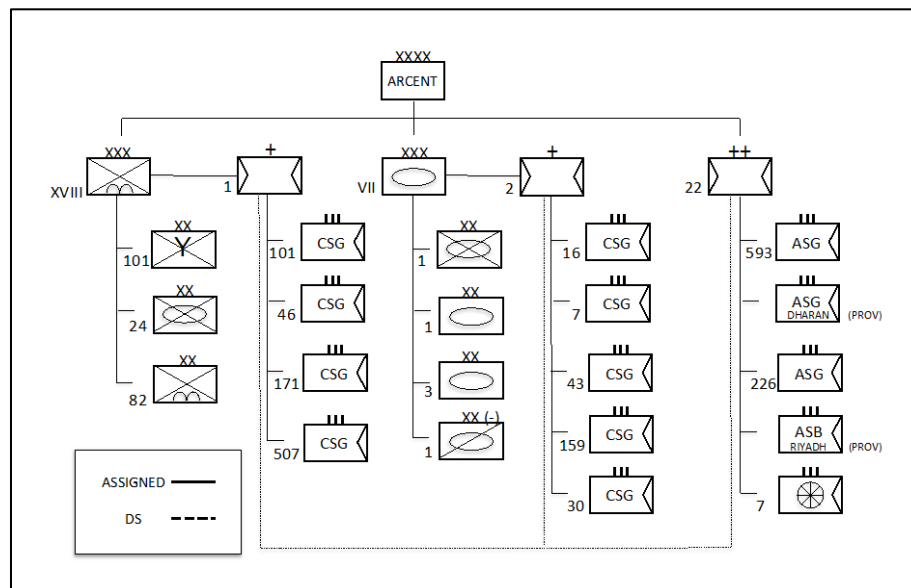


Figure 2: Operation Desert Storm ARCENT Force Structure⁷⁴

⁷⁴ Created by author from data in Schubert and Kraus, *The Whirlwind War*.

How did sustainment units support maneuver units? As mentioned previously, the doctrine of the time called for a Theater Army Area Command (TAACOM) to provide command and control as the logistical echelon above corps since VII Corps and XVIII Airborne Corps deployed. However, due to the rapid buildup and the priority given to combat units in force flow, LTG Pagonis established an ad hoc organization, the ARCENT SUPCOM (Provisional). This took the place of the TAACOM, and allowed Pagonis, the Army Central Command Deputy Commander for Logistics, to be the single point of contact for logistics in theater.⁷⁵

To successfully support the ground campaign, LTG Pagonis developed a five-phase plan, out of which, Phases Alpha, Bravo, and Charlie directly supported Schwarzkopf's ground campaign plan.⁷⁶ Phase Alpha entailed the positioning of theater level assets and support units in the CZ, as well as transporting VII Corps to their TAA (the XVIII Airborne was already in position). Phase Bravo would be the simultaneous movement of the XVIII Airborne and VII Corps along Saudi main supply routes (MSR) with organically assigned SUPCOM and COSCOM transportation units, with any shortfalls covered by host-nation contracted trucking assets. Phase Charlie was the support of the coalition advance into Iraq and Kuwait with SUPCOM and EAC-level units operating under the 90-mile rule for distribution to corps support units: CSG's would have supplies pushed to them up to 90-miles inside of Iraq.⁷⁷ These pushes would include food, fuel, ammunition, and water in addition to repair parts and replacement equipment. In addition, two subsequent logbases were to be established by the SUPCOM in order

⁷⁵ Richard M. Swain, *"Lucky War" Third Army in Desert Storm*, 46.

⁷⁶ Schubert and Kraus, *The Whirlwind War*, 141. Phases Delta and Echo dealt with redeployment and support to Saudi Arabia and Kuwait following the cessation of wartime activities.

⁷⁷ *Ibid.*, 140.

to sustain offensive operations deep inside Iraq.⁷⁸ The SUPCOM placed subordinate battalions in charge of each logbase: for example, the 731st Maintenance Battalion had administrative control of all logistics units at Logbase Alpha while the 226th Area Support Group ran Logbase Bravo, managing all commodities and theater-level supplies.⁷⁹

Of note, LTG Pagonis deviated from doctrine with his logbase concept in that he initially placed supporting logbases in front of the units they intended to support. During this phase, theater-level supply bases were constructed with specific concern as to their location in relationship to road networks, distances from APOD/SPODs, and eventual attack positions.⁸⁰ These bases, named Alpha, Bravo, Bastogne, and Pulaski, were arrayed along Main Supply Route (MSR) Dodge, with Bravo situated near King Khalid Military City along MSR Sultan. Here, all classes of supply would be stocked and stored to support the corps advances.

Once G-Day⁸¹ approached, logistics units at both the VII and XVIII Airborne Corps created “multifunctional logistics task forces (LTF)” out of their COSCOM’s tailored specifically to the division or regiment they supported. These LTF’s move with their assigned units, pushing food, fuel, ammunition, and additional supplies forward while establishing the doctrinal trailer transfer points (TTP) for remaining corps and SUPCOM units to exchange and resupply.⁸²

Moving forward to support the divisional and below maneuver units, the LTF’s would push to main support battalions and regimental support squadrons at logistics release points (LRP). From there, the forward support elements would resupply their assigned maneuver unit.

⁷⁸ Schubert and Kraus, *The Whirlwind War*. Logbases Nellingen and Oscar were to be established inside Iraq once the 90-mile limit for pushes by EAC and SUPCOM units were reached. This would jump logistics forward and supply the corps movement.

⁷⁹ Brad D. Lafferty, *Gulf War Logistics: Theory Into Practice* (Maxwell Air Force Base, AL: Air Command and Staff College, 1995), 20.

⁸⁰ *Ibid.*, 19.

⁸¹ G-Day denotes the beginning of the ground campaign, 24 February 1991.

⁸² Brad D. Lafferty, *Gulf War Logistics: Theory Into Practice*, 24.

How many bases did U.S. forces use during the intervention? The 22d SUPCOM initially established two main support bases in October 1990, Bastogne and Pulaski, which allowed the backlogged Saudi ports to clear. Logbase Pulaski, situated 75 miles west of Dhahran along MSR Mercedes also served as the TAA and support base for the theater reserve, the 1st Cavalry Division. When VII Corps arrived, the 731st Maintenance Battalion established Logbase Alpha. Their role was to oversee the accumulation of rations, fuel, ammunition, and water to support over 100,000 soldiers. The battalion also maintained administrative control over the 2nd COSCOM on behalf of the 22d SUPCOM.⁸³ Logbase Bravo, one of the main theater prepositioning supply bases was established to the south of King Khalid Military City, adjacent to MSR Sultan. Logbase Delta was established in November. These bases, some with perimeters of nearly 80 miles, provided medical, maintenance, fuel, and ammunition to the XVIII Airborne Corps, VII Corps, and housed the theater reserve.⁸⁴ After the US Army corps moved to attack positions in late January of 1991, the 22d SUPCOM established bases Charlie and Echo, bringing the total number to seven. These would provide support during the ground offensive to the XVIII Airborne Corps and VII Corps respectively.⁸⁵

Logbase Charlie initially supported the XVIII Airborne Corps, but as soon as the ground campaign began and tactical objectives were seized, support was echeloned forward to temporary logistics bases. Once the tactical operation allowed, additional corps and division-level logistics bases were established to support the remainder of the offensive.⁸⁶ The corps had established a number of smaller, temporary logistics bases, but consolidated as they advanced into Iraq. VII Corps, receiving their support from Echo, also established an additional logistics base after the

⁸³ Brad D. Lafferty, *Gulf War Logistics: Theory Into Practice*, 19.

⁸⁴ William G. Pagonis with Jeffrey L. Cruikshank, *Moving Mountains: Lessons in Leadership and Logistics from the Gulf War*, 138-40

⁸⁵ U.S. Department of Defense, "Conduct of the Persian Gulf War, Appendices A-S", F-51-2

⁸⁶ Ibid., F-51

start of the ground campaign. Later established, logistics base Nellingen provided additional support to the corps through the conclusion of the ground campaign.⁸⁷

Between the two corps, two main 22d SUPCOM controlled bases would push logistics from the attack positions to corps established bases Nellingen (supporting VII Corps 32 miles beyond the Iraq border), Romeo (supporting XVII Airborne Corps 150 miles beyond the Iraqi border), and Oscar (planned, but not established) as well as division-level and forward area refueling support bases Cobra and Viper.⁸⁸ Below the corps, the DISCOM's would establish a division-level support base with maneuver units operating approximately a one-day's drive beyond that. Even though every supply base in theater was designated a logbase, there was a distinction between the two. A logbase as LTG Pagonis intended only held expendable classes of supply, served as a temporary point, and was intended to be mobile. Supply bases were static.⁸⁹ Logbases Charlie and Echo were of the Pagonis logbase variety (See figure 3). The total number of bases established and supplied by the 22d SUPCOM in Kuwait and Iraq eventually numbered 15, and included aerial and port facilities used during the build-up of forces.

⁸⁷ U.S. Department of Defense, "Conduct of the Persian Gulf War, Final Report to Congress," 430.

⁸⁸ Schubert and Kraus, *The Whirlwind War*, 43.

⁸⁹ Brad D. Lafferty, *Gulf War Logistics: Theory Into Practice*, 24.

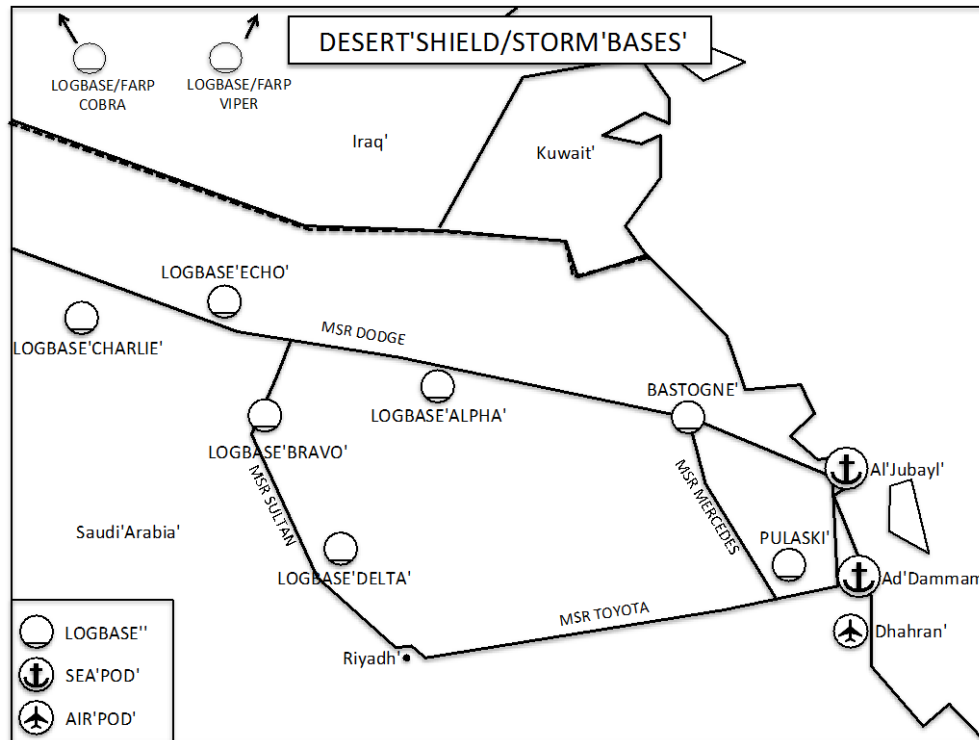


Figure 3: Logbase structure in Kuwait and Iraq⁹⁰

How did sustainment planners augment the sustainment force structure to support bases? Once the number of bases was determined, the question became how sustainment planners augmented their force structure to support basing facilities. The 22nd SUPCOM augmented their force structure greatly in the opening days of Operation Desert Shield, but mainly through civilian contracting. Reserve and National Guard augmentation was standard practice as the vast majority of logistics units reside in the Army Reserve and National Guard. As discussed earlier, the decision not to deploy the 377th TAACOM was a deviation from accepted doctrine, but the roles fulfilled by the TAACOM were executed by LTG Pagonis' 22d SUPCOM.

Since the decision was made early on by GEN Schwarzkopf's planners to frontload combat units, logistics units were delayed in arriving to theater. Without critical transportation

⁹⁰ Compiled by author from figures taken from Richard M. Swain, *Lucky War: Third Army in Desert Storm*.

and supply units arriving into theater, a large factor in LTG Pagonis' success was the over 70,000 contracts executed by his command.⁹¹ These included contracts for tents, fuel, ice, water, hygiene facilities, and vehicle support. Each contract established relieved a strained and overworked logistics architecture. At the APOD and SPOD facilities, host nation materiel handling equipment (MHE) took lead due to the lack of organically available US military MHE. The 22d SUPCOM also developed the Forward Area Support Coordinating Officer (FASCO) team. While not only used for bases, these teams provided "a predesignated and fully functional team tailored to control and execute specific service support missions" and offered a single point of contact at each Pagonis-style logbases for the maneuver units to coordinate with.⁹²

Analysis

Hypothesis one states that if sustainment concepts include basing, then doctrine specifies tasks to employ bases at the operational level and below. The research suggests that in Operation Desert Storm, this was not entirely the case. While doctrine was available for the use of theater opening bases (the APOD and SPODs), no US Army doctrine existed for logbases. Division and Brigade Support Areas also had doctrine available, but these were mainly to provide support forward and secure CSS assets, not provide a base to fight from or project forces. The exception is forward logbases established for aviation support. Thus, the evidence suggests that hypothesis one is a mixed outcome.

Hypothesis two states that if sustainment doctrine includes basing, then units are structured with the proper capabilities to conduct basing operations. Again, at the theater opening bases, units designated to operated reception and staging facilities were structured correctly,

⁹¹ William G. Pagonis with Jeffrey L. Cruikshank, *Moving Mountains: Lessons in Leadership and Logistics from the Gulf War*, 9.

⁹² John J. McGrath and Michael D. Krause, *Theater Logistics and the Gulf War* (Alexandria, VA: US Army Materiel Command Historical Office, 1994), 77, 123-4.

however they lacked enough personnel to be efficient. As additional sustainment forces arrived, this was alleviated. For US Army units establishing and operating bases supporting the SUPCOM and the two COSCOMs, it took the use of FASCO's to provide command and control. Inter-service and host-nation support from Air Force and Navy engineers, as well as hired contractors provided additional capabilities required to conduct basing operations. Thus, the evidence suggests that hypothesis two is not supported.

Hypothesis three states that if sustainment operations that include basing increase then maneuver unit's operational reach and freedom of maneuver increases. Operation Desert Storm and the use of ad hoc logbases to support maneuver units clearly extended their operational reach. The use of bases greatly increased the ability for both ground and combat aviation units to maintain momentum, maneuver without severe limitations, and extend their operations further than available Gulf War-era doctrine would have allowed. Thus, the evidence suggests that hypothesis three is supported.

Summary

The Operation Desert Shield/Desert Storm case provides a critical look at US Army capabilities at the onset of conflict, the use of doctrine against a given force structure, and the necessity of operational basing to extend operational reach for the warfighter. Arguably, the Army of the Gulf War was one of the most well equipped, well trained, and well supplied in the history of the United States. But with all the technological advances in weaponry, intelligence, and communications, the battle hinged on the ability of the logistician to get the right "stuff" to the right place at the correct time. As evident throughout the case study, operational level bases established at key times and places served to increase the ground commander's ability to continue operations against the Iraqi military. Furthermore, echeloning support forward to the corps and division level allowed the ability to extend momentum, operational reach, and prevent culmination.

The concept of mobile supply points as opposed to static logistics bases is introduced for the first time at the operational level and proved that mobile bases that moved with the ground forces were viable in combat. These mobile supply points allowed timely resupply to the forward support areas manned by the Main Support Battalions and Forward Support Battalions, but evidence suggests that as the distances increased between operational and tactical logistics elements, the strain on the logistics system was beginning reach a breaking point. Due to the extremely short nature of the war – only 100 hours, questions arise about the ability of the 22d SUPCOM's ability to provide uninterrupted support to maneuver elements.⁹³ Operational level bases along the Iraqi border were able to increase initial operational reach for Operation Desert Storm, but by the cessation of combat operations, critical commodities of fuel and water – the staples of LTG Pagonis' logbase system, were running short. While not established, additional logbases were templated for construction had the ground war continued beyond the fifth day of combat and would have, in theory, alleviated any concern over these critical commodities.

Operation Joint Endeavor, 1995-1996

Introduction and Purpose

The war in Bosnia-Herzegovina was a war of ethnic struggle for independence in a region continuously at conflict since the end of World War II. Held together by years of iron-fisted rule by Soviet backed Marshall Josep Broz Tito, any notion of ethnic independence was swiftly subdued.⁹⁴ Following his death in 1980, cracks developed in the previously controlled Yugoslav state, and ethnic minorities, specifically Serbians, Croatians, and Bosnians, began to demand

⁹³ Brad D. Lafferty, *Gulf War Logistics: Theory Into Practice*, 30.

⁹⁴ Headquarters, United States Army Europe, *Army in Europe Pamphlet 525-100: The US Army in Bosnia and Herzegovina* (Heidelberg, Germany: Government Printing Office, 2003). 3.

independence.⁹⁵ With no named successor, a power struggle emerged. Compounded by harsh economic conditions and growing ethnic tensions, political factions developed with Serbian power broker Slobodan Milosevic gaining power.⁹⁶ After the fall of the Soviet Union in 1989, the former nation of Yugoslavia faced even more ethnic and religious conflict resulting in the separation of the former state, with Slovenia seeking independence in 1991, and Croatia following soon after.⁹⁷ The pre-1991 Yugoslavia consisted of six republics and two autonomous regions, with hastily drawn administrative borders established by the Germans in the late 1930's.⁹⁸ In addition to Slovenia and Croatia, the republics of Bosnia-Herzegovina and Macedonia separated in 1992. The continuous breakup of Yugoslavia was contested, often with extreme violence and ethnic cleansing. The worst fighting took place in Bosnia-Herzegovina, resulting in a civil war that lasted from 1992 to 1995.⁹⁹ During this time, military action by Serbia attempted to consolidate Serb-controlled areas throughout Bosnia-Herzegovina and led to the seizure of nearly 70 percent of Bosnian territory after only a few months.¹⁰⁰ The multi-ethnic population of Bosnia-Herzegovina consisted of Bosnian Serbs, Croats, and Muslims. The Bosnian Serbs aligned with the Serbian backed Yugoslav People's Army. The Bosnian Croats aligned with Croatia and formed the Croatian Defense Council. The Bosnian Muslims (or Bosniaks) were left to their own defenses against genocidal attacks led by both parties.¹⁰¹ A series of cease-fires called for by the United Nations and European Union went largely ignored by both the Serbian

⁹⁵ Headquarters, United States Army Europe, *Army in Europe Pamphlet 525-100: The US Army in Bosnia and Herzegovina* (Heidelberg, Germany: Government Printing Office, 2003), 3-4.

⁹⁶ Ibid.

⁹⁷ J. Zametica, *Yugoslav Conflict* (London: HarperCollins Distribution Services, 1992), 14.

⁹⁸ Ibid., 14-15.

⁹⁹ R. Cody Phillips, *Bosnia-Herzegovina: The U.S. Army's Role in Peace Enforcement Operations 1995-2004* (Washington, DC: Government Printing Office, 2005), 2-3.

¹⁰⁰ U.S. Center for Army Lessons Learned, *Supporting the Peace, Bosnia-Herzegovina: An Area Study, Language, and TTP Guide*, No. 95-13 (Fort Leavenworth, KS: Government Printing Office, 1995). [Chapter I, unpaginated]

¹⁰¹ Ibid., [Chapter I, unpaginated]

and Croatian parties. The United Nations sent in the United Nations Protection Force (UNPROFOR II) in 1992 to enforce the mandated cease-fire, but numbering less than 10,000 soldiers and widely dispersed throughout Bosnia and Croatia, the force was not successful.¹⁰²

With international pressure doing little to curb the violence in the former Yugoslavia, the Bosnian Serbs enacted a wave of ethnic cleansing that killed thousands of innocent people throughout Bosnia-Herzegovina. UNPROFOR could do little but sit and watch, hampered by a restrictive and confusing set of rules of engagement, and they struggled to defend what little humanitarian aid was making its way into the country. The European community tried to intervene with sanctions, embargos, and the passage of the Vance-Owen Peace Plan in late 1992, but these all failed and the conflict continued into 1994.¹⁰³

Initial North Atlantic Treaty Organization (NATO) estimates for intervention forces in Bosnia-Herzegovina were between 150,000 and 460,000 total soldiers, dampening international enthusiasm for further intervention.¹⁰⁴ With a fairly significant UN force already deployed on ground, the United States began to advocate for a stronger approach to combat the violence, calling for a lift of the existing arms embargos against Bosnia, and the extensive use of NATO airpower to enforce a no-fly zone over the country.¹⁰⁵

In the spring of 1995, NATO air strikes, under UN control, bombed Serbian military targets. In retaliation, Serb troops began taking UN military personnel hostage, and overrunning UN-declared safe havens. Reports of massacres within the “safe-havens” triggered an immediate

¹⁰² R. Cody Phillips, *Bosnia-Herzegovina: The U.S. Army's Role in Peace Enforcement Operations 1995-2004*, 10. UNPROFOR was originally sent into Croatia in March and April of 1992. UNPROFOR II was established in Bosnia later during the summer of 1992.

¹⁰³ The Vance-Owens Peace Plan called for the division of Bosnia into ten semi-autonomous regions. Through a referendum, it was overwhelmingly rejected by over 96% of the population.

¹⁰⁴ R. Cody Phillips, *Bosnia-Herzegovina: The U.S. Army's Role in Peace Enforcement Operations 1995-2004*, 11-12.

¹⁰⁵ *Ibid.*, 12.

response from the United States, demanding action to protect the remaining safe havens.¹⁰⁶

Additional attacks in Sarajevo at civilian markets and the airport led to heavy air strikes against Bosnian-Serb positions during Operation Deliberate Force in August 1995.

In October 1995, representatives from the Bosnian Serbs, Croats, and Muslims all met in Dayton, Ohio for the Dayton peace talks. A cease-fire was arranged, and the peace treaty was signed in Paris on 14 December 1995.¹⁰⁷ The treaty called the establishment of the Republic of Bosnia-Herzegovina, as well as the introduction of a NATO Implementation Force (IFOR). IFOR's key tasks included enforcing the newly signed cease-fire, control of air space over Bosnia, to ensure warring factions remained separated, and supervise the boundaries between established zones of separation.¹⁰⁸ Initial planning numbers determined IFOR would have nearly 57,000 soldiers, 14,900 of which would be coming from the US Army.¹⁰⁹

The introduction of the NATO-led IFOR into Bosnia posed specific challenges to the American contingent: there were no rear areas; the enemy threat included both regular and irregular forces made up of remnants of the former Yugoslavian military, paramilitary militias and organized gangs; the infrastructure was severely damaged after years of conflict; and the terrain was extremely restrictive to establishing effective lines of communications (LOC's).¹¹⁰ Under these conditions, the first US troops started to deploy into Bosnia for Operation Joint

¹⁰⁶ R. Cody Phillips, *Bosnia-Herzegovina: The U.S. Army's Role in Peace Enforcement Operations 1995-2004*, 10.

¹⁰⁷ Richard M. Swain, *Neither War nor Not War: Army Command in Europe During the Time of Peace Operations: Tasks Confronting USAREUR Commanders, 1994-2000* (Carlisle, PA: Strategic Studies Institute Press, 2003), 4.

¹⁰⁸ R. Cody Phillips, *Bosnia-Herzegovina: The U.S. Army's Role in Peace Enforcement Operations 1995-2004*, 15-16.

¹⁰⁹ *Ibid.*, 16, and Richard M. Swain, *Neither War nor Not War: Army Command in Europe During the Time of Peace Operations: Tasks Confronting USAREUR Commanders, 1994-2000*, 49. Author derived 14,900 from a force cap directed by European Command.

¹¹⁰ Carl D. Bird, "Bosnia: Does Force XXI Technology Solve Operational Logistic Problems in Operations Other Than War?" (Monograph, School of Advanced Military Studies, United States Army Command and General Staff College, 1998), 11-12

Endeavor in December 1995. These forces, made of elements of the US 1st Armored Division, 1st Infantry Division, and subordinate support elements of the 21st TAACOM crossed the Sara River into Bosnia-Herzegovina on 31 December 1995. Over 28,000 soldiers and civilians, as well as 11,000 pieces of equipment would make their way into Bosnia, and fall under NATO control to conduct peacekeeping operations.¹¹¹

Operation Joint Endeavor would last from 20 December 1995 to 20 December 1996, and focused mainly on implementing the military annexes of the General Framework Agreement for Peace (GFAP), established at Dayton.¹¹² Operation Joint Guard was established at the completion of Joint Endeavor, and lasted from 20 December 1996 to 20 June 1998. The IFOR transitioned to the Stabilization Force (SFOR), and the mission shifted from implementing and enforcing the Dayton Peace Accords to stabilizing the peace in Bosnia and conducting peacekeeping operations. As the security situation in Bosnia improved, troop levels decreased. By December 1995, NATO troop levels for SFOR numbered 30,000, with 8,500 of that from the United States.¹¹³ Operation Joint Forge started at the end of Joint Guard in June 1998 with a continued US presence, but saw the mission transition from United States Army Europe (USAREUR) to continental United States (CONUS)-based active and National Guard divisions on a rotational basis. In November of 2004, Task Force Eagle closed its basecamp in Tuzla, and the overall peacekeeping mission transitioned from NATO to European Union control, signifying an end to major US involvement in Bosnia.¹¹⁴

US Army operations in Bosnia-Herzegovina was one of the first deployments of US troops in support of Operations Other Than War (OOTW), and posed specific challenges to

¹¹¹ R. Cody Phillips, *Bosnia-Herzegovina: The U.S. Army's Role in Peace Enforcement Operations 1995-2004*, 19-20.

¹¹² From NATO Basic Fact Sheet found at: www.nato.int/ifor/ifor.htm. (accessed 22 Aug 2012).

¹¹³ United States Army, Europe, *Army in Europe Pamphlet 525-100: The US Army in Bosnia and Herzegovina*, 22.

¹¹⁴ *Ibid.*, 36-38.

planners and sustainers. The level of support required was far less than that required during Operation Desert Shield/Desert Storm, however Bosnia posed very specific challenges. This would also be one of the first widespread uses of the Logistics Civil Augmentation Program (LOGCAP). LOGCAP support would augment (and in some cases, be the primary source of) sustainment and engineer units in Bosnia and provide critical basing construction and support.

How did maneuver units conduct operations? Operation Joint Endeavor had five phases: I – Predeployment, II – Entry, III – Implementation, IV – Transition to Peace, and V – Exit.¹¹⁵ Two separate deploying elements were originally envisioned, with an Enabling Force providing command and control, reception, the establishment of support facilities and the intermediate staging base in Hungary, while the Implementation Force (IFOR) would be the bulk of the US and NATO mission.¹¹⁶ This would consist of combat troops with enablers capable of enforcing the terms set forth in the Dayton Peace Agreement.¹¹⁷

USAREUR (Forward), located in Taszar, Hungary, combined personnel from both the USAREUR and V Corps staffs, and oversaw the deployment of all US forces into Bosnia-Herzegovina. Under the control of LTG John Abrams, they executed the responsibilities of the Army service component commander, and worked with the National Support Element – in this instance, through the 21st TAACOM based out of Germany, now forward deployed to Kaposvar, Hungary, to provide support functions to the deploying force.¹¹⁸ U.S. personnel and equipment deployed from Germany into Hungary by bus and rail to the 21st TAACOM managed ISB at Kaposvar. From there, unit's road marched with their equipment to TAA Harmon, near the town of Zupanja, Croatia. Zupanja was located on the banks of the Sava River, which served as a

¹¹⁵ William B. Buchanan, *Operation Joint Endeavor - Description and Lessons Learned (Planning and Deployment Phase)* (Alexandria, VA: Institute for Defense Analysis, 1996), III-5-6.

¹¹⁶ Ibid.

¹¹⁷ Ibid., III-5-6.

¹¹⁸ Ibid., 15-7.

natural boundary between Croatia and Bosnia. Engineers bridged the river, swollen due to heavy winter snowmelt, and allowed units to move into Bosnia-Herzegovina.¹¹⁹

Bosnia-Herzegovina was divided into three regions overseen by corresponding multinational divisions (MNDs) and came under NATO control. MND-North was placed under U.S. military control, MND-Southeast under French control, and MND-Southwest under British control and each had additional augmentation by various contributing coalition nations.¹²⁰

The responsibility of MND-N, an area roughly the size of the state of Connecticut, was given to the U.S. 1st Armored Division. They deployed as the initial ground force and became Task Force Eagle in mid-November 1995.¹²¹ This Task Force included the 1st and 2nd Brigades, 1st Armored Division, the 4th Aviation Brigade, the Division Artillery and Engineers, and elements of five additional combat support and combat sustainment support brigades.¹²² Also included in the task force were brigades from Russia and Turkey, and a composite brigade of Norwegian, Danish, and Polish units.¹²³

Once inside Bosnia, Task Force Eagle established bases throughout the designated zones of separation (ZOS) that separated the warring factions, and began monitoring the terms of the Dayton Accord. MND-N was divided up into five brigade AO's, and brigades established nearly two-dozen forward operating bases, and additional company patrol bases as required to monitor the ZOS.¹²⁴ (See figure 4) Task Force Eagle was responsible for establishing checkpoints to

¹¹⁹ United States Army, Europe, Army in Europe Pamphlet 525-100: *The US Army in Bosnia and Herzegovina*, 17-20.

¹²⁰ Ibid., 15.

¹²¹ Robert F. Baumann, George W. Gawrych, and Walter E. Kretchik, *Armed Peacekeepers in Bosni.*(Fort Leavenworth, KS: Combat Studies Institute Press, 2004), 75.

¹²² Ibid., 94.

¹²³ Ibid.

¹²⁴ Center for Army Lessons Learned, *Operation Joint Endeavor Bosnia-Herzegovina: RSOI, Title 10 Sustainment, and Force Protection Initial Impressions Report* (Fort Leavenworth, KS: Government Printing Office, 1996), 25.

guarantee freedom of movement along lines of communication and maintain visibility among the population, clearing mines, obstacles, and fortifications according to the GFAP framework, and conduct ground patrols for reconnaissance and to monitor the ZOS.¹²⁵ Task Force Eagle was also tasked with ensuring the continued cessation of hostilities and promoted non-military reforms. This included conducting elections, continued humanitarian assistance missions, and protecting returning refugees.¹²⁶ The consensus, however, was that one year was not enough time to create a secure and stable environment.¹²⁷

In December 1996, the IFOR mission ended and transitioned to SFOR. With that, Task Force Eagle conducted the first of many transitions of authority for responsibility of MND-North with active, National Guard, and Reserve divisions. The operational mission for SFOR remained peace enforcement, and underwent few changes between 1996-2002. In 2002, the MND-B's went from division-size to brigade-sized elements. Formal SFOR operations ended in 2004.

¹²⁵ Center for Army Lessons Learned, *Drawing a Line in the Mud: Establishing and Controlling a Zone of Separation (ZOS)* (Fort Leavenworth, KS: Government Printing Office, 1996), [unpaginated]

¹²⁶ Robert F. Baumann, George W. Gawrych, and Walter E. Kretchik. *Armed Peacekeepers in Bosnia*. 121.

¹²⁷ Ibid.

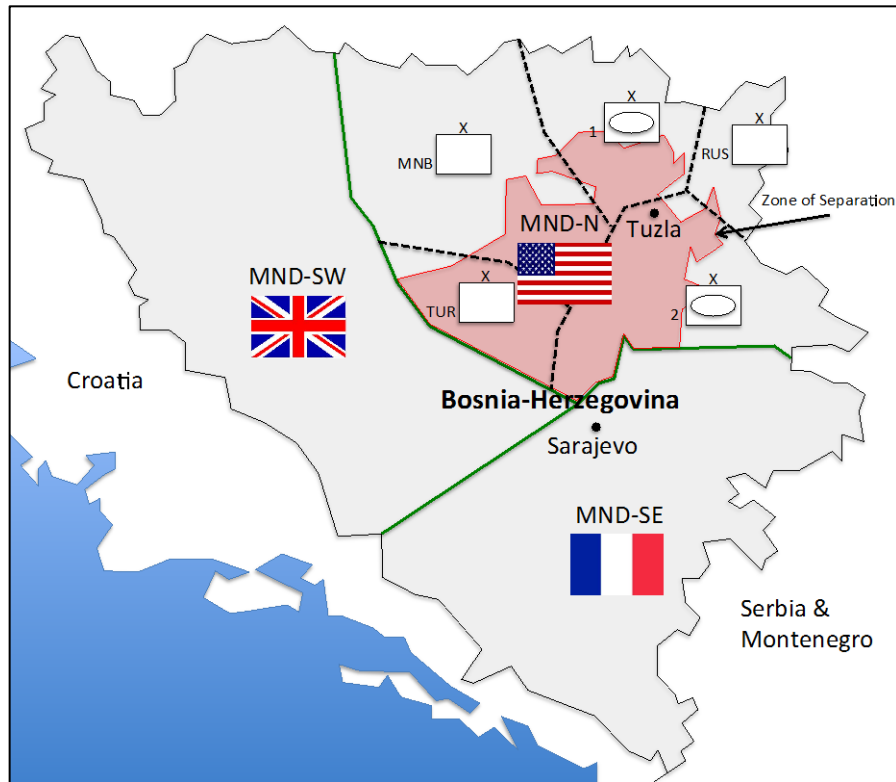


Figure 4: Bosnia MND's and Task Force EAGLE Brigade boundaries

What sustainment doctrine informed planners during the intervention? Following Operation Desert Shield/Storm, the US Army rewrote their *Operations* manual, and reflected a different way of thinking in a new, strategic era.¹²⁸ Not only did the doctrine reflect the shift to stronger joint operations, but recognized that the Army will be forced to operate across a broad range of military operations.¹²⁹ This shift included the requirement for a force-projection army that had the capability to build and sustain combat power in remote regions of the globe.¹³⁰

With the shift to force-projection came increased requirements for logisticians to plan comprehensive logistics support from factory to foxhole. The 1993 *Operations* changes for logistics were mainly superficial: the logistics characteristics remained the same; planning

¹²⁸ United States Army. Field Manual 100-5: *Operations*, vi.

¹²⁹ Ibid.

¹³⁰ Ibid.

considerations changed from organization in a theater of war; logistics operations updated the operational sustainment section; and tactical logistics functions took the place of key sustainment functions. Of note, the 1993 *Operations* increased the attention given towards strategic (CONUS) and operational level basing operations, and outlined the theater logistics system.¹³¹ This delineated the responsibilities of strategic, operational, and tactical logistics within the communications zone (COMMZ) and the combat zone, and introduces the concept of the theater logistics base as a hub for all intra-theater LOCs.¹³²

After the *Operations* update in 1993, *Combat Service Support* was updated in 1995.¹³³ *Combat Service Support* embraced the change from a forward deployed to a force-projection army outlined in *Operations*, and incorporated support for an operating force that could now consist of joint, multinational, and interagency partners.¹³⁴ One of the key discussions in the new doctrine involved the direction in Combat Service Support (CSS) development. This discussion took the CSS characteristics¹³⁵ and discussed the CSS system as needing to be capabilities based that could meet the needs of a joint force projection scenario:

[The CSS system] must be resilient, taking advantage of all available resources. The system must be efficient as well as effective...

The CSS system will have to anticipate requirements to create a predictive push and a responsive pull of resources to meet joint and multinational needs...

The CSS system will have to be resilient. Incorporating the total range of CSS resources, it will balance the need for CONUS-based projection and sustainment against a reduced military structure to support forcible entry into bare-based operational areas. There will be a shifting of certain support tasks from the

¹³¹ United States Army. Field Manual 100-5: *Operations*, 12-8.

¹³² Ibid. 1986's *Operations* discussing putting bases in theater, but never explains the theater logistics base as a concept. This is the first instance of the theater logistics base being used as a sustainment concept.

¹³³ United States Army. Field Manual 100-10: *Combat Service Support*. (Washington, DC: United States Army, 1995), i-iv.

¹³⁴ United States Army. Field Manual 100-10: *Combat Service Support*, iv.

¹³⁵ Ibid., 1-3. The 1995 CSS characteristics were responsiveness, simplicity, flexibility, attainability, sustainability, survivability, economy, and integration.

uniformed services to Department of Defense (DOD) civilians and the private sector...

The use of contractors for technical support will be widespread. Contingency contracting will take full advantage of available resources in the theater base. The CSS system will capitalize on host nation and multinational support, but only when available and reliable...

The CSS system will place a premium on efficiency without compromising effectiveness. It will assemble and deploy the most effective mix of active and reserve components, DOD civilians, and private sector contracted personnel to sustain the force.¹³⁶

This new discussion of the CSS as a system emphasized efficiencies across the battlefield, and increased the reliance on contingency contracting. It acknowledged a reduced military logistics structure, and a need to utilize a mix of active and reserve component forces, as well as civilian contractors.¹³⁷ With regards to basing concepts, *Combat Service Support* mirrored the discussion of the theater base from *Operations* in that it outlined the theater base in the COMMZ, but also briefly mentions forward logistics bases at the operational level as a means to aid advancing forces and extend lines of communication.¹³⁸ With all the experience from Operation Desert Storm and the impact of basing at the operational and tactical level, there is only limited discussion beyond that of basing as a theater preparation activity and theater opening function. The planning focus for basing is relegated to the logistics preparation of the battlefield, but provided with no details.¹³⁹

What was the sustainment force structure used during the intervention? The 21st TAACOM was designated the National Support Element (NSE) for Operation Joint Endeavor. Subordinate to the TAACOM, the 3d COSCOM (Fwd) would command and operate the day-to-day mission of the NSE. While USAREUR (Fwd) was responsible for the development and

¹³⁶ United States Army. Field Manual 100-10: *Combat Service Support*, 1-5.

¹³⁷ Ibid.

¹³⁸ United States Army. Field Manual 100-10: *Combat Service Support*, 1-13.

¹³⁹ Ibid., 2-7.

enforcement of CSS plans and policies, and included theater level personnel, finance, engineering, and medical support staff functions, the 21st TAACOM (Fwd) organized around the 3d COSCOM headquarters and performed both corps and operational level logistics.¹⁴⁰ The 29th Area Support Group, assigned to the 21st TAACOM (Fwd), conducted supply, maintenance, limited transportation and field services. Additionally, a FORSCOM Petroleum, Oils, and Lubricants (POL) Group staff, the Defense Logistics Agency (DLA), a United States Army Materiel Command (USAMC) Logistics Support Element (LSE), and contracted transportation augmented the NSE.¹⁴¹

Below the NSE, the initial entry force, eventually Task Force Eagle, included medical detachments as well as Prime Beef and Rapid Engineer Deployable, Heavy Operational Repair Squadron, Engineer (RED HORSE) units. The 16th Corps Support Group served as the Task Force Eagle follow-on sustainment force in addition to the Division Support Command (DISCOM), Division Engineers (DIVENG), and the 30th Medical Brigade.¹⁴² Below the division, each brigade was assigned a forward support battalion from the DISCOM to provide tactical level sustainment.

How did sustainment units support maneuver units? MG James Wright, Commanding General of the 21st TAACOM moved quickly to establish the Kaposvar ISB in Hungary. As previously stated, Kaposvar housed not only the 21st TAACOM (Fwd) but also USAREUR (Fwd). Located approximately 210km from Heidelberg, Germany, Kaposvar had the necessary airfields, railheads, and road networks required to move the US contingent into Bosnia using a northern ground route, since most of the southern routes were already being utilized by other

¹⁴⁰ Center for Army Lessons Learned. *Operation Joint Endeavor Bosnia-Herzegovina: RSOI, Title 10 Sustainment, and Force Protection*, 26.

¹⁴¹ Ibid., 26.

¹⁴² United States Army, Europe, Army in Europe Pamphlet 525-100: *The US Army in Bosnia and Herzegovina*, 25-26.

NATO forces.¹⁴³ Host nation support, as well as a robust military structure remaining from the Cold War were also readily available, allowing suitable facilities for a quick build-up of forces. Initially, 900 soldiers from the 21st TAACOM and 3d COSCOM were deployed to the Kaposvar ISB to support the IFOR deployments; this number would reach as high as 7,300 in January 1996 and settle at 6,600 by mid-February 1996.¹⁴⁴ While the ISB's main role was to conduct Reception, Staging, Onward movement, and Integration (RSOI) operations for all U.S. forces moving into Bosnia,¹⁴⁵ it also performed a variety of logistics and sustainment functions that included transportation, fuel, maintenance, supply, personnel services, and health service support. Those functions that were not filled by available military forces were augmented by LOGCAP contracts.¹⁴⁶ Additional Title 10 support functions were echeloned forward from Germany to the ISB in accordance with split based operations doctrine.¹⁴⁷ From Kaposvar, a forward supply base was established at Zupanja, Croatia to support the move into Bosnia. Zupanja was 350km from the ISB, sat along the Sava River, and was still 50km from Tuzla, the eventual base for Task Force Eagle.¹⁴⁸

The 21st TAACOM established an integrated logistics system that included the CONUS industrial base and Germany-based sustainment units that extended to the ISB in Hungary and

¹⁴³ United States Army, Europe, Army in Europe Pamphlet 525-100: *The US Army in Bosnia and Herzegovina*, 13.

¹⁴⁴ William B. Buchanan, *Operation Joint Endeavor - Descriptions and Lessons Learned (Planning and Deployment Phases)*, IV-12.

¹⁴⁵ Ibid., III-14.

¹⁴⁶ United States Army Europe, *Operation Joint Endeavor: USAREUR Headquarters After Action Review*, vol 1 (Heidelberg, Germany: Government Printing Office, May 1997), 119-128.

¹⁴⁷ United States Army Europe, *Operation Joint Endeavor: USAREUR Headquarters After Action Review*, vol. 1, 130.

¹⁴⁸ Buchanan, William B. *Operation Joint Endeavor - Descriptions and Lessons Learned (Planning and Deployment Phases)*, III-14.

into Tuzla at Eagle Base.¹⁴⁹ Their primary sustainment functions included distribute, arm, fuel, fix, and sustain the force.¹⁵⁰ Once in Bosnia, the main base of operations for sustainment forces was Tuzla Air Field, later called Eagle Base. Elements of the 16th CSG, included in the initial entry force, supported the 1st Armored Division DISCOM with transportation, field service, and maintenance assets.¹⁵¹ This was a departure from doctrine which would not have called for a CSG to be attached to a Division, but for Operation Joint Endeavor, was determined an appropriate course of action.¹⁵² From Eagle Base, the transportation battalion assigned to the CSG as well as assets under the 1st Armored Division's MSB would distribute classes of supply and retrograde personnel and equipment between the logistics base and the FSB's at each brigade.

How many bases did U.S. forces use during the intervention? Operation Joint Endeavour used a total of two bases outside of Bosnia and 36 bases in MND-N.¹⁵³ USAREUR and 21st TAACOM (Fwd) established the Intermediate Staging and Sustainment Base in Kaposvar, Hungary and a forward supply base in Zupanja, Croatia, while the 1st Armored Division established the MND-N headquarters at Tuzla Air Base. As the brigades moved into MND-N, 24 additional brigade and battalion-sized bases were also built.¹⁵⁴ These included 19 tactically dispersed, full service bases and 5-limited service forward operating sites.¹⁵⁵ Once brigade

¹⁴⁹ United States Army Europe, *Operation Joint Endeavor: USAREUR Headquarters After Action Review*, vol. 1, 118-9.

¹⁵⁰ Ibid.

¹⁵¹ Ibid.

¹⁵² United States Army Europe, *Operation Joint Endeavor: USAREUR Headquarters After Action Review*, vol. 1, 118-9.

¹⁵³ United States Army, Europe, *Army in Europe Pamphlet 525-100: The US Army in Bosnia and Herzegovina*, 21. Of the total bases, 24 were in the ZOS at brigade and battalion level, while 12 bases resided in Tuzla as base clusters.

¹⁵⁴ United States Army, Europe, *Army in Europe Pamphlet 525-100: The US Army in Bosnia and Herzegovina*, 127.

¹⁵⁵ Center for Army Lessons Learned. *Bosnia-Herzegovina CAAT 2 Initial Impressions Report: Operation Joint Endeavor TASK FORCE EAGLE Continuing Operations* (Fort Leavenworth, KS: Government Printing Office, 1996). 54

commanders arrived in MND-North and moved out from Tuzla, they determined that due to an initial lack of reconnaissance beyond the Tuzla Airfield, brigade and below level base camps would increase from 8 to 23, and be established close to assigned patrolling areas as opposed to locations designated in the publication of 1st Armored Division's Operations Order.¹⁵⁶

LOGCAP contracts provided each full service base with waste management; laundry and bath facilities; retail water and fuel distribution; cargo, heavy equipment, and trailer transfer capability; and food services.¹⁵⁷ The limited-service forward operating bases maintained only basic life support services, and did not have any logistics functions beyond organically assigned, direct support unit assets.¹⁵⁸ The attached engineers units set the initial standard for standards of living, regardless of whether a base was full or limited-service: Phase I camps would constitute soldiers out of the mud, assigned tentage used, basic heat and constructed wooden floors; Phase II constituted Phase I plus showers, service centers, and basic services; Phase III included Phase I and II, hardstand tents, modulars, showers, and flush toilets.¹⁵⁹

How did sustainment planners augment the sustainment force structure to support bases? Sustainment Planners had to augment their force structure with LOGCAP contractors, as well as Army, Navy and Air Force engineers in order to successfully support the number of base camps required in Operation Joint Endeavor. The initial plan for establishing Task Force Eagle's base camp facilities fell on the LOGCAP I as required engineer units were not readily available in

¹⁵⁶ United States Army Europe, *Operation Joint Endeavor: USAREUR Headquarters After Action Review: Volume II-Annexes* (Heidelberg, Germany: Government Printing Office, May 1997), 155. Based on 1AD's original plan, Brigade and below level base camps were placed near LOC's and existing infrastructure. Once commanders arrived and conducted an initial reconnaissance, they determined to increase the number of camps to extend control of their AO's, and aid in the successful execution of operations.

¹⁵⁷ United States Army Europe, *Operation Joint Endeavor: USAREUR Headquarters After Action Review: Volume II-Annexes* (Heidelberg, Germany: Government Printing Office, May 1997), 219.

¹⁵⁸ Center for Army Lessons Learned, *Bosnia-Herzegovina CAAT 2 Initial Impressions Report: Operation Joint Endeavor TASK FORCE EAGLE Continuing Operations*, 54-6.

¹⁵⁹ United States Army Europe, *Annexes*, vol. 2 of *Operation Joint Endeavor: USAREUR Headquarters After Action Review*, 159.

Europe at the time. Brown and Root Services were awarded the LOGCAP contract in 1992 that would cover basing requirements for United States military contingency operations.¹⁶⁰ However, due to funding delays, a lack of required site inspections by the contractor, and a 30-day response time by Brown and Root Service Corporation (BRSC), initial entry forces did not have suitable facilities to occupy. Because of this, the Time-Phased Force Deployment Data (TPFDD) had to be modified at the last minute to push the required horizontal and vertical engineer units from the United States. An Air Force Rapid Engineer Deployable Heavy Operational Repair Squadron Engineers (RED HORSE) squadron was added and augmented with equipment from Camp Darby, Italy, and would start initial construction of Eagle Base at Tuzla Airfield for the 1st Armored Division. A US Navy Construction Battalion (SEABEE) from Rota, Spain deployed to Taszar, Hungary, and then to the Zupanja forward supply base to establish housing and additional base camp support. Finally, an Air Force Prime Base Engineer Emergency Force (BEEF) team deployed from England to assist in base camp construction.¹⁶¹ RED HORSE and SEABEE units started initial construction with augmentation by the available US Army engineer units; construction and management was later transitioned to LOGCAP contractors once they finally arrived in theater.¹⁶²

Analysis

Hypothesis one states that if sustainment concepts include basing, then doctrine specifies tasks to employ bases at the operational level and below. The initial USAREUR order specified

¹⁶⁰ United States General Accounting Office, "Contingency Operations: Opportunities to Improve the Logistics Civil Augmentation Program." *Federation of American Scientists*. Feb 11, 1997. <http://www.fas.org/man/gao/ns97063.htm> (accessed July 19, 2012).

¹⁶¹ William B. Buchanan, *Operation Joint Endeavor - Description and Lessons Learned (Planning and Deployment Phase)*, VI-3.

¹⁶² Headquarters, Task Force Eagle. *Task Force Eagle After Action Report*. (Heidelberg: Germany: Government Printing Office, 1996), II-7.

the establishment of an ISB, as well as subsequent orders specified a division level base established at Tuzla. The decision to establish a supply base in Zupanja was simply to lessen the burden on logistics and transportation assets, and was doctrinally sound. This is similar in concept to what the 22d SUPCOM established in Operation Desert Storm to alleviate strain on the logistics infrastructure. At the brigade level and below, division and brigade level support areas have associated doctrine, but they are based on a forward line of troops, and react to the tactical situation of the units they support. Bosnia was a non-linear fight based on establishing a zone of separation and a physical occupation of territory. The use of bases in this instance was to provide required forces in an assigned area to patrol and monitor specific areas of operation. While tactical unit AO's are certainly doctrinal, the use of base clusters in a non-contiguous rear area of operations is the closest example that suggests to the actions taken in Bosnia. While successful, there was no doctrine that specified tasks or requirements for tactical bases at the division and below. Thus, the evidence suggests that hypothesis one is not supported.

Hypothesis two states that if sustainment doctrine includes basing, then units are structured with the proper capabilities to conduct basing operations. Similarly to Operation Desert Shield/Storm, support units were lowered in priority to make way for maneuver units, and for similar reasons. Political considerations, combined with civilian rail strikes, lack of commercial transportation assets, and a deployment over the holiday season posed specific challenges to the establishment and execution of operations at the ISB in Kaposvar. Also similar to Operation Desert Shield/Storm, there was a shortage of Materiel Handling Equipment (MHE) and Container Handling Equipment (CHE) which directly impacted the movement of required CL IV assets and Force Provider modules; LOGCAP augmentation and host-nation contracting eventually overcame this shortfall. At the supply base in Zupanja, and at subsequent bases in Bosnia, engineer assets were in limited supply and required augmentation from Air Force and Navy units. Due to competing requirements, the Quartermaster Support Company (Force Provider) did not deploy to establish the Force Provider facilities, and LOGCAP contractors filled the gap. While

identified shortfalls of required units and basing assets were eventually available or programed into the TPFDD to deploy at a later time, initial units had shortfalls that impacted their ability to conduct basing operations. Thus, the evidence suggests that hypothesis two is not supported.

Hypothesis three states that if sustainment operations that include basing increase then maneuver unit's operational reach and freedom of maneuver increases. Operation Joint Endeavour, with its non-contiguous front lines and peacekeeping scope of mission required a boots on ground presence to be successful. The placement of bases throughout MND-North provided the means required to conduct patrolling and checkpoint operations, while also projecting a US military presence in the region. Thus, the evidence suggests that hypothesis three is supported.

Summary

The Bosnia-Herzegovina case study of Operation Joint Endeavor provides a snapshot of the evolution and widespread use of basing at the operational level and below. In Bosnia, there was a change in how ground forces operated due to a lack of contiguous front lines, as well as the drastically changed force structure. The drawdown of forces during the early 1990's decreased the number of US troops in Europe from over 216,000 to less than 93,000 in 1993,¹⁶³ and included the acceptance of contractors to handle traditional service support roles.¹⁶⁴ Decentralized peacekeeping missions, while trained at Combat Training Centers, were a relatively new concept after years of Cold War planning, and especially coming out of the Gulf War of 1991. Task Force Eagle took a traditional divisional structure and modified it to conduct peacekeeping and peace

¹⁶³ United States General Accounting Office. *Army Force Structure: Personnel, Equipment, and Cost Issues Related to the European Drawdown* (Washington, DC: United States. General Accounting Office, 1992), 2.

¹⁶⁴ John J. McGrath, *The Other End of the Spear: The Tooth to Tail Ratio (T3R) in Modern Military Operations* (Fort Leavenworth, KS: Combat Studies Institute Press, 2004), 78.

enforcement missions.¹⁶⁵ Brigades were fought as brigade combat teams, and division engineer, field artillery, and service support units found themselves conducting a number of non-standard missions: firing platoons in the field artillery battery's were used as infantry companies, while maintenance and supply units in the DISCOM were on area support to provide for forward operating bases.¹⁶⁶ Due to a force cap on uniformed personnel, LOGCAP contractors were used to augment or replace certain engineer and service support assets. While this appeared to be a feasible plan, later examination revealed that LOGCAP, while an excellent force multiplier, is not an initial entry capability.¹⁶⁷ They were subject to the same line of communication constraints that affected US military logistics, and were therefore not available at the onset of operations to establish initial entry bases for Task Force Eagle.¹⁶⁸

Bosnia showed that US Army operational doctrine had evolved to include military operations other than war (MOOTW) and peacekeeping/enforcement missions while sustainment doctrine, while including MOOTW in the rewrite of *Combat Service Support*, did not provide enough detail to planners to work through the implementation issues during the initial entry operations and the establishment of bases. Inadequate planning and the inability to get materials and contractors into Bosnia to construct bases became a constraint, and actually competed with Task Force Eagle's requirement to project combat power.¹⁶⁹ A proper understanding and doctrinal tasks assigned to engineer and service support units would have alleviated the short-fuse requirement for SEABEE and RED HORSE assets, and employed the proper capability earlier in the Operation Joint Endeavor deployment.

¹⁶⁵ Task Force Eagle. *Task Force Eagle After Action Report*, I-3.

¹⁶⁶ Task Force Eagle. *Task Force Eagle After Action Report*, I-3.

¹⁶⁷ Center for Army Lessons Learned, *Initial Impressions Report: Operation Joint Endeavor Task Force Eagle Initial Operations*, 168.

¹⁶⁸ Ibid.

¹⁶⁹ Ibid., 5.

Once LOGCAP was available, the outcome was well suited for operations in Bosnia. Contractors, not counting against the total number of forces in Bosnia, provided nearly all key life support, base support, and service support functions for all full service bases. Organically assigned sustainment units provided support to the limited-service bases and forward operating bases at battalion and below. Soldiers at most bases were provided adequate dining, housing, and hygiene facilities, while extras like morale, welfare, and recreation, physical fitness facilities, and call centers were also available in addition to basic life support. The ability of LOGCAP to augment the available force structure proved to be a combined success.

Finally established, bases provided the ground commanders the required operational reach to successfully implement the terms of the GFAP, simultaneously deploy and employ forces, and enforce the ZOS. The use of bases in Bosnia and the large quantity in which they were utilized proved to be a key component to the completion of Task Force Eagle's mission, but also highlighted gaps in doctrine and available US Army force structure, as well as the increasing reliance on contractors.

Operation Iraqi Freedom, 2003

Introduction and Purpose

The United States invasion of Iraq in March of 2003 was the culmination of an ongoing regional strategy that included sanctions, no-fly zones, and international inspections against what was perceived as a threat of weapons of mass destruction by the Iraqi president, Sadaam Hussein. The United Nations passed UN Security Council Resolution (UNSCR) 1441 in November of 2002 offering Iraq one final opportunity to disarm and resume executing the terms outlined in the

earlier UNSCR 687.¹⁷⁰ The United States military had used no-fly zones since the end of the 1990-91 war, and continued with Operation Southern Focus in June of 2002. Its intent was to destroy all Iraqi air defense and military complexes. By late 2002, intelligence was presented to a closed session of United States Senate outlining Iraq's ability to attack the United States with chemical and biological weapons, despite the UN inspection team's inability to find evidence on the ground.¹⁷¹ President George W. Bush lobbied for sanctions from the international community, and gained domestic support following the passage of the Joint Resolution to Authorize the Use of United States Armed Forces against Iraq.¹⁷² On 5 February 2003, Secretary of State Colin Powell presented the United States' evidence of Sadaam Hussein's intent to possess and use weapons of mass destruction to the United Nations Security Council, but the United Nations did not pass any resolutions beyond that of UNSCR 1441.

While lacking a United Nations Security Council resolution authorizing the use of combat forces in Iraq, President Bush did have bipartisan approval of the United States Congress, and international support from Great Britain, Australia, Poland, and 36 other nations.¹⁷³ On March 17, 2003, President Bush issued a 48-hour ultimatum to Sadaam Hussein, and in a televised address to the nation on the 19th, the president outlined the beginnings of the second

¹⁷⁰ UNSCR 1441 was a unanimously passed resolution in November 2002 that provided Sadaam Hussein and the government of Iraq one final opportunity to comply with disarmament obligations, but did not provide criteria that would indicate the acceptance of armed conflict. From www.unhcr.org/refworld/docid/3dda0f634.html. UNSCR 687 was the ceasefire terms for the 1990-91 Gulf War that specified that Iraq must remove and destroy all chemical and biological weapons, ballistic missiles with certain specified ranges, detailed reparations to be paid to Kuwait, as well as mandating Iraq's claim not to commit or support terrorism. From www.un.org/depts/unmovic/documents/687.pdf

¹⁷¹ United States Senate, 108th Congress, "New Information on Iraq's Possession of Weapons of Mass Destruction." *The Federation of American Scientists*. Jan 28, 2004. www.fas.org/irp/congress/2004_cr/s012804b.html (accessed Jul 24, 2012)

¹⁷² George W. Bush, "White House Archives.," *Joint Resolution to Authorize the Use of United States Armed Forces Against Iraq*. Oct 2, 2002. <http://georgewbush-whitehouse.archives.gov/news/releases/2002/10/print/20021002-2.html> (accessed Jul 24, 2012).

¹⁷³ Luis Martinez, *ABC News*. Jan 1, 2010. http://abcnews.go.com/Politics/multi-national-force-iraq-us-forces-iraq/story?id=9458723#.UDz_0ql4E6E (accessed July 24, 2012).

Iraq War, named Operation Iraqi Freedom. Nearly 200,000 Coalition troops stationed in Kuwait would support operations to cross the berm into Iraq and remove the government of Sadaam Hussein. Moving swiftly up the Tigris and Euphrates River Valley's, the Coalition would take a mere 21-days to topple the Iraqi military and take Baghdad.¹⁷⁴

How would the US military conduct operations in Operation Iraqi Freedom? One of the main planning assumptions during the 12 years following the first Gulf War was that in the event of another conflict, both Kuwait and Saudi Arabia would be available to project forces and provide a viable sustainment base.¹⁷⁵ Deliberate preparations had been made in the region, fully expecting the resumption of hostilities. Central Command's rotating exercise INTRINSIC ACTION utilized the prepositioned equipment in Kuwait, conducted training at complexes built in the northern Kuwaiti desert, and aided in the improvement of existing facilities while also constructing new ones.¹⁷⁶ In the months preceding the attack into Iraq, the 2nd Brigade Combat Team of the 3rd Infantry Division was already in Kuwait in the fall of 2002, participating in Operation DESERT SPRING with the remainder of the Division deploying in December of 2002.¹⁷⁷ The 101st Airborne Division began deploying in February of 2003, and elements of the 82nd

¹⁷⁴ Donald P. Wright and Timothy R. Reese, *On Point II: Transition to the New Campaign: The United States Army in Operation Iraqi Freedom, May 2003-January 2005* (Fort Leavenworth, KS: Combat Studies Institute Press, 2008), 9-19.

¹⁷⁵ Gregory Fontenot, E. J. Degen, and David Tohn, *On Point: The United States Army in Operation Iraqi Freedom (through May 2003)* (Fort Leavenworth, KS: Combat Studies Institute Press, 2007), 31.

¹⁷⁶ Ibid., 32. Rotating units would exercise the Army Prepositioned Stocks fleet, conduct maintenance, and also provided manpower that would aid in the construction of Camps Pennsylvania, Virginia, New York, and New Jersey in Kuwait.

¹⁷⁷ Operation DESERT SPRING was an ongoing operation conducted in Kuwait following the completion of Operation DESERT STORM. It maintained a forward presence in Kuwait and provided a combat force readily available in the event of hostile actions from Iraq towards Kuwait or Saudi Arabia.

Airborne Division were notified in January and arrived by March.¹⁷⁸ These US Army divisions would fight from Kuwait into Iraq.

The second front in the north did not materialize as planned. Turkey refused to allow the United States to conduct offensive operations from its soil, and the 4th Infantry Division, floating offshore in the Mediterranean, had to shift to the southern route, through Kuwait.¹⁷⁹ Because of the change, Third Army would instead send the 173rd Airborne Brigade into Northern Iraq on 26 March; task organized with additional assets from the USAREUR medium and heavy ready companies, they had additional M113 Armored Personnel Carriers and a company of M1 Abrams tanks.¹⁸⁰ The 173rd, augmented with Kurdish Peshmerga fighters, Special Operations forces, and later elements of 1-63 Armor from the 1st Infantry Division would form the Northern Task Force, and would secure along the Kurdish Green Line, and liberate the northern cities of Irbil and Kirkuk.

In Kuwait, CENTCOM used precision attacks from air and naval forces from 19 March on to try and decapitate the Iraqi leadership and key military targets in what was known as the “shock and awe” campaign. The threat of Iraqi forces sabotaging the Rumalia oil fields led to the decision to launch ground forces one day earlier than the scheduled 21 March D-day.¹⁸¹ Under the overall two-pronged assault plan from Kuwait through Southern Iraq and into Baghdad, the initial US ground attack plan consisted of three critical events: the breach of the berm between Kuwait and Iraq, the seizure of Tallil Air Base (needed to establish a critical logistics base) and areas

¹⁷⁸ Fontenot, Degen, and Tohn, *On Point: The United States Army in Operation Iraqi Freedom (through May 2003)*, 78-80.

¹⁷⁹ “4th Infantry Begins Move Into Iraq,” CNN World, http://articles.cnn.com/2003-04-12/world/sprj.iq.four.id_1_iraq-military-bases-4th-infantry-divisino?_s=PM:WORLD (accessed July 31, 2012).

¹⁸⁰ Fontenot, Degen, and Tohn, *On Point: The United States Army in Operation Iraqi Freedom (through May 2003)*, 79.

¹⁸¹ *Ibid.*, 87.

surrounding An Nasiriyah, and the isolation of As Samawah.¹⁸² The US V Corps commanded the CFLCC main effort and was assigned the western route of the two-pronged plan. The amount of distance to be covered was substantial: nearly 600 kilometers from bases in Kuwait to Baghdad proper.¹⁸³ Using two divisions, the 3d Infantry and 101st Airborne, V Corps assaulted rapidly through western Iraq and the 3rd ID took Sadaam International Airport on the outskirts of Baghdad on 4 April. The 101st Airborne followed the 3rd Infantry Division and cleared resistance left behind in their rapid advance and after extensive fighting in Hillah, Najaf, and Karbala, the division moved to Mosul in mid-April.¹⁸⁴ From their position at the International Airport, the 3rd Infantry Division conducted two “thunder runs” comprised of quick armored strikes into the city of Baghdad on 5 and 7 April meant to “create confusion” and “make sure...that the people knew the city had fallen.”¹⁸⁵

President Bush announced the end of major combat operations on 1 May 2003 with his announcement of “Mission Accomplished” while aboard the USS Abraham Lincoln. While the ground attack on 20 March gained tactical and operational surprise, it did so at the expense of an extensive air attack and the availability of all ground forces; some were still in the process of deploying, and a large portion of logistics and support capability had not yet been established.¹⁸⁶

What sustainment doctrine informed planners during the intervention? Doctrine had undergone dramatic shifts since Operations Desert Storm and Joint Endeavor, and in the midst of this influx of new concepts, sustainment planners were planning for Operation Iraqi Freedom.

¹⁸² Fontenot, Degen, and Tohn, *On Point: The United States Army in Operation Iraqi Freedom (through May 2003)*, 88.

¹⁸³ Catherine Dale, *Operation Iraqi Freedom: Strategies, Approaches, Results, and Issues for Congress* (Washington, DC: Congressional Research Service, 2008), 20.

¹⁸⁴ Catherine Dale, *Operation Iraqi Freedom: Strategies, Approaches, Results, and Issues for Congress*, 22.

¹⁸⁵ *Ibid.*, 21, quote by COL David Perkins, Commander, 2d Brigade, 3d Infantry Division.

¹⁸⁶ Fontenot, Degen, and Tohn, *On Point: The United States Army in Operation Iraqi Freedom (through May 2003)*, 22.

After the “iron-mountains” of Operation Desert Storm 12 years earlier, the logistics community looked to use technology to deal with the problems of delivery time, warehousing, and distribution. The concept of “just-in-time” (JIT) logistics became the latest operational concept, and while the doctrine was not updated until after the start of major combat operations, the ongoing revolution in military logistics (RML) and existing Force XXI concepts informed the planners at CENTCOM and ARCENT.¹⁸⁷ These concepts were integrated into the initial planning for force build up in Kuwait as well as what was considered the “graduate-level” logistics planning – the requirement to sustain V Corps after the initial push into Iraq began.¹⁸⁸

In 1994, TRADOC issued *Force XXI Operations*, a concept paper on the Army transformation to a full-dimensional force.¹⁸⁹ The paper called for the battle dynamics of logistics capability to support rapid force projection, a forcible entry capability into logistically bare-based operations, and the conduct of operations with extended lines of communications.¹⁹⁰ A new version of *Operations* was released in 2001, and with the shift to full spectrum operations (FSO) came the requirement to focus on extending the depth of the battlefield and a focus on operational reach.¹⁹¹ While the emphasis in doctrine on operational reach can be attributed in part to lessons learned from previous conflicts in Bosnia and Iraq, the focus is on reach-back to national providers in CONUS, and placed the understanding of the factors that extend operational reach with the commander.

¹⁸⁷ The Army updated FM 4-0: *Sustainment* in 2003, following the start of the invasion, although the concepts in it were informed by the ongoing discussions on the Revolution of Military Logistics, Network-Centric Warfare, and the increased ability of technology to assist in asset visibility, velocity management, and distribution based logistics.

¹⁸⁸ Fontenot, Degen, and Tohn, *On Point: The United States Army in Operation Iraqi Freedom (through May 2003)*, 146.

¹⁸⁹ Headquarters, Department of the Army, TRADOC Pamphlet 525-5 *Force XXI Operations* (Fort Monroe, VA: Government Printing Office, 1994).

¹⁹⁰ *Ibid.*, 3-13

¹⁹¹ Headquarters, Department of the Army, Field Manual 3-0: *Operations* (Washington, DC: Government Printing Office, 2001). 12-46.

Initial planners were operating under the 1995 version of *Combat Service Support*, however the Army's capstone logistics doctrine received an update in August 2003.¹⁹² For the onset of Operation Iraqi Freedom, sustainment doctrine called for three levels of combat Service Support (CSS) across the levels of war: strategic CSS consisting of the continental United States (CONUS) base, intra-theater lines of communications (LOC's), and a theater base. Operational CSS called for the use of the theater base and intra-theater LOC's. Tactical CSS would then operate at the end of the LOC's in the combat zone, providing support to the ground maneuver forces.¹⁹³ At the strategic and operational level, logistics functions were structured to support a force projection strategy, still utilizing ISB's, air and sea POD/POE's, and theater-level bases.

The integration of Force XXI concepts shifted the sustainment footprint from that of mass logistics to the just-in-time logistics concept. Doctrine now called for digitization across the battlefield, and this new technology would enable information flow, asset and in-transit visibility, and pair requirements with the appropriate asset (repair parts going on truck X to location Y) and minimize the logistics footprint in combat. Responsiveness would take the place of mass, and the existing concept of "the right stuff, at the right place, at the right time" became prevalent throughout the logistics community.¹⁹⁴

What was the sustainment force structure used during the intervention? The sustainment force structure started with the 377th Theater Support Command (TSC), an Army Reserve unit. They were designated the senior Army logistics headquarters unit at the onset of Operation Iraqi

¹⁹² 2003's FM 4-0: *Sustainment* replaced 1995's FM 100-10: *Combat Service Support*.

¹⁹³ United States Army, Field Manual 100-10: *Combat Service Support*, 1-9

¹⁹⁴ Kent S. Marquardt, *Force XXI Logistics: Company Grade Multifunctional Logisticians; Setting the Conditions for Success* (Fort Leavenworth, KS: United States Army Command and General Staff College, 1999), 9, 11.

Freedom, and were responsible for the logistical support of all coalition forces.¹⁹⁵ The 377th TSC controlled 8 general officer-level and 13 colonel-level commands, each of which had a specific combat service support function under its purview.¹⁹⁶ Of specific importance, the 43rd, the 226th, the 300th, and the 171st Area Support Groups provided area and base support throughout Kuwait, the 49th Quartermaster Group provided fuel to and directly supported V Corps in the push to Baghdad, the 3rd Theater Army Movement Control Center which operated the APOD, and the 143rd Transportation Group, which ran the SPOD facilities in Kuwait.¹⁹⁷ (See figure 5)

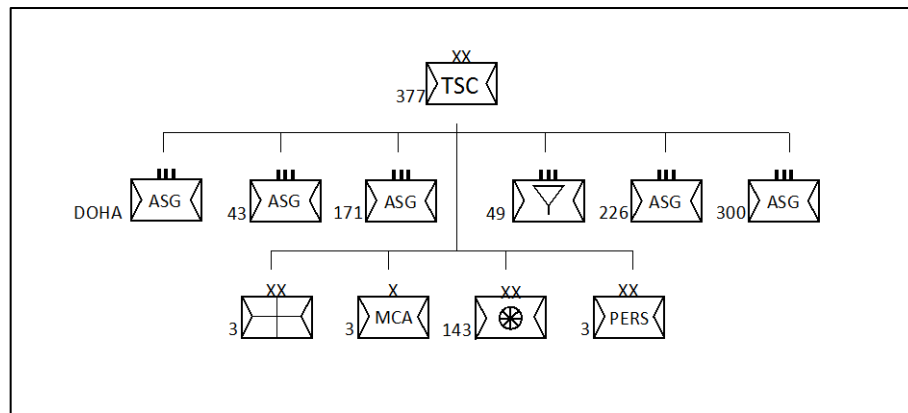


Figure 5: 377th TSC Kuwait Combat Service Support Task Organization (created by author)

The 3d COSCOM supported V Corps, and included two corps support groups: the 7th CSG and the 16th CSG.¹⁹⁸ Once in Kuwait, the 3d COSCOM added four additional corps support

¹⁹⁵ Ted R. Stuart, *Class IX Supply Operations in Operation Iraqi Freedom: Is the U.S. Army's Doctrine Accurate?* (Fort Leavenworth, KS: United States Army Command and General Staff College, 2004), 34.

¹⁹⁶ Wright and Reese, *On Point II: Transition to the New Campaign: The United States Army in Operation Iraqi Freedom, May 2003-January 2005*, 496.

¹⁹⁷ Wright and Reese, *On Point II: Transition to the New Campaign: The United States Army in Operation Iraqi Freedom, May 2003-January 2005*, and Science Applications International Corporation. *Objective Assessment of Logistics in Iraq: DUSD(L&MR) and Joint Staff (JSJ4) Sponsored Assessment to Review the Effectiveness and Efficiency of Selected Aspects of Logistics Operations During Operation Iraqi Freedom*. Assessment, Washington, DC: Science Applications International Corporation, 2004. 33.

¹⁹⁸ *Ibid.*, 498.

groups: the 24th CSG (supporting 3d ID), the 64th CSG (supporting 4th ID), the 101st CSG (supporting the 101st ABN), and the ARNG 371st CSG (they would take over running base camps in the Kuwait desert once the 3d COSCOM relocated to Camp Anaconda in Iraq). The 7th CSG was the doctrinal rear CSG, and the 16th CSG would eventually support the 1st Armored Division.¹⁹⁹ (See figure 6) Each corps support group assigned to support a division had a variation of Corps Support Battalions, Ordnance Battalions, Quartermaster Water and Fuel Battalions, as well as Transportation and Movement Control Battalions.²⁰⁰ These units would provide the combat service support tasks of man, arm, fuel, fix, and move for their assigned organizations, as well as have the capability to provide support on an area support basis.

At the divisional level, each division deployed with their organic DISCOM's and Main Support Battalions, while each brigade was assigned a forward support battalion. These units would provide direct support logistics to their habitually assigned brigades.

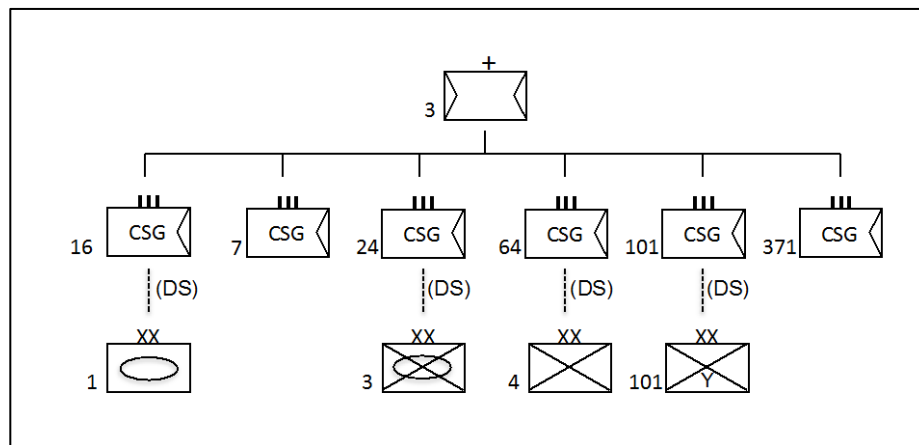


Figure 6: 3d COSCOM Corps Support Group Task Organization (created by author)

¹⁹⁹ Wright and Reese, *On Point II: Transition to the New Campaign: The United States Army in Operation Iraqi Freedom, May 2003-January 2005*, 499.

²⁰⁰ *Ibid.*, 614-5.

How did sustainment units support maneuver units? The plan for sustainment support of maneuver units began well before the formal planning for Operation Iraqi Freedom. U.S. forces had a continuous footprint within Kuwait and Saudi Arabia since the completion of the 1991 campaign, and CENTCOM had been planning on using Kuwait as a base for any major operations into Iraq.²⁰¹ In preparation for conflict following the 11 September attacks, additional preparations were established to augment limited Kuwait facilities. This included support opening and theater opening facilities, as well as bed-down, training and theater support facilities.²⁰² As units arrived from the United States for INTRINSIC ACTION rotations in Kuwait, they were used to construct base camps in the desert and exercise Army Prepositioned Stock (APS) fleets. The Third Army (and eventual CFLCC) deputy-commanding general for support, representatives from the 21st Support Command and the CENTCOM J4 consolidated and determined requirements for throughput of forces, bed-down, and storage facilities throughout Kuwait.²⁰³

As previously mentioned, the 377th Theater Support Command (TSC) was the senior Army logistics headquarters unit and was based out of Camp Arifjan, Kuwait.²⁰⁴ The 143d Transportation Command, 598th Transportation Terminal Group, and the 7th Transportation Group; all subordinate to the 377th TSC, would run all SPOD operations in Kuwait.²⁰⁵ The 3d Theater Army Movement Control Center operated the APOD at Kuwait City International Airport

²⁰¹ Fontenot, Degen, and Tohn, *On Point: The United States Army in Operation Iraqi Freedom (through May 2003)*, 31.

²⁰² Ibid., 32.

²⁰³ Ibid. This included the commander of the 21st Support Command, Major General Bill Mortensen and the CENTCOM J4, Major General Dennis Jackson.

²⁰⁴ Ted R. Stuart, *Class IX Supply Operations in Operation Iraqi Freedom: Is the U.S. Army's Doctrine Accurate?*, 34.

²⁰⁵ Fontenot, Degen, and Tohn. *On Point: The United States Army in Operation Iraqi Freedom (through May 2003)*, 35.

and established a reception, staging, and onward movement facility called Camp WOLF adjacent to the airport.²⁰⁶

As units arrived into Kuwait, they were moved to one of five base camps: Udhari, Pennsylvania, New York, New Jersey, or Virginia. Each of these bases included billeting, maintenance, supply, personnel service, MWR, and dining facilities run by a combination of area/corps support group soldiers and contractors.²⁰⁷ Originally managed by area support groups from the 377th TSC, the 371st CSG, subordinate to the 3rd COSCOM, took responsibility for the five forward Kuwait bases.²⁰⁸

Shifting from support in Kuwait to supporting the invasion of Iraq, the initial plan for combat operations called for a “running start” out of Kuwait and into Baghdad, and the logistical requirements to support V Corps 350 mile attack would be unprecedented.²⁰⁹ Elements of the 377th TSC’s 143rd Transportation Group and 49th Quartermaster Group would support the 3rd COSCOM in supplying Logistics Support Areas (LSA) forward in order to shorten lines of communication and reduce turn around time. The 3d COSCOM’s corps support groups would be in direct support of an assigned maneuver division, and would establish the LSA’s.²¹⁰ As the 3rd Infantry, 101st Airborne, 82nd Airborne and eventually the 1st Armored and 4th Infantry Divisions attacked across the berm into Iraq, 3rd COSCOM’s subordinate CSG’s continued what was in most cases an already existing habitual support relationship. The 24th and 101st CSG’s were already collocated with the 3rd Infantry and 101st Airborne Division’s respectively back in

²⁰⁶ Fontenot, Degen, and Tohn. *On Point: The United States Army in Operation Iraqi Freedom (through May 2003)*, 39.

²⁰⁷ John Pike, *Kuwait Facilities*. May 07, 2011. www.globalsecurity.org/military/facilitykuwait.htm (accessed Sep 19, 2012).

²⁰⁸ Fontenot, Degen, and Tohn, *On Point: The United States Army in Operation Iraqi Freedom (through May 2003)*, 498.

²⁰⁹ Wright and Reese, *On Point II: Transition to the New Campaign: The United States Army in Operation Iraqi Freedom, May 2003-January 2005*, 496.

²¹⁰ *Ibid.*, 499.

the United States. The 16th CSG also deployed in support of the 1st Armored Division.²¹¹ When deployed, the CSG (Forward) would serve as the support arm of the COSCOM and provide direct support by way of the combat service support tasks of man, arm, fuel, fix, and move to their assigned Divisions. During the invasion, the 3rd COSCOM moved forward with V Corps and had the CSG's establish the LSA's in order to support maneuver forces. Sustainment assets would be leapfrogged from initial LSA's to subsequently established ones as the tactical situation allowed in order to keep pace with the advance of forward divisions.²¹²

The Corps Support Groups providing direct support to combat divisions would provide fuel, transportation, maintenance, supply, and ammunition support to the DISCOMs and Main Support Battalions. They in turn would support their Forward Support Battalions, who would then support the front-line maneuver units.

How many bases did U.S. forces use during the intervention? The number of bases used during Operation Iraqi Freedom would increase dramatically as the conflict continued. The number of bases in Kuwait grew from only one at Camp Doha in 2002, to 14 in 2003, and 15 in 2005. These included APOD facilities at Kuwait City International Airport and Ali Al Salem Airbase, and SPOD facilities at Kuwait Naval Base and the Port of Shu'aybah. The 377th TSC and subordinate Area Support Groups ran additional bases: Camp Arifjan and Camp Doha served as major logistics hubs and command and control facilities, while Camps Udhari, New York, New Jersey, Virginia, and Pennsylvania served as troop reception and staging facilities. (See figure 7)

²¹¹ Ted R. Stuart, *Class IX Supply Operations in Operation Iraqi Freedom: Is the U.S. Army's Doctrine Accurate?*, 35.

²¹² Wright and Reese, *On Point II: Transition to the New Campaign: The United States Army in Operation Iraqi Freedom, May 2003-January 2005*, 499.

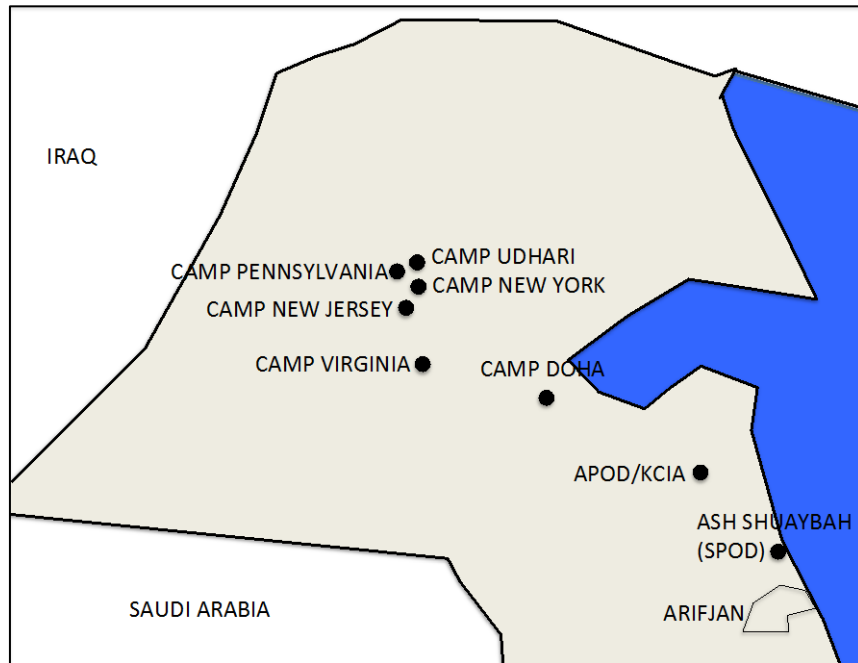


Figure 7: Key logistics bases in Kuwait²¹³

As the 3rd Infantry Division attacked up Main Supply Route (MSR) Tampa, 3rd COSCOM elements established a number of logistics support areas. Between 21 March and 18 April, the 3rd COSCOM, supported by Kuwait-based sustainment units, established LSA Cedar near As Samawah, LSA Bushmaster near An Najaf, and LSA Dogwood near Karbala. Established during the height of Phase III combat operations, these bases provided Class I (food), Class III (bulk fuel), Class V (ammunition), and served as facilities to house and store enemy personnel and equipment.²¹⁴ They also served to keep open the extended lines of communication along MSR Tampa, and extend the operational reach of V Corps elements. Once near Baghdad, a ring of objectives that eventually became staging bases named Objectives Saints, Lions, Montgomery, Titans, and Peach, would provide an outer cordon on the western half of the city and allow a

²¹³ Recreated by author with information from *On Point: The United States Army in Operation Iraqi Freedom (through May 2003)*, 32.

²¹⁴ Fontenot, Degen, and Tohn, *On Point: The United States Army in Operation Iraqi Freedom (through May 2003)*, 147.

launching point for the final attacks.²¹⁵ Following the fall of Baghdad, the 3rd COSCOM established LSA Anaconda; this base would serve as the main logistics hub for all of Iraq.²¹⁶ (See figure 8)

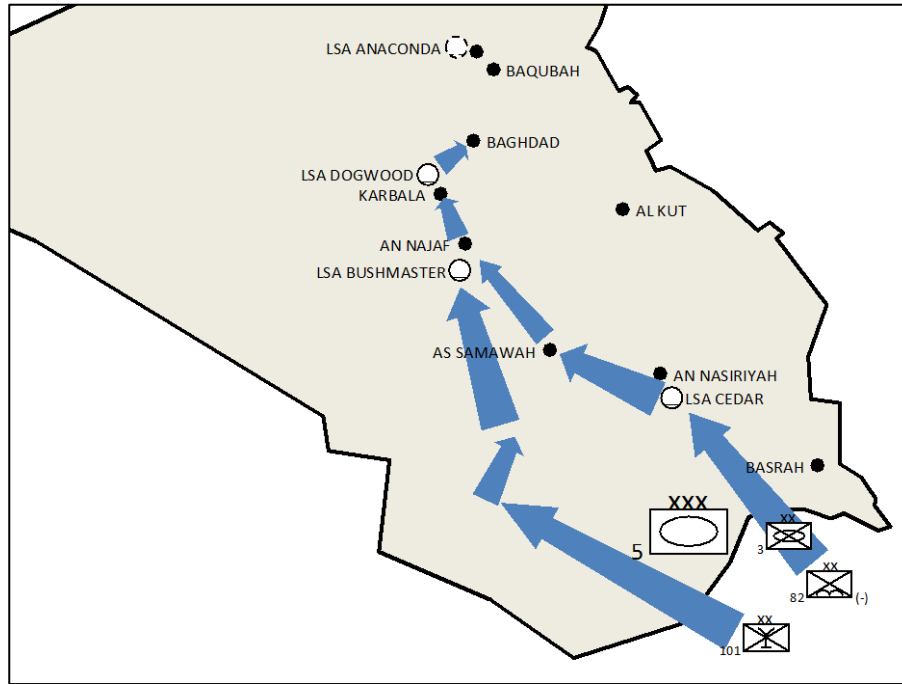


Figure 8: Movement of V Corps and location of logistics bases²¹⁷

Immediately following President Bush's announcement of the end of major combat operations on 1 May 2003, most assumed that forces would transition back to and redeploy home through the established bases in Kuwait.²¹⁸ That would not be the case. While there was the expectation of some minor Phase IV stability and support operation requirements in Iraq, the

²¹⁵ Fontenot, Degen, and Tohn, *On Point: The United States Army in Operation Iraqi Freedom (through May 2003)*, 244.

²¹⁶ Wright and Reese, *On Point II: Transition to the New Campaign: The United States Army in Operation Iraqi Freedom, May 2003-January 2005*, 499.

²¹⁷ Recreated by author with information from *On Point II: Transition to the New Campaign: The United States Army in Operation Iraqi Freedom, May 2003-January 2005*, 30, 48.

²¹⁸ Wright and Reese, *On Point II: Transition to the New Campaign: The United States Army in Operation Iraqi Freedom, May 2003-January 2005*, 1.

violence that erupted following the fall of Baghdad encompassed the simultaneous employment of offensive, defensive, stability, and support operations.²¹⁹ Forces fell in on existing Iraqi bases, military facilities, and captured government palaces, and established new forward operating bases as additional forces moved in from Kuwait.²²⁰ LOGCAP contracts began providing base camp, food service, transportation, and laundry and maintenance support, and increase standard of living for soldiers.²²¹

As the fight for Iraq continued, the coalition footprint increased as well. Following May 2003, logistics operations for Iraq centered around two main hubs: Camp Arifjan, Kuwait was the theater-level supply base, while LSA Anaconda in Balad, Iraq served as the main support base for Iraq.²²² Supply lines, mimicking a hub and spokes, radiated out from Balad and supplied every major forward operating base in Iraq.²²³ While the exact number of bases is not known, a vast number and variety were used throughout the nearly 10 years of conflict that ranged from the large “mega-FOB’s” like LSA Anaconda and Camp Victory in Baghdad, to platoon and company-sized combat outposts. However, by 2005, with the transition to counterinsurgency operations, the estimated overall number reached well over 300.²²⁴

How did sustainment planners augment the sustainment force structure to support bases? The initial construction and support of camps in Kuwait (Udhari, Pennsylvania, New York, New Jersey, and Virginia) was made possible through CENTCOM and ARCENT’s partnership with

²¹⁹ Wright and Reese, *On Point II: Transition to the New Campaign: The United States Army in Operation Iraqi Freedom, May 2003-January 2005*, 3.

²²⁰ *Ibid.*, 554.

²²¹ *Ibid.*

²²² *Ibid.*, 503.

²²³ *Ibid.*

²²⁴ John Pike, *Iraq Facilities*. May 07, 2011. www.globalsecurity.org/military/facility/iraq.htm (accessed Sep 19, 2012).

the Kuwaiti Government, the military, and the Kuwait National Oil Company, who provided manpower and materials, as well as no-cost fuel to facilitate the construction.²²⁵ Additionally, the government of Kuwait reserved nearly 60 percent of Kuwait's total land mass for use by the United States and its coalition partners: this land was used for the establishment or construction of the Kuwait-based bases.²²⁶

The main source of external support to augment bases came from LOGCAP III. LOGCAP III was combination of cost-plus and fixed price contracts by Army Materiel Command (AMC) filled by Kellogg, Brown, and Root (KBR).²²⁷ ARCENT used the standing LOGCAP umbrella contract to have KBR establish bed down facilities, food service, sanitation, utilities, and additional RSOI support in Kuwait, with the expectation that KBR would also support forces in Iraq following the invasion.²²⁸ With requests for additional troops denied before the war began, the ratio between the tooth and tail soldiers was a managed commodity, and contracted logistics via LOGCAP provided a way to increase the number of maneuver forces while decreasing the number of logistics troops with little to no loss of support.

Following the invasion and fall of Baghdad, KBR contractors descended on established military bases and provided infrastructure updates (most military bases were established at existing Iraqi military compounds, airbases, or palaces) and then begin with task orders issued in the basic statement of work: initially, this included pest control, laundry services, morale, welfare,

²²⁵ Fontenot, Degen, and Tohn, *On Point: The United States Army in Operation Iraqi Freedom (through May 2003)*, 32.

²²⁶ Bureau of Near Eastern Affairs. *U.S. Department of State*. Mar 13, 2012. <http://www.state.gov/r/pa/ei/bgn/35876.htm> (accessed Sep 22, 2012).

²²⁷ Kellogg, Brown, and Root, "Logistics Civil Augmentation Program (LOGCAP) III ." *Kellogg, Brown, and Root LOGCAP III Worldwide*. Aug 21, 2005. <http://www.kbr.com/Projects/LOGCAP-III/LOGCAP-III.pdf> (accessed Aug 21, 2012). Cost plus is based on the actual cost of production plus any agreed upon rates of profit or fees. Fixed price is a set price for goods or services with no bargaining over the final price.

²²⁸ Ibid.

and recreation sites, and food services.²²⁹ As more forces moved into Iraq, these services were extended throughout the country, and expanded to include base camp establishment, maintenance, and force protection. The total number of contractors used under LOGCAP amounted to nearly 177 company-sized elements of approximately 39 different military occupational specialties; over 12,000 soldiers.²³⁰ There was a gap, however, between the requirement for these facilities and the start of the contract. KBR was not required to start fulfilling their contractual obligations under Task Order 59 of the LOGCAP contract until May 2003, and even then, the statement of work was incomplete and did not include a comprehensive list of all basing, life support, and sustainment requirements needed in Iraq.²³¹ Army planners did not develop a detailed plan for sustainment at the theater and division levels following the fall of Baghdad, and LOGCAP contractors could not function in the expeditionary capability required in 2003.²³²

Analysis

Hypothesis one states that if sustainment concepts include basing, then doctrine specifies tasks to employ bases at the operational level and below. In Kuwait, some bases were already established, while CENTCOM and ARCENT identified the need for additional basing facilities well before 2003. Staging bases constructed in Kuwait filled the initial role for force projection, while the establishment of logistics support areas and forward operating bases in Iraq were planned prior to the start of hostilities. At the operational level, *Combat Service Support* called for the use of forward logistics bases in planning to ease distances required for travel between

²²⁹ United States Government Accountability Office, "United States Government Accountability Office." *DOD's Extensive Use of Logistics Support Contracts Requires Strengthened Oversight*. Jul 19, 2004. <http://www.gao.gov/products/GAO-04-854> (accessed Aug 21, 2012), 19.

²³⁰ Lieutenant Colonel David M. Hammons, *"At What Cost?" Indeed: Contractor Indispensability in Army Logistics* (Carlisle Barracks, PA: U.S. Army War College, 2010), 7.

²³¹ United States Government Accountability Office, "United States Government Accountability Office." *DOD's Extensive Use of Logistics Support Contracts Requires Strengthened Oversight*. Jul 19, 2004. <http://www.gao.gov/products/GAO-04-854> (accessed Aug 21, 2012), 18.

²³² *Ibid.*, 18-19.

support elements and the supported units, and the overall logistics preparation of the theater (LPT) specifically called for planning to identify basing and infrastructure requirements, as well as base locations forward.²³³ COSCOM and CSG doctrinal support concepts call for forward logistics bases to augment forward support, but only specifies reinforcement as a task.²³⁴ Thus, the evidence suggests that hypothesis one results in a mixed outcome.

Hypothesis two states that if sustainment doctrine includes basing, then units are structured with the proper capabilities to conduct basing operations. Because the 377th TSC was already deployed to Kuwait, and planners started infrastructure improvements before the build up of troops into theater, the reception bases were well manned. APOD and SPOD operations were much smoother than in previous conflicts due to the proper deployment of EAB sustainment units to run the port and airfield RSO&I facilities. These theater level bases were accounted for in doctrine, and employed correctly. Once V Corps forces crossed the berm into Iraq, the 3rd COSCOM used Corps Support Groups to establish doctrinal logistics support areas along MSR Tampa that proved to be effective in getting critical commodities to the front line troops. While there were supply issues (mainly Class IX repair parts) during the march to Baghdad, most could be attributed to supply chain management issues. 3rd Infantry Division, as well as the 101st Airborne Division used their organic support and engineer units, with some augmentation from divisional and corps assets, to employ bases for refueling, rearming, and staging prior to major assaults on Tallil Air Base, Najaf, and Baghdad. Thus, the evidence suggests that hypothesis two is supported.

The third hypothesis states that if sustainment operations that include basing increase then maneuver unit's operational reach and freedom of maneuver increases. As stated in the

²³³ Headquarters, Department of the Army, Field Manual 100-10: *Combat Service Support*, 2-5.

²³⁴ Headquarters, Department of the Army, Field Manual 54-30: *Corps Support Groups* (Washington, DC: Government Printing Office, 1993), 1-7.

previous paragraph, V Corps units used bases in the way of logistics support areas, forward area refueling/rearming points, and forward operating bases to shorten their lines of communications and freedom of maneuver. The over 350-mile drive to Baghdad was made possible through the establishment of bases at intervals along the advance that provided critical sustainment, shortened the turn around time for division and corps level sustainment units, and in some cases, provided the maneuver forces the means to isolate the enemy while providing a secure base to operate and provide command and control from.²³⁵ Thus, the evidence suggests that hypothesis three is supported.

Summary

The initial months of Operation Iraqi Freedom provide the clearest example of the effectiveness of basing and how, when used appropriately, they can provide the maneuver commander with a myriad of capabilities. Bases used during the drive to Baghdad provided critical sustainment capability, extended the operational reach of both maneuver and sustainment forces, and freedom of maneuver, the same bases that once provided those critical capabilities now served as a beacon for all that was going wrong in Iraq. It wasn't until the use of combat outposts, codified in the 2006 release of *Counterinsurgency* and specific tactics that utilized smaller bases which allowed the military to live among the population, that Coalition forces were able to turn the tide in Iraq.²³⁶ Operation Iraqi Freedom also saw the most extensive use of LOGCAP contracts on the battlefield in the history of the United States military. As of 21 May 2004, LOGCAP III had obligated nearly \$4.9 billion dollars to Kellogg, Brown, and Root to provide a vast number of capabilities to the warfighter: housing, dining services, laundry and bath

²³⁵ Fontenot, Degen, and Tohn, *On Point: The United States Army in Operation Iraqi Freedom (through May 2003)*, 146, 331.

²³⁶ Headquarters, Department of the Army, Field Manual 3-24: *Counterinsurgency*. (Washington, DC: Government Printing Office, 2006), 8-4.

facilities, fuel and supply points, and transportation assets were all included in the statement of work.²³⁷

Findings

This section moves beyond the initial analysis in the case studies and illustrates the evidence to try and determine the validity of the hypothesis. When the findings conflict, this analysis will dig deeper to identify and explain the sources of conflict in the research. In the findings discussion, three steps cover the process. First, the restated research questions ensure standardization across the findings. Second, highlights of each case study's response provide justification for the findings. If applicable, the discussion will transition to the analysis portion.

Findings			
Hypothesis	Operation Desert Storm	Operation Just Cause	Operation Iraqi Freedom
Hypothesis One: If sustainment concepts include basing, then doctrine specifies tasks to employ bases at the operational level and below.	Mixed Outcome	Not Supported	Mixed Outcome
Hypothesis Two: If sustainment doctrine includes basing, then units are structured with the proper capabilities to conduct basing operations.	Not Supported	Not Supported	Supported
Hypothesis Three: If sustainment operations that include basing increases, then maneuver units operational reach and freedom of maneuver increases.	Supported	Supported	Supported

Table 1. Restated Hypothesis and Findings

Hypothesis one states that if sustainment concepts include basing, then doctrine specifies tasks to employ bases at the operational level and below. The case studies produced mixed results. While doctrine has consistently included concepts that incorporated the inclusion of the

²³⁷ United States Government Accountability Office, "United States Government Accountability Office." *DOD's Extensive Use of Logistics Support Contracts Requires Strengthened Oversight*, 8; also excerpts from Logistics Civil Augmentation Program (LOGCAP) III Support Contract.

industrial base, the use of intermediate staging bases for power projection and staging, and the requirement for the establishment of a theater support base at strategic and operational levels, concepts that existed below the operational level generally drew upon existing doctrine and modified them in order to support maneuver requirements. The 22nd SUPCOM's use of the logbase concept in Desert Storm; 1st Armored Division's use of patrol bases in Bosnia-Herzegovina; and V Corps use of logistics support areas and forward operating bases all encompassed general logistics concepts, yet doctrine did not have specified tasks associated with them. Indeed, the logbase concept of Operation Desert Storm influenced the future use of basing in Operation Joint Endeavor and Operation Iraqi Freedom. This was more than likely due to their success in Operation Desert Storm, but also due in part to the evolving nature of warfare. The gradual shift from a linear, semi-permissive environment in 1990's Iraq for sustainment units to the non-linear, non-permissive environment that evolved in Bosnia and 2003's Iraq, as well as the amount of logistical requirements to achieve success on the modern battlefield all played a large role in the increasing importance of basing. However, since basing doctrine has remained slow to evolve in mainstream sustainment doctrine below the operational level, the hypothesis provided mixed results.

Hypothesis two states that if sustainment doctrine includes basing, then units are structured with the proper capabilities to conduct basing operations. The Operation Desert Storm and Joint Endeavor case studies highlight the shortfalls in planning due to the placement of sustainment units in the TPFDD. Both studies provided evidence that while capabilities may have existed in the existing force structure, they were not used and contracting was introduced to make up the difference. The introduction of LOGCAP greatly influenced the ability for planners to support basing, but due to the nature of each conflict, contractors did not support initial operations beyond the scope of the theater logistics base, and combat forces with sustainment and engineering units from both assigned and interservice organizations were employed to provide stop-gap measures to overcome the shortfall. Operation Iraqi Freedom was successful in part to

the maturation of the LOGCAP concepts and capabilities, as well as the availability of sustainment units to support expeditionary basing missions. This accounts for Operations Desert Storm and Joint Endeavor cases not supporting hypothesis two, while Operation Iraqi Freedom case study did.

Hypothesis three states that if sustainment operations that include basing increases, then maneuver units operational reach and freedom of maneuver increases. All three case studies support this hypothesis. The ability for bases to shorten lines of communication, extend operational reach, and directly influence the maneuver commander's freedom of maneuver is clearly illustrated in each of the three studies through the adaptation of bases below the operational level, and the importance given to them at key points in each of the conflicts. The use of a base for a power projection platform, staging base, or a traditional sustainment hub gives options to the maneuver commander, and can directly impact success or failure on the battlefield. This accounts for all three case studies supporting hypothesis three.

Conclusion and Recommendations

Basing has been a critical component of warfare, from the Roman *castra* and *castellum* in the 1st century B.C., to Antoine Jomini's inclusion of the concept as a fundamental principle of war in *The Art of War*, and their widespread use in the wars in Iraq and Afghanistan.²³⁸ The concept of basing is nothing new, and should figure itself a prominent component of current doctrine. In July 2012, the United States Army released its most updated version of its capstone sustainment doctrine, *Army Doctrine Publication 4-0: Sustainment* and its companion publication of *Army Doctrine Reference Publication 4-0: Sustainment*. While both included previously

²³⁸ *Castra* meaning "great legionnaire encampment" and *castellum* meaning auxiliary logistics base in Latin. Duncan B. Campbell, *Roman Auxiliary Forts, 27 BC-AD 378* (Oxford: Osprey Publishing, 2009) 14; Antoine De Jomini, *The Art of War* (London: Greenhill Books, 2006) 78.

recognized definitions of the intermediate staging base and forward operating base, the doctrine builds little on existing concepts. The latest editions of *Unified Land Operations* and *The Operations Process* both add basing as an element of operational art, and define it as one of the concepts that helps the commander think through the challenges of understanding their operational environment, define the problem, develop an operational approach, and articulate their planning guidance that drives more detailed planning.²³⁹ This provides a solid approach to increasing the discussion on basing and its use in military operations. While the operational level bases currently have doctrine and tasks associated with their implementation and use, at division and below, doctrine fails to provide guidance. LOGCAP has shown that it is a viable and successful alternative to using units from existing force structure to execute sustainment functions, but as shown in the two latter case studies, LOGCAP has its limitations, and requires a semi-permissive environment to allow the level of contracting support needed to established larger logistical hubs. This leads to an identified gap in expeditionary basing capability. There is a gap in capability to provide fixed bases to the maneuver commander, and this gap limits the ability to provide immediate sustainment, force protection, and field service facilities that can extend operational reach during phase III combat operations, as well as the ability to provide services until LOGCAP contracts can be established. Based on this conclusion, the analysis recommends the following to improve basing capability within existing sustainment units and doctrine:

First, organizations below the operational level need an organic capability to provide echelons above brigade sustainment, especially during expeditionary and phase III combat operations. At the Army 2020 Concept of Sustainment Symposium in August of 2012, the US

²³⁹ Headquarters, Department of the Army, Army Doctrinal Publication 5-0: *The Operations Process*. (Washington, DC: Government Printing Office, 2012), 7.

Army's Combined Arms Support Command (CASCOM) gave a brief detailing the results of Decision Point 15.²⁴⁰ In it, key decisions were made that eliminated transportation, distribution, water production, and fuel storage from Infantry, Armor, and Stryker Brigade Combat teams. These capabilities were shifted to the modular sustainment brigades by way of the combat sustainment support battalions (CSSB). The decision was also made to align a CSSB to each division in order to provide these lost capabilities. Based on these decisions, the realignment of CSSB's has the potential to be the gap-filler for basing if given the task and appropriate resources to accomplish the mission. As it is a modular unit, it can be task organized with mission-specific capabilities to support operational requirements. Following the form-follows-function model, CSSB's can fill the below-operational level basing requirement for expeditionary and combat operations by being task organized with the necessary engineering and field service units that allow them to provide that capability to the warfighter.

The second recommendation is to provide doctrine that outlines specific basing-oriented capabilities available for employment by the CSSBs. This should also include the training required to establish and operate the US Army's Force Provider modules that are currently relegated to reserve component units and contracted support. The rewrite for Field Manual 4-94: *Theater Sustainment Command* is currently ongoing at CASCOM, and this opportunity should be taken to include additional basing guidance and oversight to the TSC, as well as the modification of Field Manual 4-93.2 *The Sustainment Brigade* and its Section II of Chapter Four. Specific tasks and guidance to employ basing techniques to the CSSB would enable the sustainment commander to provide freedom of maneuver and extended operational reach to the maneuver commander, and provide critical sustainment capability to the warfighter.

²⁴⁰ Decision Point 15 is the Tactical Level Sustainment Concept of Support developed by the Combined Arms Support Command. The presentation: DP 15: Enabling The Army and Joint Forces At Home and Deployed was given at Fort Lee, Virginia on 7 August 2012.

It is critical that after more than a decade of sustained conflict, we take principles and lessons learned on the battlefield and incorporate them into our doctrine, and we evolve our form to accomplish those required functions. The importance and usefulness of basing is easily apparent, not just in the historical case studies outlined within this research, but through the lens of current military operations. A strategic repositioning to the Pacific will bring with it sustainment challenges that basing can inherently solve. We have the opportunity now to embrace this reality and take basing for what it really is: a key capability for the execution of future maneuver and sustainment operations.

Bibliography

- Belasco, Amy. *Troop Levels in the Afghan and Iraq Wars, FY2001-FY2012: Cost and Other Potential Issues*. Report for Congress, Washington, DC: Congressional Research Service, 2009.
- Bennett, Alexander L. George and Andrew. *Case Studies and Theory Development in the Social Sciences*. Cambridge, MA: MIT Press, 2005.
- Bird, Carl D. *Bosnia: Does Force XXI Technology Solve the Operational Logistic Problems in Operations Other than War?* Monograph, School of Advanced Military Studies, Fort Leavenworth: United States Army Command and General Staff College, 1998.
- Bosman, Manie. "http://www.strategicleadershipinstitute.net/." *Strategic Leadership Institute*. 2011 йил 09-Mar. <http://www.strategicleadershipinstitute.net/news/let-form-follow-function-for-more-effective-change1/> (accessed 2012 06-Mar).
- . "http://www.strategicleadershipinstitute.net/." *Strategic Leadership Institute*. 2011 09-Mar. <http://www.strategicleadershipinstitute.net/news/let-form-follow-function-for-more-effective-change1/> (accessed 2012 06-Mar).
- Bourque, Stephen A. *Jayhawk! The VII Corps in the Persian Gulf War*. Washington, DC: Center of Military History, 2002.
- Buchanan, William B. *Operation Joint Endeavor - Descriptions and Lessons Learned (Planning and Deployment Phases)*. IDA Paper, Institute for Defense Analysis, Alexandria, VA: Institute for Defense Analysis, 1996.
- Bureau of Near Eastern Affairs. *U.S. Department of State*. Mar 13, 2012. <http://www.state.gov/r/pa/ei/bgn/35876.htm> (accessed Sep 22, 2012).
- Bush, George W. "White House Archives." *Joint Resolution to Authorize the Use of United States Armed Forces Against Iraq*. Oct 2, 2002. <http://georgewbush-whitehouse.archives.gov/news/releases/2002/10/print/20021002-2.html> (accessed Jul 24, 2012).
- Cable News Network. *4th Infantry begins move into Iraq*. Apr 12, 2003. http://articles.cnn.com/2003-04-12/world/sprj.iqr.four.id_1_iraq-military-bases-4th-infantry-divisino?_s=PM:WORLD (accessed Jul 31, 2012).
- Campbell, Duncan B. *Roman Auxiliary Forts, 27 BC-AD 378*. Oxford: Osprey Publishing, 2009.
- Cebrowski, Arthur K. "Network Centric Warfare: Its Origin and Future." <http://www.kinnection.com>. 1998 Jan. http://www.kinnection.com/ncoic/ncw_origin_future.pdf (accessed 2012 12-Mar).
- . "Special Briefing on Force Transformation." *The Air University*. Nov 21, 2001. http://www.au.af.mil/au/awc/awcgate/transformation/t11272001_t1127ceb.htm (accessed Sep 05, 2012).
- Center for Army Lessons Learned. *Bosnia-Herzegovina CAAT 2 Initial Impressions Report: Operation Joint Endeavor TASK FORCE EAGLE Continuing Operations*. Fort Leavenworth, KS: US Army Training and Doctrine Command, 1996.
- . *Drawing a Line in the Mud: Establishing and Controlling a Zone of Separation (ZOS)*. Fort Leavenworth, KS: US Army Training and Doctrine Command, 1996.

- . *Initial Impressions Report: Operation Joint Endeavor Task Force Eagle Initial Operations*. Fort Leavenworth, KS: US Army Training and Doctrine Command, 1996.
- Center for Army Lessons Learned. *Operation Joint Endeavor Bosnia-Herzegovina: RSOI, Title 10 Sustainment, and Force Protection*. Initial Impressions Report, Fort Leavenworth, KS: US Army Training and Doctrine Command, 1996.
- . *Supporting the Peace, Bosnia-Herzegovina: An Area Study, Language, and TTP Guide*. Fort Leavenworth, KS: US Army Training and Doctrine Command, 1995.
- Clausewitz, Carl von. "The Project Gutenberg EBook of On War." *Project Gutenberg*. 2006 26-Feb. <http://www.gutenberg.org/files/1946/1946-h/1946-h.htm> (accessed 2012 08-Feb).
- Cruikshank, William G. Pagonis with Jeffrey L. *Moving Mountains: Lessons in Leadership and Logistics from the Gulf War*. Boston, MA: Harvard Business Review Press, 1992.
- Dale, Catherine. *Operation Iraqi Freedom: Strategies, Approaches, Results, and Issues for Congress*. CRS Report for Congress, Washington, DC: Congressional Research Service, 2008.
- Department of Defense. "Conduct of the Persian Gulf War Final Report to Congress Appendices A-S." *DTIC Online*. Apr 1992. <http://www.dtic.mil/cgi-bin/GetTRDoc?Location=U2&doc=GetTRDoc.pdf&AD=ADA249390> (accessed May 03, 2012).
- . *Conduct of the Persian Gulf, Final Report to Congress, April 1992*. 1992. <http://www.ndu.edu/library/epubs/cpgw.pdf> (accessed May 19, 2012).
- Echevarria, Antulio J. *Clausewitz and Contemporary War*. Oxford: Oxford University Press, 2007.
- Fontenot, Col. Gregory, E. J. Degen, and David Tohn. *On Point: the United States Army in Operation Iraqi Freedom (through May 2003)*. Fort Leavenworth, KS: Dept. of the Army, 2007.
- Hammons, Lieutenant Colonel David M. "At What Cost?" *Indeed: Contractor Indispensability in Army Logistics*. Program Research Project, Carlisle Barracks, PA: U.S. Army War College, 2010.
- Isom, Colonel Ronald G. *The Modular Army and its Logistical Implications*. Powerpoint, Washington, DC: US Army TRADO Futures Division, 2005.
- Jomini, Antoine De. *The Art of War*. London: Greenhill Books, 2006.
- Jomini, Baron Henri de. "The Project Gutenberg EBook of The Art of War." *Project Gutenberg*. Project Gutenberg. 2004 24-Sep. <http://www.gutenberg.org/files/13549/13549-h/13549-h.htm> (accessed 2012 8-Feb).
- Kellogg, Brown, and Root. "Logistics Civil Augmentation Program (LOGCAP) III ." *Kellogg, Brown, and Root LOGCAP III Worldwide*. Aug 21, 2005. <http://www.kbr.com/Projects/LOGCAP-III/LOGCAP-III.pdf> (accessed Aug 21, 2012).
- Kraus, Frank N. Schubert and Theresa L. *The Whirlwind War*. Washington, DC: Center of Military History, 1995.
- Krause, John J. Mcgrath and Michael D. *Theater Logistics in the Gulf War*. Alexandria, VA: Historical Office, US Army Materiel Command, 1994.
- Lafferty, Brad D., et al. "Gulf War Logistics: Theory into Practice." *www.dtic.mil*. 1997. <http://www.dtic.mil/cgi->

- bin/GetTRDoc?Location=U2&doc=GetTRDoc.pdf&AD=ADA328305 (accessed June 2, 2012).
- Lopez, MAJ Michael C. "Operational Logistics: A Monograph." <http://www.dtic.mil/dtic>. AY 00-01. <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA393884> (accessed 2012 06-Mar).
- Marquardt, Kent S. *Force XXI Logistics: Company Grade Multifunctional Logisticians; Setting the Conditions for Success*. Fort Leavenworth, KS: United States Army Command and General Staff College, 1999.
- Martinez, Luis. *ABC News*. Jan 1, 2010. http://abcnews.go.com/Politics/multi-national-force-iraq-us-forces-iraq/story?id=9458723#.UDz_0ql4E6E (accessed July 24, 2012). (accessed Jul 24, 2012).
- McGrath, John J. *The Other End of the Spear: The Tooth to Tail Ratio (T3R) in Modern Military Operations*. Fort Leavenworth, KS: Combat Studies Institute Press, 2004.
- Noblis. *Sustainable Forward Operating Bases*. Report, Strategic Environmental Research and Development Program (SERDP) , Nobis, 2010.
- Phillips, Cody R. *Bosnia-Herzegovina: the US Army's Role in Peace Enforcement Operations 1995-2004*. Washington DC: Department of the Army, 2005.
- Pike, John. *Iraq Facilities*. May 07, 2007. www.globalsecurity.org/military/facility/iraq.htm (accessed Sep 19, 2012).
- . *Kuwait Facilities*. May 07, 2011. www.globalsecurity.org/military/facility/kuwait.htm (accessed Sep 19, 2012).
- Reese, Donald P. Wright and Timothy R. *On Point II: Transition to the New Campaign: The United States Army in Operation Iraqi Freedom May 2003-January 2005*. Fort Leavenworth, KS: Combat Studies Institute Press, 2008.
- Reynolds, Paul D. *A Primer in Theory Construction*. Boston: Pearson Education, Inc, 2007.
- Richelson, Jeffrey T. *Operation Desert Storm: Ten Years After*. Jan 17, 2001. <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB39/> (accessed Apr 24, 2012).
- Robert F. Baumann, George W. Gawrych, and Walter E. Kretchik. *Armed Peacekeepers in Bosnia*. Fort Leavenworth, KS: Combat Studies Institute Press, 2004.
- Science Applications International Corporation. *Objective Assessment of Logistics in Iraq: DUSD(L&MR) and Joint Staff (JSJ4) Sponsored Assessment to Review the Effectiveness and Efficiency of Selected Aspects of Logistics Operations During Operation Iraqi Freedom*. Assessment, Washington, DC: Science Applications International Corporation, 2004.
- Seale, Khaled Bin Sultan with Patrick. *Desert Warrior*. London: Harper Collins, 1995.
- Stuart, Ted R. *Class IX Supply Operations in Operation Iraqi Freedom: Is the U.S.Army's Doctrine Accurate?* Fort Leavenworth, KS: United States Army Command and General Staff College, 2004.
- Sullivan, Thomas H. "The Tall Office Building Artistically Considered." [www.ocw.mit.edu](http://ocw.mit.edu). Mar 1896. http://ocw.mit.edu/courses/architecture/4-205-analysis-of-contemporary-architecture-fall-2009/readings/MIT4_205F09_Sullivan.pdf (accessed Sep 05, 2012).
- Swain, Richard M. *Neither War nor Not War: Army Command in Europe During the Time of Peace Operations: Tasks Confronting USAREUR Commanders, 1994-2000*. Carlisle, PA: Strategic Studies Institute, US Army War College, 2003.

- Swain, Richard M. *Lucky War: Third Army in Desert Storm*. Fort Leavenworth, KS: U.S. Army Command and General Staff College Press, 1997.
- Task Force Eagle. *Task Force Eagle After Action Report*. Heidelberg: HQ, United States Army Europe, 1996.
- Tim Lindsey, James J. McLaughlin, and Norm Bruneau. "Force Provider Deploys to Bosnia." *Army Logistician*. May 1997. <http://www.almc.army.mil/alog/issues/may97/ms154.htm> (accessed July 19, 2012).
- United States Army. "2012 U.S. Army Posture Statement - Homepage." *United States Army Webpage*. 2012 17-Feb. https://secureweb2.hqda.pentagon.mil/VDAS_ArmyPostureStatement/2012/Default.aspx (accessed 2012 29-Feb).
- . *ADP 5-0: The Operations Process*. Washington, DC: Headquarters, Department of the Army, 2012.
- . *Army Doctrine Publication 3-0: Unified Land Operations*. Washington D.C.: Headquarters, Department of the Army, 2011.
- . *Army Doctrine Reference Publication 4-0: Sustainment*. Washington, D.C.: Headquarters, Department of the Army, Draft.
- United States Army Europe. *Operation Joint Endeavor: USAREUR Headquarters After Action Review: Volume 1*. Heidelberg: United States Army Europe, 1997.
- United States Army Europe. *Operation Joint Endeavor: USAREUR Headquarters After Action Review: Volume II - Annexes*. AAR, Heidelberg: United States Army Europe, 1997.
- United States Army. *Field Manual 100-10: Combat Service Support*. Washington, DC: Headquarters, United States Army, 1988.
- . *Field Manual 100-10: Combat Service Support*. Washington, DC: United States Army, 1995.
- . *Field Manual 100-5: Operations*. Washington, DC: Department of the Army, 1986.
- . *Field Manual 100-5: Operations*. Washington, DC: United States Army, 1993.
- . *Field Manual 3-0: Operations*. Washington DC: United States Army, 2001.
- . *Field Manual 3-0: Operations*. Washington, DC: United States Army, 2010.
- . *Field Manual 3-24: Counterinsurgency*. Washington, DC: Headquarters, Department of the Army, 2006.
- . *Field Manual 3-90.6: The Brigade Combat Team*. Washington, D.C.: Headquarters, United States Army, 2010.
- . *Field Manual 4-0: Sustainment*. Washington, D.C.: Headquarters, Department of the Army, 2009.
- . *Field Manual 4-93.2: The Sustainment Brigade*. Washington, DC: Headquarters, Department of the Army, 2009.
- . *Field Manual 4-94: Theater Sustainment Command*. Washington, D.C.: Headquarters, United States Army, 2010.
- . *Field Manual 54-30: Corps Support Groups*. Washington, DC: Headquarters, Department of the Army, 1993.

- . *War in the Persian Gulf: Operations Desert Shield and Desert Storm August 1990-March 1991*. Washington, DC: Center of Military History, 2010.
- United States Army, Europe. *Army in Europe Pamphlet 525-100: The US Army in Bosnia and Herzegovina*. Heidelberg: Military History Office, HQ USAREUR, 2003.
- United States Department of Defense. *2001 Quadrennial Defense Review Report*. Washington, D.C.: Department of Defense, 2001.
- . *Joint Publication 3-0, Doctrine for Joint Operations*. Washington, DC: Joint Chiefs of Staff, 2011.
- . *Joint Publication 3-34: Joint Engineer Operations*. Washington, DC: Joint Chiefs of Staff, 2011.
- United States General Accounting Office. *Army Force Structure: Personnel, Equipment, and Cost Issues Related to the European Drawdown*. Washington, DC: U.S. General Accounting Office, 1992.
- . "Contingency Operations: Opportunities to Improve the Logistics Civil Augmentation Program." *Federation of American Scientists*. Feb 11, 1997.
<http://www.fas.org/man/gao/ns97063.htm> (accessed July 19, 2012).
- . "United States Government Accountability Office." *DOD's Extensive Use of Logistics Support Contracts Requires Strengthened Oversight*. Jul 19, 2004.
<http://www.gao.gov/products/GAO-04-854> (accessed Aug 21, 2012).
- United States Marine Corps. *Marine Corps Doctrinal Publication 4: Logistics*. Washington, DC: Department of the Navy, 1997.
- United States Senate, 108th Congress. "New Information on Iraq's Possession of Weapons of Mass Destruction." *The Federation of American Scientists*. Jan 28, 2004.
www.fas.org/irp/congress/2004_cr/s012804b.html (accessed Jul 24, 2012).
- United States Training and Doctrine Command. *TRADOC Pamphlet 525-5: Force XXI Operations*. Fort Monroe, VA: Headquarters, Department of the Army, 1994.
- . *TRADOC Pamphlet 525-68: Concept for Modularity*. Fort Monroe, VA: Headquarters, Department of the Army, 2001.
- Watson, Bruce W. *Military Lessons of the Gulf War*. London: Presidio Press, California, 1991.
- Zametica, John. *Yugoslav Conflict*. London: Harper Collins Distribution Services, 1992.