

# **Army Sustainment Capabilities in Forced Entry Operations: The Impact of Private Contracting on Army Sustainment's Capabilities To Sustain Forces in Forced Entry Operations**

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Army Sustainment is a vital aspect of success in war. Throughout U.S. military history, the ability to sustain military forces for extended periods has led to numerous military victories. The Normandy invasion and subsequent defeat of Nazi Germany was possible because of a strong U.S. industrial base and the strategic sustainment capabilities of the Allied armies. The logistics build-up of Operations Desert Shield and sustainment operations leading up to the invasion of Iraq in 2003, are the most recent examples of the criticality of sustainment planning for offensive operations.

Likewise, throughout U.S. military history, private contracting supported military sustainment operations. As technology and weapons sophistication developed, and U.S. Armies increased in sheer numbers, the ability of the Active Force to sustain itself lessened, and the numbers of private contractors grew exponentially.

This study reveals the difficulties that Army Sustainment faces in supporting its forces without significant contractor assistance. Operations Desert Shield and Iraqi Freedom represent an imbalance of private contractors and U.S. Army sustainment capabilities. These two cases suggest a need to maintain the correct balance of military sustainment capabilities with maneuver forces in the U.S. Army. Not achieving this important task will affect our future military readiness and ability to sustain military forces in distant theaters of operations.

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## **Abstract**

**ARMY SUSTAINMENT CAPABILITIES IN FORCED ENTRY OPERATIONS: THE IMPACT OF PRIVATE CONTRACTING ON ARMY SUSTAINMENT'S CAPABILITIES IN FORCED ENTRY OPERATIONS**, by MAJ Michael F. Hammond,  
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# Introduction

## Background of the Study

This study will show that operational sustainment capabilities within the U.S. Army are severely lacking at the theater level in their ability to support forced entry operations beyond ninety days without private contractor support. Since the 1990s, military planners have reduced operational sustainment capabilities in the active force to the extent that private contractors are now required to fill sustainment shortages and capabilities. Military force structure reductions, changes in fiscal budget allocations, and a shifting national policy on the character of future wars contribute to this issue. Solving the problem of attaining a sensible balance of sustainment capabilities in the active U.S. Army force to support logistics in a forced entry operation is critical to the U.S. Army's success on future battlefields.

This study will illustrate that a rise in private contractors to support military operations directly corresponds to a lack of sustainment capabilities within active U.S. Army formations. The outsourcing of sustainment functions combined with technological advances in weaponry and equipment requires significant numbers of private contractors. U.S. Army doctrine directly links success on the battlefield to efficient sustainment. In addition, Army sustainment doctrine covers the gamut of responsibilities to support offensive operations. However, the possibility of forced entry operations and area denial missions remain in our joint military doctrine and national policy. Yet, U.S. Army Sustainment doctrine does not address this topic. This study will also demonstrate that despite technically superior sustainment capabilities, assets, and doctrine, it is not

feasibly possible to sustain forced entry operations without significant private contractor support.

The significance of this study is clear when considering the recent political and military shift towards the world's Pacific region.<sup>1</sup> Seven of the ten largest armies are located in the Pacific theater and potentially possess the military capability to deny access to U.S. and Coalition Forces.<sup>2</sup> Specifically, countries such as North Korea and China could generate an area denial scenario creating the conditions for a forced entry operation. U.S. military forces would be required to sustain themselves for a period in such an environment. The continued reduction and outsourcing of sustainment capabilities will create a significant shortfall that private contracting cannot fill. Thus, the purpose of this study is to engage Army Logisticians at the national policy level.

Operations such as forced entry and area denial that remain in our military doctrine must have the requisite sustainment capabilities. Policy level Army Logisticians must shoulder the responsibility to reduce the cost of military intervention by maintaining a strong and robust sustainment capability that can function with no or very little private contractor support. Operational level Army Logisticians must understand the relevance of this study because of impending cuts in Army Force structure and the tendency to outsource sustainment functions. This tendency can have negative effects and reduce the ability of maneuver units to sustain their momentum during offensive maneuvers.

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<sup>1</sup>Department of Defense, "Sustaining U.S. Global Leadership: Priorities for 21st Century Defense," January 5, 2012, <http://fulltextreports.com/2012/01/05/sustaining-u-s-global-leadership-priorities-for-21st-century-defense/> (accessed March 17, 2012), 2.

<sup>2</sup>Lance M. Bacon, "Army to Lose another 5 BCTs," *Army Times*, 5 March 2012.



This study relies on George and Bennett's structured and focused comparison method to analyze two case studies: Operations Desert Shield, Desert Storm, and Desert Farewell (1990-1991) and Operation Iraqi Freedom (OIF) (2003-2004). The structure of this method scopes the case studies by five guiding research questions:<sup>3</sup>

1. What Army sustainment doctrine and theory were in place that influenced sustainment planning and execution during this military intervention?
2. What sustainment force structure and assets did planners utilize to facilitate planning and execution during military intervention?
3. What was the duration of the conflict?
4. What type of military intervention did the U.S. engage in?
5. What types of Private Military Contractors did sustainment planners utilize to fill logistics shortfalls?

The questions will determine Army Sustainment doctrine used by sustainment planners, Army Sustainment force structure and assets, and the duration of the military intervention. In addition, the type of military intervention and the categories of private contractors employed by Army Sustainment planners will provide a method for the adjudication of sustainment practices during past military intervention.

The effectiveness of Army Sustainment operations in recent U.S. military operations is unmatched in its success. However, as weapons and military technology continues to improve for the U.S. military the financial cost of war rises and directly

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<sup>3</sup>Alexander L. George and Andrew Bennett, *Case Studies and Theory Development in the Social Sciences* (Cambridge, MA: MIT Press, 2004), 67.

corresponds to a rise in private contracting. In an age of non-conventional military threats, fiscal conservatism, and a smaller U.S. Army, available funding is focused on offensive capabilities and not sustainment functions. Therefore, the thesis for this study states that U.S. Army Sustainment planners cannot sustain military operations over a lengthy duration of time without significant private contractor assistance due to issues in sustainment force structure and the availability of logistics assets.

This study faces three primary limitations. First, this study relies on unclassified and open source documents for information, which prevents an inclusive study of Army Sustainment during Operations Desert Shield, Farewell, and Iraqi Freedom. Second, due to space only two case studies are examined providing only a limited viewpoint. Third, the examination of only two case studies presents a limited U.S. perspective to the reader and not the perspective of a military coalition on U.S. Sustainment preparations.

The basic premise of this study asserts that when the U.S. Army engages in a military intervention of any duration then the numbers and types of private contractors rises exponentially. The U.S. Army Sustainment system operates effectively in a peacetime environment. However, when the U.S. Army engages in a military intervention over a long duration it cannot sustain itself without private contractor support in the areas of life support, basing, and services. The Army's sustainment force structure, doctrine, and assets are insufficient to support extended combat operations and the balance between sustainment assets in the active and reserve forces is not sufficient to support global forced entry operations without private contractor support. The U.S. Army will continue to move expeditionary sustainment capabilities to reserve forces because of projected budget shortfalls. This trend will continue because of the expeditionary mindset

required to focus on the Pacific theater. Army leaders see such a shift as cost effective in a fiscally constrained environment allowing remaining funding to maintain and improve offensive capabilities.

This study is composed of seven sections: (1) an Introduction, (2) a Literature Review, (3) a Methodology, (4) two Case Studies, (6) Case Study Findings and Analysis, and a (7) Conclusion. The Introduction sets the conditions, significance, and relevance of the study, and formalizes the hypothesis and research questions that aim to validate or invalidate the study. The Literature Review discusses key Army Sustainment theories, the theoretical framework, and identifies relevant documentation on the evolution of Army Sustainment during recent military interventions. In addition, this section provides relevant definitions for consideration. The Methodology argues the importance of the Case Studies chosen to illustrate the hypothesis and thesis of this paper. In addition, this section defines the Case Study Methodology and the data collection processes for this study. The Case Studies provide an overview and a detailed examination of the cases utilizing the five research questions discussed previously. The Findings and Analysis section summarizes the findings of both cases studies and analyses the findings measured against the hypothesis of this study. The Conclusion discusses the methodology issues of the study, policy implications, and recommends future research in the area of Army Sustainment.

## **Literature Review**

### **Introduction**

This section presents a rationale for researching the Army's ability to sustain forced entry operations in a non-permissive environment beyond ninety days with the

current sustainment infrastructure. It seeks to highlight past Army sustainment processes and their success in combat. The following literature review begins with an in-depth examination of Velocity Management and its impact on Army sustainment. In addition, the review will focus on the Just in Time Logistics concept and its impact on Army sustainment. These concepts represent the conceptual basis for Army sustainment practices prior to OIF. The purpose of the review is to provide context on the complexity of current Army sustainment practices and their ability to support forced entry operations without civilian contractor support.

Government agency reports and military field manuals provide the most relevant perspective of Army sustainment and its capabilities in past wars and present military operations. Historical reports published by the Department of Defense, the Army Transportation Command, and other Army Sustainment Headquarters provide the military perspective of this review. In his book, *Moving Mountains: Lessons in Leadership and Logistics from the Gulf War*, LTG William Gus Pagonis paints a powerful picture of Army sustainment practices prior to the adoption of Velocity Management and Just in Time Logistics.<sup>4</sup> Mark Wang in his book, *Accelerated Logistics: Streamlining the Army's Supply Chain*, defines Velocity Management as the core

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<sup>4</sup>William G. Pagonis, *Moving Mountains: Lessons in Leadership and Logistics from the Gulf War* (Boston, MA: Harvard Business School Press, 1992). Pagonis gives a detailed description of his sustainment efforts throughout the book.

principal now utilized by the Army to prevent the Desert Storm sustainment practices such as constructing huge supply stores to meet unknown logistics demands.<sup>5</sup>

Prior to Desert Storm Army leaders constructed a sustainment system based on mass, or the build-up of massive supply dumps, to meet the wartime logistics demands of the Army. During the Desert Shield phase of this operation, Sustainment Planners built the massive supply dumps across the desert to sustain offensive operations. Due to the catastrophic success of coalition forces against Saddam Hussein, the massive supply reserves required an enormous amount of time to redeploy to the United States. The subsequent drawdown of Army forces after Desert Storm combined with a reduction in budgets seen in the 1990s required a cultural shift towards logistics and sustainment within the Army. Velocity Management and the Just in Time Logistics concepts filled this need and forced Army leaders to accept the cultural shift mentioned previously.

Problems and issues that preclude the ability of Army Sustainment Units to support a forced entry operation exist despite a cultural shift in the application of logistics facilitated by Velocity Management and the Just in Time Logistics. The loss of network capabilities during combat operations clouds the common operational picture for sustainment and creates difficulties in knowing the logistical shortcomings of maneuver units.<sup>6</sup> For example, during OIF invasion Third Infantry Division and other coalition units experienced significant sustainment shortfalls in several classes of supply.

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<sup>5</sup>Mark Y. D. Wang, *Accelerated Logistics: Streamlining the Army's Supply Chain* (Arlington, VA: RAND Publishing, 2005), xi.

<sup>6</sup>Eric Peltz et al., "Sustainment of Army Forces in Operation Iraqi Freedom" (Research Project, RAND Corporation, Arlington, VA, 2005), 30-31.

Maintenance readiness rates sank due to long lead times for repair parts.<sup>7</sup> Likewise, sustainment shortfalls existed during the height of the Iraqi insurgency.<sup>8</sup> Although Sustainment Planners established theater wide transportation networks during this period, insurgent activity threatened the throughput on existing lines of communication.<sup>9</sup>

## **Key Theories and Terms**

### Velocity Management

Wang defines Velocity Management as a, “set of processes based in corporate business practices, designed to improve dramatically the Army’s logistics and sustainment systems.”<sup>10</sup> Improvements to order and ship times for repair parts are critical to the success of the Army’s supply chain. Velocity Management seeks to strengthen and improve the end-to-end supply system while maintaining visibility over the Army’s supply demands and requirements.<sup>11</sup> The need for the massive build-up of supplies is eliminated by improving the Army’s supply system through velocity. Operation Desert Storm epitomized the Army’s sustainment practice of building large stores of supplies prior to the commencement of combat operations despite the fact that supply requisitions

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<sup>7</sup>Ibid., 5.

<sup>8</sup>Donald P. Wright and Timothy R. Reese, *On Point II, Transition to the New Campaign* (Fort Leavenworth, KS: Combat Studies Institute Press, 2005), 506.

<sup>9</sup>Ibid., 508.

<sup>10</sup>Wang, *Accelerated Logistics*, xi.

<sup>11</sup>Ibid., 6.

and requirements fall dramatically once combat operations begin.<sup>12</sup> It is evident that Sustainment Planners during the 1991 Gulf War based their planning on the premises that this process can only meet the unknown logistics shortfalls and requirements of war. Maintaining large stores of supplies on the battlefield lacked an effective supply chain and became unaffordable following the Desert Storm operation. The Army instituted Velocity Management to improve the responsiveness and efficiency of its supply system.

Wang points out that Velocity Management recognized that achieving dramatic, continuous, and irreversible improvement required a shift in thought among Army leaders.<sup>13</sup> Once the shift began, Army leaders, along with site improvement teams and analytical support catalyzed the institutionalization of this cultural change.<sup>14</sup> Their efforts produced a dramatic improvement in order ship times for repair parts and other critical supplies upon the implementation of Velocity Management. An Army logistics system based on massive stockpiles on the battlefield combined with a generally slow supply system created unresponsiveness when faced with the surge requirements of the battlefield.<sup>15</sup> Velocity Management contains a contemporary business view of logistics as a set of customer-focused processes honed to deliver supplies at the necessary time and necessary location thereby eliminating long lead times for critical parts

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<sup>12</sup>Peltz et al., "Sustainment of Army Forces in Operation Iraqi Freedom," 31.

<sup>13</sup>Wang, *Accelerated Logistics*, 7.

<sup>13</sup>Ibid., 5.

<sup>14</sup>Ibid., 7.

<sup>15</sup>Ibid., 5.

The goal of Velocity Management was to manage supplies more effectively through velocity and accuracy rather than the utilization of an outdated system based on mass. Rather than a massive buildup of supplies, Velocity Management seeks to improve order and ship processes to meet the customer needs. Efficiency and responsive produced by Velocity Management improved the maintenance readiness of the Army's vehicle fleets and weapons systems.<sup>16</sup>

### Just in Time Logistics

In a recent study, the Department of Defense's Office of Force Transformation describes the required logistics concepts for future success on the battlefield. The study outlines the necessity for the elimination of logistics stove piping, broadening the logistics resource base, support for reach back capability to the U.S. mainland, and most importantly the reduction of operational risk and pause due to logistics shortcomings.<sup>17</sup> Army leaders sought to achieve these goals through a demassification of logistics resources. The concept of Just in Time logistics provides the basis of these future logistics concepts that the Office of Force Transformation indicates in their study.<sup>18</sup> Just in Time logistics was an attempt to apply commercial business concepts to produce efficiency within the Army's supply system. A leaner supply system creates a reduced order ship time that in turn increases the readiness rates of Army units.

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<sup>16</sup>Ibid., 13.

<sup>17</sup>Department of Defense, Office of Force Transformation, *Operational Sense and Respond: Coevolution of an Adaptive Enterprise Logistics* (Washington, DC: Government Printing Office, May 6, 2004).

<sup>18</sup>Ibid., 2.



The Army began a cultural shift from the “Iron Mountain” sustainment mentality of building large supply stores just in case of requirements, to the corporate-like Velocity Management system.<sup>19</sup> The Just in Time factor of Velocity Management requires that user units communicate through various sustainment management systems. Just in Time Logistics replenishes shortages only as consumption occurs reducing the need for large warehouses and sustainment infrastructure seen during Desert Storm. The concept also dramatically reduces inventories, and eliminates several steps in the Army’s ordering process.<sup>20</sup> The utilization of this concept by deploying units resulted in the use of fewer storage containers facilitating a more rapid deployment.<sup>21</sup> Less unit-level storage containers equated to reduced requirements on strategic lift assets.<sup>22</sup> Likewise, an efficient and lean supply system based on a Just in Time principle creates a reduced order ship time as noted earlier. This equates to an increased customer satisfaction rate. Likewise, an increased customer satisfaction rate directly relates to an increased unit readiness rate.<sup>23</sup>

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<sup>19</sup>Laurel K, Myers, Ph.D., “Eliminating the Iron Mountain,” *Army Logistician Magazine* 36, no 4 (July-August 2004), [http://www.almc.army.mil/alog/issues/JulAug04/C\\_iron.html](http://www.almc.army.mil/alog/issues/JulAug04/C_iron.html) (accessed October 7, 2011).

<sup>20</sup>Ibid., 4.

<sup>21</sup>Ibid.

<sup>22</sup>Ibid., 2.

<sup>23</sup>Ibid., 7.

## Operational Sustainment

Operational Sustainment in current U.S. Army Sustainment doctrine is not defined. Joint Publication 4-0, *Joint Logistics* (2008), does not contain the term. Army Field Manual 4-0, *Sustainment* (2009), only utilizes the term once when describing the role of the Theater Support Command in relation to its position in the U.S. Army's generating force.<sup>24</sup> However, Army Field Manual 100-10, *Combat Service and Support* (1988), devotes several pages towards defining Operational Sustainment. The manual goes on to differentiate between Operational and Tactical Sustainment actions.<sup>25</sup> A clearer definition of Operational Sustainment is found in *Marine Corps Doctrine Publication 4*. The Marine Corps definition links the sustainment of land operations at the operational and tactical levels of war.<sup>26</sup> Achieving success in military operations relies on the availability of strategic level resources for the tactical commander.

## Forced Entry Operations

The concept of forced entry operations permeates military policy in multiple documents. Joint Publication 3-18, *Joint Forcible Entry* (2008), defines this operation as

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<sup>24</sup>Headquarters, Department of the Army, Field Manual (FM) 4-0, *Sustainment* (Washington, DC: Government Printing Office, April 2009), 2-10.

<sup>25</sup>Headquarters, Department of the Army, Field Manual (FM) 100-10, *Combat Service Support* (Washington, DC: Government Printing Office, October 1995), 2-2 thru 2-4. This manual defines Operational Sustainment as the logistics and support activities required to sustain campaigns and major operations.

<sup>26</sup>Department of the Navy, Marine Corps Doctrinal Publication 4, *Logistics* (Washington, DC: Government Printing Office, February 1997), 50. This manual substitutes the term Logistics for Sustainment.

seizing and holding of a military lodgment in the face of armed opposition.<sup>27</sup> This paper will focus on strategic level forced entry operations such as land invasion and forced entry utilizing a sea based assault. The sustainment requirements and coordinated planning efforts required of military planners during this type of operation are immense.

## Sustainment

Joint Publication 4-0, *Joint Logistics* (2008), defines sustainment as the provision of logistics and personnel services necessary to maintain and prolong operations until successful mission completion.<sup>28</sup> Army Field Manual 4-0, *Sustainment* (2009), defines sustainment as a concept regarding the provision of logistics, personnel services, and health service support necessary to maintain and prolong operations until successful mission completion.<sup>29</sup> The central ideas of both definitions, to provide sustainment to prolong operations, are the cornerstone of Army Logistics. The terms Combat Service and Support, and Sustainment, are utilized to maintain brevity within this paper.

With a recent political emphasis on reducing unnecessary expenditures at the national level, Army leaders face the monumental challenge of maintaining a ready force in a fiscally constrained environment.<sup>30</sup> Army leaders must supply, train, and fund Army

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<sup>27</sup>Joint Chiefs of Staff, Joint Publication (JP) 3-18, *Joint Forcible Entry* (Washington, DC: Government Printing Office, June 2008), 6.

<sup>28</sup>Joint Chiefs of Staff, Joint Publication (JP) 4-0, *Joint Logistics* (Washington, DC: Government Printing Office, July 2008), vii.

<sup>29</sup>Headquarters, Department of the Army, FM 4-0, *Sustainment*, vi.; Headquarters, Department of the Army, FM 3-0, *Operations*, 4-48.

<sup>30</sup>Department of Defense, *Sustaining U.S. Global Leadership. Priorities for 21<sup>st</sup> Century Defense* (Washington, DC: Government Printing Office, January, 2012), 3.

units that can operate at a moment's notice across the globe to protect U.S. national interests. However, in an environment with constrained budgets, this becomes a difficult task. Cuts in force structure, equipment, and future capability developments are an unfortunate by product of shrinking funding streams. In this controlled environment, Army leaders must balance the need to project power into an anti-access and area denial environment with a renewed focus to down size the U.S. Army. This monograph seeks to warn Army leaders that finding a correct balance between readiness to respond to a myriad of threats and the retainment of necessary sustainment force structure to meet such a challenge is critical to the future of Army sustainment.

## **Summary**

Velocity Management solved many peacetime sustainment issues. However, the same process caused significant issues during OIF. Joseph Walden points out that Velocity Management attempts to apply logistics techniques developed in the commercial sector where just-in-time inventory management and improved methods for forecasting demand are well established.<sup>31</sup> Inventory management and improved forecasting demand techniques provide a stable sustainment system in a garrison and peacetime environment. The same process in a fluid and ambiguous combat environment does not produce the same result, as the case studies will show.

The established data networks that support Army sustainment are well established. Reduced order ship times and stock positioning produce a responsive

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<sup>31</sup>Joseph L. Walden, *Velocity Management in Logistics and Distribution* (New York: Taylor and Francis, 2001), 253.

sustainment system for the user in a garrison environment. However, this concept has significant shortcomings when applied to a combat situation such Operations Iraqi and Enduring Freedom. U.S. Operational Sustainment capabilities are world class and are significantly stronger with the concept of Velocity Management as its basis. The Velocity Management System can ensure the arrival of critical sustainment assets to the theater before the battle begins.<sup>32</sup> On the other hand, it cannot generate and fill unit level requirements in combat because the network required maintaining a common operating picture of sustainment simply does not exist while combat operations are underway.

## **Methodology**

### **Introduction**

As stated, the primary goal of this study is to test the research questions and hypothesis that relate to the Army's capability to sustain forced entry operations without significant private military contractor assistance. This section presents the methodology employed to test that hypothesis. An Army force structure under the current fiscal crisis lends itself to an in-depth analysis. Therefore, this research will take place as a qualitative assessment of current and past Army sustainment force structure and capabilities. This section begins by justifying the selection of two cases studies. Both cases studies represent diametrically opposed applications of Army sustainment doctrine and practices. First, Operations Desert Shield, Desert Storm, and Desert Farewell bestow upon the reader an overview of Army sustainment unchanged for decades and centered on the principal of Mass. Second, Army sustainment during OIF from 2003 thru 2004

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<sup>32</sup>Wang, *Accelerated Logistics*, 6.

symbolized a sustainment system based on corporate business principles and focused on lean and efficient sustainment operations. The sustainment system of OIF (2003) is an example of a robust sustainment system tested in peacetime yet still unsuccessful at providing continuous sustainment during combat. Second, this section describes in particular how the analysis of the case studies is conducted. Specifically, it describes what George and Bennett's structured, focused comparison method is, and how this study employed it, and what criteria were used to conduct this study.<sup>33</sup>

### **Selection of the Case Studies**

The first case study will examine sustainment during Operations Desert Shield and Desert Storm in 1991. The analysis for this case study begins with an in-depth examination of Army sustainment planning and execution during the Desert Shield Operation. Logistics during this period represented the "Iron Mountain" concept, or the building of large supply stores to accommodate a possible logistics shortcoming.<sup>34</sup> In his book, *Moving Mountains*, Pagonis presents an in-depth study of his actions to facilitate the logistics build-up operation prior to the Desert Storm Campaign. This book sorts out the largest logistical undertaking since the Vietnam War and represents military sustainment in practice and concepts prevalent prior to this operation. This practice proved unreliable and costly in terms of resources and infrastructure. At the completion of Desert Storm and the subsequent drawdown of troops in the early 1990s proved that

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<sup>33</sup>George and Bennett, *Case Study and Theory Development in the Social Sciences*, 80.

<sup>34</sup>Myers, "Eliminating the Iron Mountain," 4.

the “Iron Mountain” sustainment concept was politically and financially impossible. Although there are similarities between the two case studies such as the geographic location of military intervention, the enemy, the conventional nature of the military intervention and the difficulty in providing sustainment to maneuver units engaged in combat, both represent a completely opposed application of sustainment theory and doctrine in action.

The second case study will examine Army sustainment planning and execution during OIF from 2003 thru 2004. The inter-war years witnessed a revolution in the Army Sustainment community. No longer utilized were the costly logistics practices of Operation Desert Shield. In its place, the corporate business theories of Velocity Management and Just in Time Logistics created an efficient, lean, and network centric approach to sustainment. These concepts resulted in a total overhaul of Army Sustainment and the representation of a leaner supply chain focused on customer needs rather the utilization of mass to solve logistics shortcomings on the battlefield. Army Sustainment doctrine represented the change as well, and set the stage for the application of these new ideas during the invasion of Iraq in 2003.

### **Case Study Method and Analytical Criteria**

This study uses George and Bennett’s structured and focused comparison method to analyze the case studies. The structure of this method binds the case studies by five guiding questions.<sup>35</sup> Likewise, the focus of this method analyzes only certain aspects of

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<sup>35</sup>George and Bennett, *Case Studies and Theory Development in the Social Sciences*, 67.

the case studies.<sup>36</sup> This study begins by defining the five questions utilized to analyze and scope the case studies. The questions are as follows:

1. What Army sustainment doctrine and theory were in place that influenced sustainment planning and execution during this military intervention? Moreover, did the Army sustainment planner adhere to military doctrine and theory while conducting this operation? This question specifies doctrinal limitations or constraints that governed the planning and execution for military sustainment planners.

2. What sustainment force structure and assets did planners utilize to facilitate planning and execution during military intervention? This question determines if adequate force structure and assets were in use.

3. What was the duration of the conflict? This question examines the length of the conflict measured against the sustainment practices during the military intervention.

4. What type of military intervention did the U.S. engage in during Operations Desert Shield and Desert Storm? This question is important because the type of military intervention determines the sustainment force structure and assets that are required.

5. What types of Private Military Contractors did sustainment planners utilize to fill logistics shortfalls? This question attempts to determine what types of Private Military Contractors were utilized to fulfill sustainment shortfalls, and to determine the amount of DOD procurement spent on contractors.

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<sup>36</sup>Ibid.



## **Data Collection**

This study focuses mainly on open source documents related to Army Sustainment. Several books provide the basis for this study. Most notable is Pagonis's book, *Moving Mountains*, in which he wrote perhaps the most intensive study of sustainment operations during Operations Shield, Storm, and Desert Farewell. Mark Wang in *Accelerated Logistics*, and a Rand Corporation Research Project, "Sustainment of Army Forces in Operation Iraqi Freedom," supplied the author with detailed information on Velocity Management and Just in Time Logistics concepts and their impact on Army Sustainment following Desert Storm. Army Transportation Command studies and historical documents provided keen insights into the application of current sustainment doctrine and theory during the case study time-periods. Numerous studies and scholarly papers from the Rand Corporation and the Army War College offered an in-depth examination of the impact of private contracting on Army Sustainment over a twenty-year period. Most important, Joint and Army Sustainment doctrine during both case study time-periods offered a unique perspective. U.S. national policy documents provided the political background during these two case studies.

## **Summary**

Both case studies provide the most relevant examples of Army Sustainment during military intervention. There are many pertinent lessons to garner from the case studies that have impact on today's Army. Once again, the Army Sustainment community faces monumental change because of a shift in national policy. In a volatile world, the potential for military intervention to support U.S. national objectives still looms. Although, the U.S. military has not conducted a truly doctrinal based forced entry

operation since the Korean War, the concept remains in military doctrine and U.S. national policy documents. Consequently, the Army Sustainment community must still possess the knowledge and capability to support a forced entry operation without or with minimum private contractor support. This monograph seeks to answer this very question.

## **Operations Desert Shield and Desert Storm: 1990 thru 1992**

### **Introduction**

Combat Service and Support (CSS) actions during the Desert Shield Operation represented the application of doctrine on a scale not seen since the Korean and the Vietnam Wars.<sup>37</sup> Operation Desert Shield and Desert Storm epitomize a sustainment system characterized by mass and the rise of military contracting to meet sustainment shortcomings. The U.S. and Coalition force postured in the Saudi Desert numbered more than a half million people. Mass, not defined battlefield requirements generated the sustainment support options. The success of Operation Desert Shield rested on the use of Saudi Arabian facilities and the support of thousands of private contractors despite the sustainment capabilities and force structure within the U.S. military. To demonstrate this case, this section includes two parts. The first part includes an overview of Army sustainment during this operation. The second part will evaluate CSS planning and execution measured against five criteria. Criteria such as the utilization of the current CSS doctrine and theory that influenced sustainment planning and execution during this military intervention, Army sustainment force structure and assets in place during this

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<sup>37</sup>Michael J. Mazarr, Don M. Snider, and James A. Blackwell, *Desert Storm: The Gulf War and What We Learned* (Boulder, CO: Westview Press, 1993), 49.

operation, the duration of the conflict calculated against actual CSS actions, and the type of military intervention. The final part will evaluate the type of military contractors utilized to fulfill sustainment shortcomings.

## **Case Overview 7 August 1990 thru February 1991**

### 1990: Lead up to Operations Desert Shield and Desert Storm

The Iraqi invasion of Kuwait caught most Western countries by surprise. Saddam Hussein took advantage of the West's indecisiveness on their political goals towards his country and invaded Kuwait on August 2, 1990.<sup>38</sup> In response to the invasion of Kuwait, Coalition and U.S. forces gathered in the Saudi Arabian Desert to repel Iraqi forces and force their withdrawal. It is imperative to understand that Hussein believed Saudi Arabia and Kuwait stood between his goals of unifying Arab states against the West. In 1990, Hussein publicly stated that Kuwait was Iraqi land.<sup>39</sup> He attempted to influence the repayment of his Iran-Iraq war debts to Saudi Arabia by signing a non-aggression pact with the Saudi Royal family forcing Kuwait to consider the same. A subsequent Iraqi attempt to force border negotiations with Kuwait failed setting the stage for future conflict.<sup>40</sup> In August 1990, the United Nations voted an economic embargo against Iraq and authorized force to implement the embargo.<sup>41</sup> The stage for eventual conflict was set

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<sup>38</sup>Kevin M. Woods, *The Mother of all Battles* (Annapolis, MD: Naval Institute Press, 2008), 1.

<sup>39</sup>Ibid., 53.

<sup>40</sup>Ibid., 47.

<sup>41</sup>Mazarr, Snider, and Blackwell, *Desert Storm: The Gulf War and What We Learned*, 46.

once King Fahd of Saudi Arabia gave Defense Secretary Dick Cheney authorization to conduct a troop build-up in his country.<sup>42</sup>

### August 1990 thru December 1990: The Surge Phase

The sustainment efforts of Pagonis and support units during Desert Shield were monumental and immense in scope. The massing of logistics for six months prior to Operation Desert Storm proved successful and hugely effective.<sup>43</sup> From August 1990 to December 1990, Pagonis created a logistics response to meet the strategic setting and goals set forth by General Norman Schwarzkopf. His efforts to create the perfect logistics situation underwrote the application of force utilized by Schwarzkopf creating the conditions for quick military victory against the Iraqi Army.

The immediate goal of the “Surge Phase,” or Operation Desert Shield, was to deter the Iraqi Army from invading Saudi Arabia.<sup>44</sup> Second in importance was to build sufficient combat power and logistics to sustain offensive operations against the Iraqi Army. Sustainment units and planners were the first to arrive in Saudi Arabia to begin preparations for the arrival of U.S. Combat units. Building sufficient combat power required a great effort on behalf of Pagonis and his team of logisticians. The Twenty-Second Support Command (Provisional) and the First and Second Corp Support

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<sup>42</sup>Ibid.

<sup>43</sup>Author’s Note: The cost of such operations forced change in the military logistics community. The fiscal conservatism practiced by politicians and military leaders in the 1990s forced new ideas and philosophies concerning logistics to the forefront of military planning. Huge supply stores were longer feasible. The fall of the Soviet Union and the defeat of the largest army in the Middle East created the conditions for reexamining the role of the Army in future conflicts.

<sup>44</sup>Pagonis, *Moving Mountains*, 119.

Commands shouldered the majority of logistics planning and execution. The complexity of such a military problem is enormous and required the great skill of Pagonis and these units to complete their mission.

The Coalition air interdiction operations began on January 17, 1991 with the intent to destroy Iraqi supply lines, enemy radar, and intelligence capabilities. Coalition air forces also destroyed Iraqi tanks, SCUD missile launchers, and the Iraqi air force.<sup>45</sup> Coalition partners and U.S. forces defeated the Iraqi Army in a one hundred hour ground campaign during Operation Desert Storm. This short conflict represents the validation of Air Land Battle doctrine and the culmination of costly and time-consuming U.S. military logistics practices.

**Case Study Question One: What Army sustainment doctrine and theory were in place that influenced sustainment planning and execution during this military intervention?**

Did Army sustainment planners adhere to military doctrine and theory while conducting this operation? In order to answer this question and understand the complexity involved in building combat power during Operation Desert Shield it is important to determine what Army sustainment doctrine and theory were in place at the time. From a macro-perspective, it is also critical to understand that U.S. Air Land Battle doctrine designates CSS as one of the seven battlefield operating systems. The ability of support units to effectively arm, fuel, fix, move, and sustain the soldier facilitate the

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<sup>45</sup>Ibid., 145.

generation of combat power and enables the tenets of Air Land Battle to be applied.<sup>46</sup> An effective distribution network supports this battlefield operating system and provides the tactical logistics functions mentioned above to sustain combat operations.<sup>47</sup>

## Doctrine

Army Field Manual 100-10 (1988), *Combat Service Support*, provided Army sustainment planners a basis upon which to conduct sustainment planning during Desert Shield. In addition, Army Field Manual 100-10-1 (1987) and Field Manual 100-10-2 (1987) contained consumption data for every possible system and unit to assist in determining requirements.<sup>48</sup> The sustainment imperatives to support the generation of combat power include anticipation, integration, continuity, responsiveness, and improvisation.<sup>49</sup> Pagonis and his team anticipated future events and requirements by integrating sustainment operations with Schwarzkopf's maneuver plan. Continuity implies the responsibility on behalf of the sustainment planner to ensure there are no

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<sup>46</sup>Leon E. Salomon and Harold Bankier, "Total Army CSS: Providing the Means for Victor," *Military Review* 71, no. 4 (April 1991): 5.

<sup>47</sup>Author's Note: Army Field Manual 100-10 (1998), states: "The tenets of Air Land Battle doctrine initiative, agility, depth, and synchronization-are basic to operational and tactical success on the battlefield and establish the framework for arranging sustainment. Sustainment must be carried out to facilitate the ability of the maneuver commander to attain those tenets. CSS doctrine then seeks to overcome the natural inhibiting effects of the logistics 'tail' and enable the maneuver commander to take advantage of opportunities to achieve tactical or operational advantage."

<sup>48</sup>Headquarters, Department of the Army, Field Manual (FM) 101-10-1, *Staff Officers Field Manual Organizational, Technical, and Logistical Data* (Washington, DC: Government Printing Office, 1987).

<sup>49</sup>Ibid., 16. Author's Note: The Sustainment imperatives are described in detail in Headquarters, Department of the Army, Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Printing Office, 1986).

lapses in offensive maneuver because of poor sustainment planning. Pagonis's team utilized private contracting to maintain continuity and mitigate sustainment shortages caused by oversight or general lack of sustainment capability. Because of the enormity of sustaining a large force sustainment planners maintained their responsiveness to meet changing requirements on short notice by seeking non-traditional solutions to vexing sustainment problems.

## Theory

Short of Army sustainment doctrine, no other sustainment theories provided the basis for planning and execution during Desert Shield. The influences of corporate business concepts such as Just in Time Logistics and Velocity Management had yet to make their entrance to the Army sustainment stage. Considering the magnitude of this event and the requirement to sustain a large force, sustainment planners had merely the sustainment imperatives and the principles of tactical logistics functions to execute the largest sustainment mission since the Vietnam War. The CSS doctrine in use during Operation Desert Shield limited the choices available to planners. The sheer scale of sustainment requirements, and the limitations of CSS doctrine to fulfill the needs of a large field Army, necessitated the use of private contractors to fulfill sustainment shortfalls.

**Case Study Question Two: What sustainment force structure and assets did planners utilize to facilitate planning and execution during military intervention?**

**Force Structure**

In the Army of Excellence divisional configuration, logistics troops provided support through multifunctional units groomed to support specific divisional units. For example, in an Army of Excellence Armored Division, CSS Units equaled 26 percent of the force structure (see figure 1).<sup>50</sup> At the theater level, a Theater Army Area Command (TAACOM) operated and planned strategic and theater level sustainment operations. A Corps Support Groups conducted sustainment planning and execution at the operational level, and a Division Support Command conducted sustainment at the tactical level through their Forward Support Battalions.

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<sup>50</sup>John J. McGrath, The Long War Series Occasional Paper 23, *The Other End of the Spear: The Tooth to Tail Ratio in Modern Military Operations* (Fort Leavenworth, KS: Combat Studies Institute Press, 2007), 39-40.



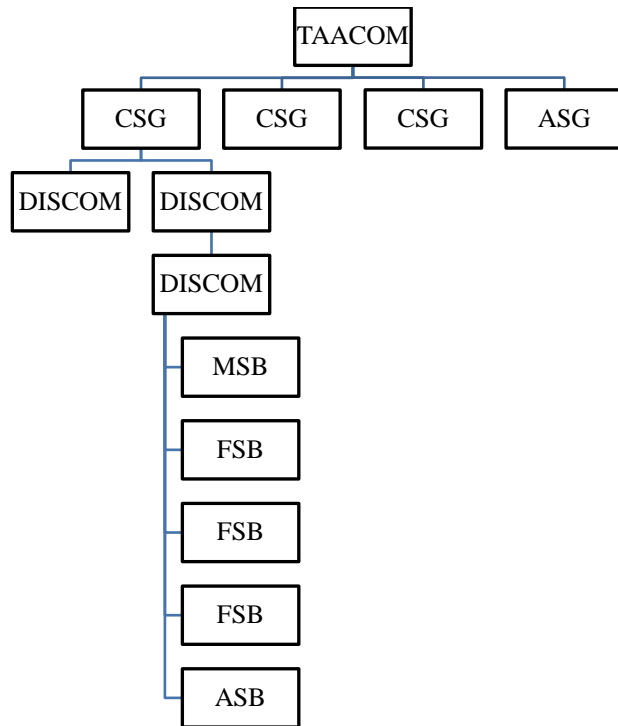


Figure 1. Doctrinal Combat Service and Support Force Structure. Source: Headquarters, Department of the Army, Field Manual (FM) 100-10, *Combat Service Support* (Washington, DC: Government Printing Office, February, 1988), 1-15 thru 1-20.

The sustainment system at the commencement of Operation Desert Shield was large and required significant infrastructure and personnel. However, senior Army leaders did not deploy a TAACOM to plan and execute the logistics surge. The 377<sup>th</sup> TAACOM, an Army Reserve Unit designated as the theater combat service support headquarters for operations in the Persian Gulf did not deploy.<sup>51</sup> Pagonis resisted this measure in order to avoid a disruption in the continuity of his sustainment planning team.<sup>52</sup> In its place, senior planners activated the 22<sup>nd</sup> Support Command (Provisional) to accomplish the

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<sup>51</sup>John R. Brinkenhoff, Ted Silva, and John A. Seitz, *The Case of the Unit that was not Called: The 377th Theater Army Area Command* (Arlington, VA: ANDRULIS Research Corporation, 1991).

<sup>52</sup>Pagonis, *Moving Mountains*, 131.

TAACOM mission. Its performance under the circumstances was commendable; however, the theater level mission it performed was not its doctrinal responsibility.<sup>53</sup> The 22<sup>nd</sup> Support Command Task Organization did not represent a doctrinal formation of U.S. Army logistics units. Pagonis created an adhoc organization to meet planning and mission demands created by the decision not to deploy the 377<sup>th</sup> TAACOM.

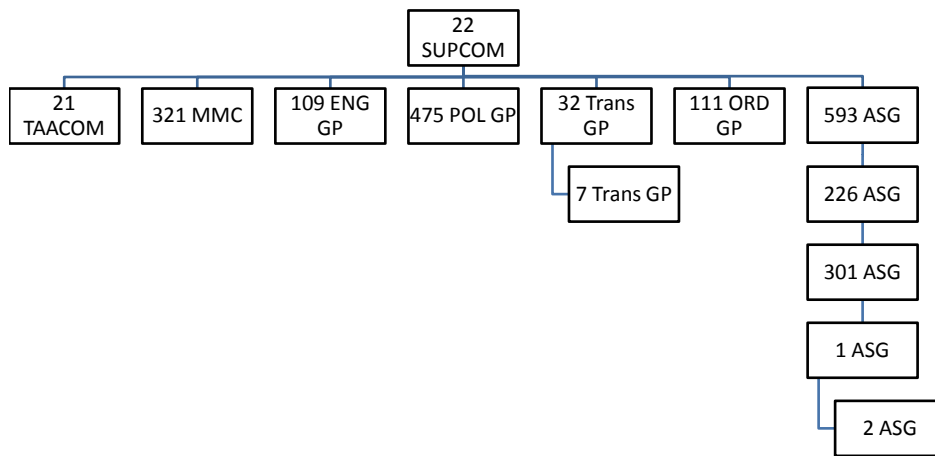


Figure 2. 22<sup>nd</sup> Support Command Task Organization. Source: 22<sup>nd</sup> Support Command After Action Report. Command Report Operation Desert Storm. Volume 3, 1991

## Sustainment Assets

At the theater level, automated distribution management systems were beginning to create an impact on sustainment planning and execution during Operation Desert

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<sup>53</sup>Greg R. Gustafson, “Logistics Management Systems in Desert Shield and Desert Storm. How Well Did They Do” (Strategic Research Project, Army War College, Carlisle Barracks, PA, 1992).

Shield. There were twenty-six separate sustainment data systems in place. They ran the gamut from manual processing to state of the art automated computer systems. However, at the operational and tactical levels many units did not possess such automated systems resulting in a time consuming process of manually requesting sustainment.<sup>54</sup> More importantly, the in transit visibility of critical items stopped in many cases at the theater level because of the lack of automation at the tactical level. To improve Total Asset Visibility, Army leaders adopted emerging bar coding methodology and satellite tracking technology to improve total asset visibility.<sup>55</sup>

An extensive sustainment force structure with capabilities existed during the Desert Shield Operation. As stated earlier, Logistics and CSS Units comprised 26 percent of the force during Operation Desert Shield and created an efficient theater logistics system. However, shortcomings did exist at the operational and tactical levels. The decision not to deploy the 377<sup>th</sup> TAACOM to conduct its wartime mission created the initial difficulty in sustainment planning. Pagonis, promoted to Lieutenant General during Desert Storm, presented a unique situation. The creation of the 22<sup>nd</sup> Support Command alleviated command issues for Pagonis and shaped a command structure that pushed Pagonis on an equal authority level with U.S. Army Corp Commanders.

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<sup>54</sup>Ibid., 12.

<sup>55</sup>Ibid., 214.

### Case Study Question Three: What was the duration of the conflict?

#### Operation Desert Shield-Logistics Build-Up

The duration of this conflict lasted twenty-four months and four days. The operation can be broken into three periods, Operations Desert Shield, Desert Storm, and Desert Farewell. The logistics build-up and combat power generation began during Operation Desert Shield. Pagonis provides an in-depth analysis of Desert Shield in his book, *Moving Mountains*. This operation began on August 7, 1990, and ended with the air war commencing January 17, 1991, with U.S. and Coalition aircraft targeting the Iraqi military. Although the initial XVIII Airborne Corps troops to deploy were combat troops. Military leaders quickly realized the spare logistics infrastructure could not handle the large number of combat troops already deployed. Pagonis and his team quickly arrived to begin building the logistics infrastructure required for future operations.<sup>56</sup> He and his staff built the necessary infrastructure while receiving and moving troops into tactical assembly areas. Within the first fifteen days, they processed over 40,000 soldiers, formed an area support group and battalion, and began unloading ships. By the end of September 1990, the 22<sup>nd</sup> Provisional Support Command processed and moved over 100,000 troops.<sup>57</sup> By October 1990, Pagonis established two forward logistics bases, later growing to four, to provide critical medical, maintenance, fuel, and ammunition resupply.<sup>58</sup>

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<sup>56</sup>Frank N. Schubert and Theresa L. Kraus, *The Whirlwind War* (Washington, DC: Center for Military History, 1995), 55.

<sup>57</sup>*Ibid.*, 59.

<sup>58</sup>*Ibid.*, 139.

## The Air War

Operation Desert Storm began in earnest on January 17, 1990, with the coalition air war.<sup>59</sup> The initial objective of the air campaign involved coordinated strikes against targets in Iraq and Kuwait to reduce Sadaam Hussein's military strength and make it impossible for him to continue his campaign in Kuwait.<sup>60</sup> The air war continued for six weeks and met nearly all of the allies' objectives. At 2:00 a.m. local time, the 101st Airborne Division began the air war by destroying Iraqi radar sites preventing the Iraqi's early warning capabilities.<sup>61</sup> A short time later hundreds of coalition aircraft entered Iraqi air space with the goal to destroy Iraqi Air Defense capabilities.<sup>62</sup> The second wave of aircraft destroyed much of the Iraqi Army's command and control capability in Baghdad. In addition, the third wave of aircraft attacked Iraqi ground forces in Kuwait attacking and destroying their prepared defensive positions.<sup>63</sup> At the start of the Persian Gulf War, Iraq had the sixth largest air force with 950 planes located at 54 air bases across Iraq. To the surprise of many coalition leaders, the Iraqi air force provided virtually no resistance and coalition air forces quickly achieved air superiority. The air campaign began to take a

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<sup>59</sup>Laurie Collier Hillstrom, *War in the Persian Gulf Almanac* (Detroit, MI: Thompson and Gale, 2004), 53.

<sup>60</sup>Ibid.

<sup>61</sup>Ibid., 54.

<sup>62</sup>Ibid.

<sup>63</sup>Ibid.

toll on Iraq as evidenced by the Iraqi offer to withdraw from Kuwait on February 15, 1991.<sup>64</sup>

### Operation Desert Storm–The Ground War

The ground war phase of Desert Storm began on February 24 and lasted exactly 100 hours.<sup>65</sup> General Khalid bin Sultan describes the ground war and the Saudi military response. Coalition forces, to include Saudi Army units, were poised along a line that stretched from the Persian Gulf Westward into the desert.<sup>66</sup> Although the air campaign caused significant damage to the Iraqi Army's capability to wage war, Hussein felt confident in his ability to win the ground campaign. With a Soviet equipped Army totaling one million men, Hussein believed he could win because of the American aversion to high casualties.<sup>67</sup> Instead of coalition forces attacking Iraqi Defensive positions from the front, coalition leaders decided to flank the Iraqi Army and attack from the rear.<sup>68</sup> Coalition ground forces consisted on 700,000 soldiers from twenty-one different countries. Coalition leaders launched the ground campaign at 4:00 a.m. on February 24. Iraqi forces quickly crumbled under the massive coalition force with Kuwait City liberated on February 27.<sup>69</sup>

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<sup>64</sup>Ibid., 59-60.

<sup>65</sup>Khalid bin Sultan, *Desert Warrior* (New York: Harper Collins Publisher, 1995), 391.

<sup>66</sup>Schubert and Kraus, *The Whirlwind War*, 172.

<sup>67</sup>Hillstrom, *War in the Persian Gulf Almanac*, 66.

<sup>68</sup>Ibid., 68.

<sup>69</sup>Ibid., 70-71.

## Operation Desert Farewell-Redeployment

Following the offensive operation during Desert Storm, the third period of this military intervention known as Desert Farewell began to redeploy troops and equipment. Pagonis and his planners initiated Operation Desert Farewell upon the initiation of a ceasefire. Redeployment of personnel and equipment would begin immediately known as Stage One of Desert Farewell. Stage Two of Desert Farewell included accounting for, cleaning, and shipping all equipment left behind by deploying forces. By July 1992, CSS planners completed Stage Two of Desert Farewell.<sup>70</sup>

A simple assessment of the logistics build-up in comparison to the actual length of combat creates the impression that military planners did not plan for catastrophic success, nor considered the possibility of a short ground offensive. Without a doubt, Pagonis and other military leaders planned for a long war based on U.S. intelligence and assessments of the Iraqi military. Because of the short duration of Desert Shield, and the logistics build-up of Desert Storm, Desert Farewell became a long and unnecessarily complicated redeployment operation.

### **Case Study Question 4: What type of military intervention did the U.S. engage in during Operations Desert Shield and Desert Storm?**

Why did the U.S. become involved in this conflict? National policy necessitated the military intervention seen during Operation Desert Storm against Iraqi aggression. National objectives included the deterrence of any aggression that could threaten its

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<sup>70</sup>Pagonis, *Moving Mountains*, 149-158.

security and the security of its allies.<sup>71</sup> The invasion of Kuwait by the Iraqi Army therefore justified military intervention. Iraqi aggression against Saudi Arabia and Kuwait, allies of the United States, and exporters of the world's oil, threatened the equilibrium of the Middle East and indirectly the security of the United States. Considering the Iraqi Army's size, and its experience during the Iran-Iraq war, and U.S. military intelligence input, military planners planned for the anticipated theater of war described in Army Field Manual 100-5 (1986).<sup>72</sup> As a result, sustainment planners prepared for a coalition force of over 500,000 personnel and a long war.

Military planners must be able to project and sustain forces in an operational environment. This could require the seizure of key facilities to set the conditions for sustained land operations. The sustainment operation during Desert Shield was not a forced entry operation or an area denial mission. Coalition and U.S. planners enjoyed the benevolence of the Saudi government and the use of Saudi facilities to build combat power. In terms of sustainment capabilities, Operation Desert Shield was a success. However, if Iraqi forces had invaded Saudi Arabia, and U.S. planners were forced to seize key facilities, and the Saudi government could not provide assistance, then sustainment operations would have proved difficult.

The U.S. participated in Operations Desert Shield and Desert Storm in accordance with Army doctrine and national policy. The specific military intervention dictated a

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<sup>71</sup>The White House, *National Security Strategy 2011* (Washington, DC: The White House, 2011), 2.

<sup>72</sup>Author's Note: Field Manual 100-5 (1986) defined war as a high and mid intensity conflict characterized by non-linear operations



sustainment plan to support an anticipated theater of war. Sustainment at the theater level was successful during Desert Storm and supported the theater commander's intent and no operational maneuver limitations existed because of sustainment shortfalls. Military planners utilized the sustainment assets and force structure required to support a large ground offensive. Although, supported by a large private contractor contingent, sustainment operations during Desert Shield created the necessary support for successful military operations.

**Case Study Question 5: What types of Contractors did sustainment planners utilize to fill logistics shortfalls utilize?**

In September 1990, King Fahd promised the U.S. provisions for all food, fuel, water, accommodations, local transport, and all other facilities needed to sustain the war effort.<sup>73</sup> The Saudi contribution totaled \$14 billion at the cessation of hostilities.<sup>74</sup> Not only did the Saudi government provide needed assistance, Saudi and American contractors supported the war effort as well. Pagonis stated that over 70,000 contracts were executed during Desert Shield and Desert Storm.<sup>75</sup> The Saudi business community flourished during this period. Almost 600 Saudi companies secured U.S. contracts to support the war effort, of which 125 Saudi companies supplied food and mess services to coalition forces.<sup>76</sup> Five thousand two hundred contractors supported soldiers, a ratio of

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<sup>73</sup>Pagonis, *Moving Mountains*, 290.

<sup>74</sup>*Ibid.*, 293.

<sup>75</sup>*Ibid.*

<sup>76</sup>Khalid bin Sultan, *Desert Warrior*, 294.

about one hundred to one.<sup>77</sup> The services provided by these firms encompass transportation, warehousing, laundry service, mess hall, and maintenance.<sup>78</sup>

The ability of the U.S. military to generate combat power during this period is unquestioned. However, Saudi private contractors on a colossal scale fulfilled sustainment shortfalls. The primary types of private contractors utilized by sustainment planners during Operation Desert Shield were grouped in the sustainment and life support categories. The Saudi government provided the bulk of fuel and water for coalition forces during Operation Desert Shield. Privately owned Saudi transportation companies provided the assets to move fuel, water, and ammunition to forces positioned in Saudi desert. In addition, Saudi owned and procured Heavy Equipment Transporters which moved heavy armor into attack positions. Hundreds of privately owned companies sustained U.S. and Coalition forces with food provisions and mess facilities. Short of this assistance and the permissive environment of Saudi Arabia, U.S. planners would not have experienced success during this phase of the operation.

### Supply and Field Services

The Saudi government purchased more than 3,000 water tankers to carry drinking water from desalinization plants. Not only did the Saudi distill and transport water to

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<sup>77</sup>Ulrich Petersohn and Fritz Thyssen, "Outsourcing the Big Stick The Consequences of Using Private Military Companies" (Working Paper, Waterhead Center for International Affairs, Harvard University, Cambridge, MA, 2008), 2.

<sup>78</sup>Ibid., 7.

coalition forces, water was packaged in plastic bottles to facilitate easy distribution.<sup>79</sup> U.S. forces utilized six prepositioned fleets to draw resources for logistics and combat power during Desert Shield.<sup>80</sup> These fleets contained every imaginable item needed to sustain an army in a remote location.<sup>81</sup> The Saudi Kingdom was the primary supplier of fuel for the Coalition and U.S. forces. Considering the consumption rate of U.S. Armored Division's fuel at 600,000 to 800,000 gallons per day this support proved immeasurable to Coalition forces, and costly to the Saudi Government.<sup>82</sup>

### Aerial and Seaport Operations

The U.S. utilized the Dhahran airport to deploy troops and ship most military equipment to the Port of Daman. During the Desert Storm build-up, fifteen ships arrived daily carrying military vehicles and equipment. The Saudis hired 3,000 stevedores to offload 28,000 containers, 114,000 wheeled vehicles, 12,000 tracked vehicles, 1,500 helicopters, and 360,000 tons of ammunition to support U.S. troops.<sup>83</sup> The U.S. with Saudi assistance unloaded 600 shiploads of equipment and over 10,000 aircraft loads.<sup>84</sup>

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<sup>79</sup>Khalid bin Sultan, *Desert Warrior*. 301.

<sup>80</sup>Authors Note: Because of tenuous US relationships in the Middle East, the Pentagon established maritime prepositioned fleets at strategic locations around the world. These fleets contained the necessary equipment and logistics to sustain the rapid deployment of a combat unit.

<sup>81</sup>Pagonis, *Moving Mountains*, 70.

<sup>82</sup>Tom Clancy, *Into the Storm* (New York: Berkley Books, 1998), 300.

<sup>83</sup>*Ibid.*

<sup>84</sup>*Ibid.*, 301.

## Transportation

Twenty-two thousand Saudi vehicles and 4,000 drivers augmented U.S. transportation deficiencies. Tanks, armored personnel carriers, and other tracked vehicles were transported by 3,000 heavy equipment transport trucks contracted by the Saudi government.<sup>85</sup>

## Case Study Summary and Analysis

Hypothesis 1 states, when the duration of a military conflict increases, there is an increase in the use of private contractors. Advances in weapons technology and a reduction in sustainment assets and infrastructure in a fiscally constrained environment increases the need for contractor support in forced entry environments. As the level of military intervention increases, the number and types of private contractors increases. The actions of Pagonis and Khalid bin Sultan during Desert Storm presented significant amounts of evidence and data to support this hypothesis. Pagonis awarded numerous private contracts during Desert Shield to provide life support, critical transportation assets, and port operations. Khalid bin Sultan in his book, *Desert Warrior*, writes about the employment of the Saudi industrial base and private business to meet coalition logistics needs. The evidence from this case study suggests the hypothesis under review is supported.

Hypothesis 2 states, When the U.S. Army engages in a military intervention of significant duration it cannot sustain itself without private contractor support in the areas

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<sup>85</sup>Ibid.

of life support, basing, and services. The duration of the conflict in Operations Desert Shield, Storm, and Farewell lasted approximately 22 months. The short duration of Operation Desert Storm compared to the actual logistics build-up during Desert Shield does not seem justified at first glance. The sustainment imperatives described in Army Field Manual 100-10 (1988), called for generating massive combat power. Army sustainment planners determined consumption rates, and sustainment requirements through in-depth analysis utilizing Army Field Manual 100-10-1 and FM- 100-10-2 (1987). Arguably, sustainment planners overcame significant challenges to fulfill logistics shortcomings and sustained a military force over 500,000 personnel. However, in the areas of life support, basing, and services, Army planners lacked the doctrinal basis to plan, and base construction assets to support operations with a duration of 22 months. The evidence from this case study suggests the hypothesis under review is supported.

Hypothesis 3 states, When the U.S. Army engages in a military intervention, then its sustainment force structure, doctrine, and assets are insufficient to support extended combat operations. This study shows that the U.S. Army engages in a military intervention it deploys insufficient expeditionary sustainment capabilities to support forced entry operations in a non-permissive environment. As stated earlier, the CSS force structure totaled 26 percent and represented a large contingent of the total active Army force. However, the decision not to deploy the 377<sup>th</sup> TAACOM to perform its strategic wartime mission is indicative of this hypothesis. This command decision created an inherent dependence on private contractors. The unit's force structure, assets, and training may have avoided the initial difficulties in building combat power and reduced the reliance on private contracting to provide the strategic support required during Desert

Shield. The creation of the 22<sup>nd</sup> Support Command represented an ad hoc organization formed to create a command billet for Pagonis providing the positional authority for him to rectify the sustainment shortcomings exacerbated the decision not to deploy the 377<sup>th</sup> TAACOM.

The types of private contractors providing services to U.S. and Coalition forces during Desert Shield and Desert Storm directly corresponded to the Army's sustainment shortfalls during this operation. Thousands of U.S. troops and equipment flowed through Saudi Airports to units positioned in the Saudi desert. Although Pagonis and his team performed admirably, with the support of hundreds of private contractors, the U.S. Army sustainment system deployed to the Saudi desert would have had trouble in supporting efforts during Desert Shield without their reinforcement. The evidence from this case study suggests the hypothesis under review is not supported.

## **Case Study Two: Operation Iraqi Freedom 2003 thru 2004**

### **Introduction**

CSS during OIF was entirely different than Operations Desert Shield and Desert Storm. Velocity Management and the Just in Time Logistics corporate business concepts revolutionized Army sustainment after Desert Storm. A smaller Army and defense budget forced a reexamination of sustainment practices and produced a supply system focused on lean operations, customer focused practices, and an improved common operating picture of the Army supply line. Preparations for the invasion of Iraq in 2003 were the culmination of years of change and adaptation.

Although the sustainment build-up occurred in Kuwait to support OIF, the situation drew numerous similarities between the sustainment operations in 2003 to

Desert Shield. This case bears further study and is important because sustainment operations in OIF 2003 and the counter-insurgency operations in 2004 represent a dramatic change in Army Sustainment doctrine as well as the adaptation of corporate business principles to improve Army logistics. The outsourcing of sustainment functions grew dramatically during the interwar years as a result of a smaller Army and Defense Budget, yet despite the positive change in Army sustainment application, similar sustainment issues seen in Operations Desert Shield and Storm arose during the invasion and sustainment operations during a rising Iraqi insurgency in 2004.

### **Case Overview Winter 2002 thru 2004**

#### 1991 thru 2002: Lead up to Operation Iraqi Freedom

Preparations for OIF began after the first Gulf War ended. The realization that America's national security relies in large part to the stability of the Middle East ensured that U.S. policy in this region included adequate access to theater infrastructure.<sup>86</sup> Getting forces into Kuwait while applying the sustainment principles and corporate practices learned since the end of Operation Desert Storm produced both success and failure. Concepts such as Velocity Management and Just in Time Logistics briefed and executed well in a garrison environment, but produced mixed results during the invasion of Iraq.<sup>87</sup> The sustainment system of OIF and the counterinsurgency of 2004, promoted efficiency over effectiveness in combat. Many CSS units struggled to perform effective sustainment

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<sup>86</sup>Gregory Fontenot, E. J. Degen, and David Tohn, *On Point: The United States Army in Operation Iraqi Freedom* (Fort Leavenworth, KS: Combat Studies Institute Press, 2004), xxii.

<sup>87</sup>Ibid., xxvii.

due to dramatic changes in their force structure and capabilities during the interwar years.<sup>88</sup> U.S. Central Command (CENTCOM) assumed a defense of Saudi Arabia and Kuwait following Operation Desert Storm. Army planners assumed that both Kuwait and Saudi Arabia could be used to build combat power for a second invasion of Iraq. However, during initial Third Army preparations for war, key planners operated on the assumption that Saudi Arabia would not be used as a staging base.<sup>89</sup>

### Lead up to Operation Iraqi Freedom: Winter 2002

Combat Service and Support Army Reserve and National Guard units began to mobilize in the winter months of 2002. These soldiers provided additional labor to an overburdened sustainment system, and the bulk of Soldiers to conduct port operation, fuel disbursement, equipment repair, and sustainment in general.<sup>90</sup> Similar to Saudi Arabia's support to Coalition and U.S. forces during Operation Desert Shield, The Kuwaiti government provided critical sustainment support to the war effort. The U.S. Army made more than 130 requests for support to U.S. and Coalition forces, and the Kuwait Government supported them all.<sup>91</sup> Army sustainment planners planned for and built key camps in Northern Kuwait, executed sea debarkation at the Kuwaiti Naval Base and the *Port As Shuaybah*. The Kuwait government built fuel pipelines to move fuel to Northern Kuwait, and Camp *Arifjan* became the central supply base for the invasion of Iraq.

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<sup>88</sup>Ibid.

<sup>89</sup>Ibid., 31.

<sup>90</sup>Ibid., 72.

<sup>91</sup>Ibid., 32.



**Case Study Question One: What Army sustainment doctrine and theory were in place that influenced sustainment planning and execution during this military intervention?**

Doctrine

In order to understand sustainment operations in OIF it is imperative to begin with an examination of what Army sustainment doctrine and theory were in place that influenced sustainment planning and execution during this military intervention.

Moreover, did Army sustainment planners adhere to military doctrine and theory while conducting this operation? This question specifies doctrinal limitations or constraints that governed the planning and execution for military sustainment planners.

The changes in Army Doctrine in the twelve years since Desert Storm represent the mind set behind a capabilities based army. This capabilities based model focused more on how an enemy might fight, resulting in a tailored sustainment package. This model also recognized that it is not enough to plan for a large conventional war. Instead, the U.S. must identify the capabilities required to deter or defeat an enemy.<sup>92</sup> Moving to a capabilities based model forced Army sustainment planners to focus on emerging sustainment capabilities and corporate business practices to overcome an anti-access and area denial threat.<sup>93</sup> Likewise, Army Field Manual 100-10 (1995), supported a capabilities based sustainment infrastructure. The 1995 version of FM 100-10 recognized that the U.S. Army became a force projection military with CONUS based strategic

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<sup>92</sup>Department of Defense, *Quadrennial Defense Review* (Washington, DC: Government Printing Office, September 2001), IV.

<sup>93</sup>Ibid., 14.

logistics infrastructure. A force projection based Army required versatile sustainment planning and execution.

Continuity of support was critical to successful operations at every level of war. Planning for support continuity involved every level of war.<sup>94</sup> Responsive CSS systems met changing battlefield requirements on short notice. Support personnel were ready to tailor logistics support to changing situations, which required significant visibility of the supply line. Lastly, improvisation was required of sustainment planners to provide continuous and responsive support to the combatant commander. If established CSS systems did not provide the required support, sustainment planners were encouraged by doctrine to improvise to ensure the continuity of support.<sup>95</sup>

## Theory

With the implementation of the Velocity Management concept, the Army dramatically streamlined its supply chain cutting order ship times for repair parts by two-thirds nationwide, and up to 75 percent at several major Army installations.<sup>96</sup> The process oriented concept produced monumental savings in peacetime operations. However, Velocity Management produced significant risk to maneuver units during OIF because the concept is dependent upon networks to streamline the logistics data and provide the

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<sup>94</sup>Ibid., 1-4.

<sup>95</sup>Ibid., 1-5.

<sup>96</sup>Wang, *Accelerated Logistics*, xi.

visibility that a Velocity Management induced supply line requires.<sup>97</sup> Likewise, Just in Time Logistics, or Distribution based CSS, replaced bulk and redundancy with velocity and control. Just in Time Logistics promised the exact amount of a particular item to arrive at the exact location at the right time but could only deliver by a network centric approach.<sup>98</sup> Both concepts proved futile during the invasion when logistics data and requirements reverted to a manual technique.

A capability based Army Sustainment system characterized supply operations leading up to the invasion of Iraq. Sustainment planners arrived with tailored support plans and exercised the continuity and responsiveness described in FM 100-10 (1995). The integration with the Kuwaiti government, U.S. government agencies, and coalition partners were necessary considering the smaller U.S. force present for the invasion of Iraq. Improvisation and anticipation of sustainment shortcomings during the invasion and subsequent insurgency in 2004 tested the mettle of sustainment planners in all levels of war. The changing requirements presented by a complex battlefield saw the rise of commercial off the shelf items to meet pressing sustainment needs and build the continuity of the supply system. Although sustainment issues arose, such as a lack of in transit visibility, and the building of hundred of bases creating a disbursed supply distribution system, planners did adhere to sustainment doctrine. The insurgency in 2004 exacerbated by a distributed supply system described above caused sustainment planners to practice the improvisation and anticipation required to continue sustainment.

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<sup>97</sup>Walden, *Velocity Management in Logistics and Distribution*, 6.

<sup>98</sup>Wright and Reese, *On Point II Transition to the New Campaign*, 492.

## **Case Study Question Two: What sustainment force structure and assets did planners utilize to facilitate planning and execution during military intervention?**

The U.S. Army deployed a robust logistics force structure during OIF. In order to determine if these actions created a more responsive sustainment system, it is important to determine what sustainment force structure and assets planners use to conduct planning and execution. This question determines if adequate force structure and assets were in use.

### **Force Structure**

The CSS concept of support for OIF included the linkages between the combat formations at the tactical level, and theater support units at the operational level. At the strategic level, agencies such as Army Material Command provided the linkage between strategic level requirements and the national industrial base in the United States. Army Material Command personnel managed over 24,000 contractors and Logistics Civil Augmentation Program (LOGCAP) personnel. When OIF began, Kuwait served as the CSS base for most sustainment operations.<sup>99</sup> Third Army made the decision to deploy a full Theater Support Command (TSC) to provide strategic CSS support (see figure 3). The TSC's mission is to coordinate Army and national CSS assets to support a campaign. The U.S. Army Reserve 377<sup>th</sup> TSC coordinated overall CSS efforts for OIF. Following Operation Desert Shield, the Army developed the TSC concept based on lessons learned

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<sup>99</sup>Ibid., 494.

on the importance of strategic level coordination.<sup>100</sup> Prior to Army transformation in 2004, Corps Support Groups and Division Support Commands handled the sustainment requirements at the operational level. For example, the Third Corps Support Command supported the Third Infantry Division's main thrust into Baghdad.<sup>101</sup>

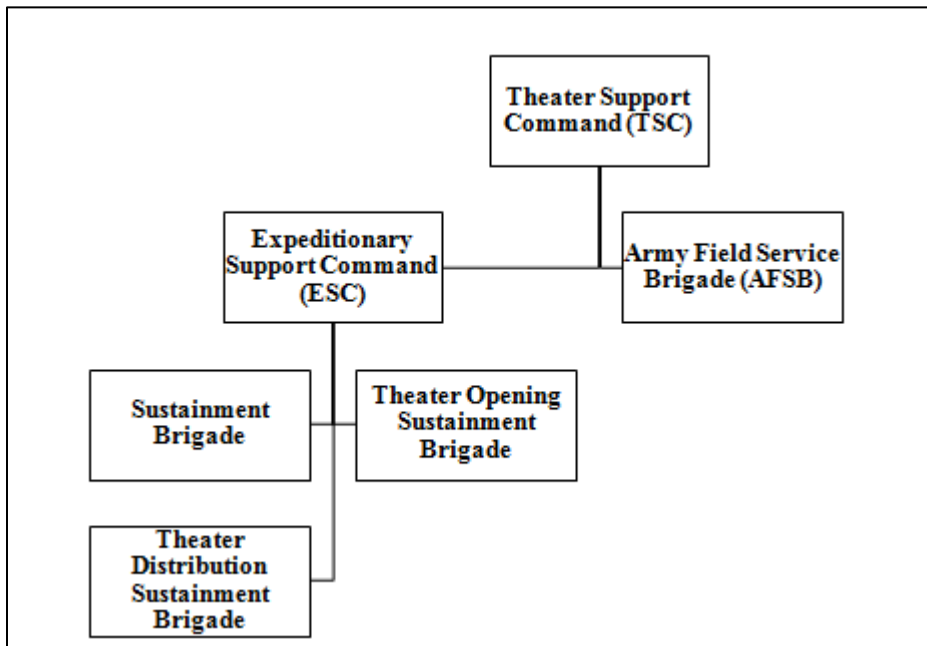


Figure 3. Theater Sustainment Force Structure After Army Transformation. *Source:* Source: Headquarters, Department of the Army, Field Manual (FM) 4-0, *Sustainment* (Washington, DC: Government Printing Office, April 2009), 2-3 thru 2-12.

The Army Transformation concept was in its infancy at the commencement of OIF. However by 2004 many units deploying to theater for OIF II were products of Army Transformation and conducted CSS differently than the legacy units of OIF. Sustainment Brigade linkages between theater and operational CSS units shortened to Brigade Support

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<sup>100</sup>Ibid.

<sup>101</sup>Ibid., 498.

Battalion providing sustainment for maneuver Brigade Combat Teams. Sustainment Brigades provided area support with a linkage to the strategic level or TSC, to fulfill requirements for maneuver units. Kuwait continued to serve as the theater logistics base during this time. By 2004, supply bases were in Baghdad and other locations in Iraq to shorten transportation lines of communication.

### Sustainment Assets

Prior to OIF, the Army implemented significant changes in the sustainment arena.<sup>102</sup> The Army made several key service enabling investments. The Army's Theater Support Vessels provided the operational commander lift assets that bypassed predictable entry points and obstacles. The ships' shallow draft capability freed it from reliance on deep-water ports.<sup>103</sup> Army prepositioned stocks were improved to lessen the dependence on strategic sustainment requirements.<sup>104</sup> The joint approach to sustainment improved as well with the Navy's investment in Fast Sealift ships, large and medium Roll-on Roll-Off ships, and improvements on the U.S. Air Force's C-17 Globe master III aircraft.<sup>105</sup>

Despite the improvements made to the Army supply system, significant sustainment challenges arose once the invasion began during OIF. A more robust sustainment force structure and the assets mentioned above provided excellent tools for sustainment planners during OIF and the insurgency of 2004. Moreover, a capabilities

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<sup>102</sup>Fontenot, Degen, and Tohn, *On Point*, 6.

<sup>103</sup>Ibid, 18.

<sup>104</sup>Ibid., 20.

<sup>105</sup>Ibid., 18-19.

based Army did result in a more tailored sustainment approach. However, uncertainty prevailed during the invasion and the sustainment operations during the insurgency of 2004. The Velocity Management and Just in Time Logistics concepts proved effective in peacetime but did not meet their purposes during combat operations.

### **Case Study Question Three: What was the duration of the conflict?**

#### Operation Iraqi Freedom: Logistics Build-up

In late 2002, CSS Units began mobilization for the deployment into theater to assist Third Army units in sustainment operations. Ongoing infrastructure improvements assisted the logistics build-up in preparation to combat unit deployments. In relation to the sustainment build-up in preparation for OIF, sustainment actions were similar to those in Operation Desert Storm. Although sustainment planners did not deal with an unprepared theater as in Desert Storm, CSS units planned and executed sustainment for a better part of six months prior to the OIF invasion.

#### The Air War

President Bush on March 17, 2003, issued Saddam Hussein a forty-eight hour ultimatum for him and his two sons to leave Iraq or face military action.<sup>106</sup> After the deadline ended with Saddam Hussein still in power. U.S. and Coalition air strikes began with a precision bombing run on Baghdad.<sup>107</sup> The air campaign during the invasion of Iraq lasted twenty-one days. On March 21, 2003, U.S. and Coalition Air Forces launched

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<sup>106</sup>Martin Walker, *The Iraq War* (Dulles, VA: Brassy's Inc., 2004), 23.

<sup>107</sup>*Ibid.*

an all-out air attack on Baghdad dropping some 3,000 missiles and precision bombs.<sup>108</sup> The Iraqi Air Force did not strike back at Coalition Air Forces in Kuwait. The passivity of the Iraqi Air Force is difficult to explain considering the size of the Iraqi Air Force at the beginning of this military intervention. Although there are no reliable estimates of Iraq's exact air strength, Saddam Hussein did have up to 325 aircraft and an air force of 20,000 men. Its operational readiness rates were poor and its training in air-to-air and air-to-ground training was minimal.<sup>109</sup>

The U.S. air component alone boasted over 706 fighter and bomber planes with a total of 1,643 aircraft involved in the invasion of Iraq.<sup>110</sup> Total numbers in comparison to the Iraqi Air Force are irrelevant due to the sustainability of the U.S. Air Force in theater. Coalition air sorties against the Iraq Air Force totaled over 41,000. The United States alone generated over 38,000 sorties, or more than 93 percent of the total amount.<sup>111</sup>

## The Ground War

Although preliminary ground operations occurred on March 19, 2003, the main ground offensive began on March 20, 2003, twenty minutes after the U.S. ultimatum demanding that Hussein leave Iraq expired.<sup>112</sup> Coalition Special Forces units secured

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<sup>108</sup>Ibid., 32

<sup>109</sup>Anthony H. Cordesman, *The Iraq War: Strategy, Tactics, and Military Lesson* (Washington, DC: The Center for Strategic and International Studies, 2003), 22.

<sup>110</sup>Ibid., 24.

<sup>111</sup>Ibid., 25.

<sup>112</sup>Ibid., 61.



Iraq's oil fields and export capabilities with minimum damages. British forces secured Umm Qasr within forty-eight hours.<sup>113</sup> Consecutively, U.S. Army and Marine Corps units advanced deep into southern Iraq with little opposition from Iraqi forces and *fedayeen*. Within four days, U.S. Army forces were positioned outside of An Najaf with the U.S. Marine Corps in position to continue moving north.<sup>114</sup> On April 8, 2003, the enemy resistance in Baghdad melted away under intense U.S. tactics. U.S. forces captured Baghdad virtually intact with working utilities and infrastructure.

### The Insurgency

Not only did U.S. and Coalition ground forces face a conventional enemy in Iraqi Forces, the birth of an insurgency caused significant tension in military planning. A third category of Iraqi armed force, besides the Republican Guard and the regular army, were irregular forces known as the *fedayeen*, named after the Islamic fighters who opposed the Soviet Army in Afghanistan.<sup>115</sup> During the critical battle of Nasiriyah, Iraq *fedayeen* fighters forced U.S. forces into an extensive battle to take the city and clear out the Iraqi resistance. Initial planning called for bypassing the city and capturing key bridges for follow-on forces moving north to Baghdad.<sup>116</sup> During the winter of 2003-04 *fedayeen* attacks persisted and laid the foundation for a strong insurgency in Iraq. Baghdad and the

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<sup>113</sup>Ibid., 62.

<sup>114</sup>Ibid.

<sup>115</sup>John Keegan, *The Iraq War* (New York: Vintage Books Press, 2004), 129.

<sup>116</sup>Ibid., 149-150.

Sunni Triangle in Western Iraq lapsed into chaos. There were daily attacks on supply convoys along most Main Supply Routes.<sup>117</sup>

It is difficult to determine an exact timeframe that sustainment operations began in support of Operation Iraqi Freedom because of the prior decade of State Department and political coordination to improve access and secure Line of Communication into theater. However, the deployment to theater of Army Reserve support units began in the fall of 2002 and supported Pagonis' initial efforts during Desert Shield. The decade long effort in the Middle East Region on behalf of the U.S. State Department and CENTCOM planners to ensure the establishment of Lines of Communication set the conditions for a quick logistics build-up in Kuwait.

#### **Case Study Question Four: What type of military intervention did the U.S. engage in during Operations Desert Shield and Desert Storm?**

In 1959, Rear Admiral Henry Eccles wrote about the necessity to view logistics planning thru a capabilities construct. Military planners decide what capabilities to deploy, and logistics planning must match requirements to sustain military capabilities.<sup>118</sup> Joint Publication 3-0, *Operations* (2011), describes the strategic environment characterized by uncertainty, complexity, and rapid change, which requires persistent engagement.<sup>119</sup> Likewise, the Army defines the operational environment as a composite of the conditions, circumstances, and influences that affect the employment of

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<sup>117</sup>Ibid., 220.

<sup>118</sup>Henry E. Eccles, *Logistics in the National Defense* (Westport, CT: Greenwood Press, 1959), 67.

<sup>119</sup>Joint Chiefs of Staff, Joint Publication (JP) 3-0, *Operations* (Washington, DC: Government Printing Office, 2011), ix.

capabilities and bear on the decisions of the commander.<sup>120</sup> Army leaders must maintain the capability to project and sustain forces in their operational environment. Leaders must also maintain the capability to secure multiple entry points into an area of operations and the lines of communication that connect those points.<sup>121</sup> Utilizing today's doctrine to define the operational environment is important to determine what type of military intervention was OIF and to determine the sustainment force structure and assets required to support the defined military intervention.

The invasion of Iraq in March of 2003 represents the tenets of Air Land Battle Doctrine. During the invasion the Air Land Battle Doctrinal tenet of initiative, agility, depth, and synchronization produced a stunning victory over the Iraqi Army.<sup>122</sup> What makes OIF unique is the hybrid nature of war, the blending of Air Land Battle tenets with a low intensity conflict such as the Iraqi insurgency of 2004. Military operations of a conventional nature during the invasion fluidly changed to a counterinsurgency without a defined transition from one to the other type of conflict. As a result, sustainment operations changed from a traditional support concept to a distributed battlefield with hundreds of bases inside Iraq. The difficulty involved in sustaining this type of distributed operations exponentially became more difficult.

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<sup>120</sup>Headquarters, Department of the Army, ADP 3-0, *Unified Land Operations* (Washington, DC: Government Printing Office, October 2011), 2.

<sup>121</sup>Ibid.

<sup>122</sup>Headquarters, Department of the Army, FM 100-5, *Operations*, 15.

U.S. Military doctrine described insurgencies with a singular goal of overthrowing an existing government.<sup>123</sup> The multiple insurgent organizations making their public entrance on to the stage in Iraq did not fit well into U.S. Army sustainment doctrine and the understanding of sustainment requirements during these types of operations. As the Iraqi insurgency movement grew, the diversified nature of their organizations forced a reevaluation of U.S. Army counterinsurgency and sustainment doctrine. Insurgent tactics included the use of Improvised Explosive Devices and Vehicle Borne Improvised Explosive Devices against coalition forces and more importantly against CSS supply convoys rolling through Iraq.<sup>124</sup> Insurgent activity during this period dramatically affected sustainment practices. For example, during the transition of authority to forces arriving for OIF II a Shia uprising began in Southern Iraq and hundreds of supply convoys were attacked, effectively shutting down all main supply routes into Iraq.<sup>125</sup>

Following Operation Desert Storm, the Army instituted numerous doctrinal changes. Army doctrine now emphasized the need to sustain early or forced entry capabilities with a U.S. based Army. However, OIF was not the classical forced entry operation. This critical task still maintains a place in Army doctrine despite the fact that few of such missions were conducted since World War II. Although military leaders planned for several forced entry operations during OIF, U.S. and Coalition forces did not

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<sup>123</sup>Wright and Reese, *On Point II Transition to the New Campaign*, 99.

<sup>124</sup>Ibid., 111.

<sup>125</sup>Ibid., 506.

execute this type of mission. The infrastructure revitalization of the decade prior to OIF, and the support of the Kuwait government provided a somewhat safe environment in which to conduct a sustainment build-up similar to Operation Desert Storm,

**Case Study Question Five: What types of Contractors did sustainment planners utilize to fill logistics shortfalls utilize?**

The Army used private contractors extensively during OIF. The outsourcing of Army sustainment functions after Desert Storm led to a dramatic rise of private contractors. The authors of *On Point II* make the claim that without private contractors the Army could not have conducted OIF without severe difficulties.<sup>126</sup> Therefore, what level of private contractor's sustainment planners were utilized to fulfill logistics shortfalls in OIF garners further examination. This question attempts to determine what types of private contractors were utilized to fulfill sustainment shortfalls and to determine the amount of DOD procurement spent on contractors.

The Government Accountability Office estimated that the cost of contractor services exceeded \$4.5 billion for FY 2000 through 2005.<sup>127</sup> The Commission on Wartime Contracting pointed out that since 2001, Congress appropriated about \$830 billion to fund U.S. operations in Iraq and Afghanistan.<sup>128</sup> The U.S. military's reliance on private contractors grew to unprecedented proportions during these two military

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<sup>126</sup>Ibid., 584.

<sup>127</sup>Paul M. Burnham, "Increasing Combat Support and Combat Service Support Units in the US Military" (Strategic Research Project, U.S. Army War College, Carlisle Barracks, PA, March 2005), 4.

<sup>128</sup>Commission on Wartime Contracting in Iraq and Afghanistan, *At What Cost: Contingency Contracting in Iraq and Afghanistan* (Interim Report, June 2009), <http://www.wartimecontracting.gov/index.php/reports> (accessed March 17, 2012), 1.

interventions. The troop reductions of the 1990s, budget constraints, and the outsourcing of Army sustainment functions contributed to the Army's enormous reliance on private contractors. With the improvements in weapon systems since Operation Desert Shield and a continued growth in science and technology of war increased the reliance on private contractors to provide the core sustainment functions no longer present within CSS units. OIF and the complexity that a rising insurgency thrust upon sustainment planners only increased the level of private military contractors to meet fast changing requirements.

### Supply and Field Services, Aerial and Seaport Operation, Transportation

The Army's LOGCAP III supplied most basic life support functions such as troop billeting, shower and laundry services, potable water production, sanitation operations, fuel transportation, and troop transport during OIF.<sup>129</sup> In addition, LOGCAP III provided Morale, Welfare, and Recreation opportunities to deployed soldiers. In 2001, the Army awarded Kellogg Brown and Root, the LOGCAP III contract making them the single provider for Army forces. The Commission on Wartime Contracting estimates that services provided under LOGCAP III cost \$31.4 billion through 2009.<sup>130</sup>

### Case Study Summary and Analysis

Hypothesis 1 states, When the U.S. Army engages in a military intervention of any duration then the numbers and types of private contractors rises exponentially. When

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<sup>129</sup>Ibid., 39.

<sup>130</sup>Ibid., 45.

considering the complexity of modern weaponry, tactics, and warfare, the fact that private contractors play an integral role is undeniable. The funding for the types of private contracting during OIF is indicative of a sustainment force structure and asset shortcoming. The troop reductions following Operation Desert Storm, budget reductions, and the outsourcing of sustainment functions contribute to the hypothesis that a military intervention of significant duration such as twenty-four months during OIF, requires the assistance of private contractors to succeed. Military planners conducted a similar mission in OIF that was conducted in Operation Desert Storm. The numbers of private contractors required during this mission rose dramatically when compared with contracting in Operation Desert Shield. Therefore, the evidence presented in this case suggests the hypothesis under review is supported.

Hypothesis 2 states, When the U.S. Army engages in a military intervention of significant duration then it cannot sustain itself without private contractor support in the areas of life support, basing, and services. The Army's LOGCAP III program provided sustainment support. Basic life support functions such as billeting, shower and laundry services, potable water production, and fuel and troop transport represent the Army's focus on combat operations and tools required to succeed in this area, and not the sustainment support of its forces. Likewise, the evidence suggests the hypothesis under review is supported.

Hypothesis 3 states, When the U.S. Army engages in a military intervention then its sustainment force structure, doctrine, and assets are insufficient to support extended combat operations. Although significant changes in sustainment force structure produced a robust logistics foot print during OIF in 2003, the Army doctrine and assets utilized on

the battlefield did not rectify the sustainment challenges in strategic transportation, theater distribution, and basic life support. This issue suggests that the deployment of insufficient sustainment assets to OIF produced an over reliance on private contracting

Military operations during OIF represented a decade of change in the Army's approach to sustaining its forces. Policy makers strengthened ties with Middle East partners to maintain fragile alliances and lines of communication in preparation for future war. However, Sadaam Hussein's government remained in place and continued to instigate instability in the region. The Army conducted a comprehensive review of its sustainment policies and doctrine creating the streamlined and efficient supply system in place during OIF. Despite the changes in doctrine and the application of corporate business practices to improve Army sustainment, the logistics shortcomings experienced during the invasion and subsequent insurgency would test the validity of these changes. Army logisticians rose to the occasion and filled the gap by exercising the CSS characteristics discussed in question one. The smaller army that took the battlefield during OIF required a streamlined supply chain. Changes implemented during the 1990s proved successful for a peacetime army but did not produce the necessary results to reduce an over reliance on private contracting. The evidence suggests that the hypothesis under review is not supported.

## **Case Study Findings and Analysis**

### **Introduction**

The Case Study Findings and Analysis section is composed of two parts. The first part summarizes and highlights the findings from each research questions applied to both case studies. The second part provides a comparison and contrast of the findings data



weighed against the stated hypothesis of this paper. At the end of this section, all findings and analysis are condensed into tables for review.

## **Findings**

### **Case Study Question One: What Army sustainment doctrine and theory were in place that influenced sustainment planning and execution during this military intervention?**

In Operations Desert Shield, Desert Storm, and OIF (2003), planners utilized all applicable sustainment doctrine. During the planning for Operations Desert Shield and Storm, Field Manual 100-10, *Combat Service and Support* (1988), the capstone logistics doctrine at the time, drove planning and execution. In addition, Army Field Manual 100-10-1 (1987) and Army Field Manual 100-10-2, *Staff Officers Organizational, Technical, and Logistics Data* (1987) provided sustainment planners detailed data on consumption rates, vehicle technical data, and other CSS Systems. Although Army Field Manual 100-10 (1995) provided Army Sustainment planners with a doctrinal platform from which to plan sustainment and logistics during OIF (2003), Army Field Manual 4-0, *Sustainment* (2003) also influenced sustainment planning during OIF (2003). During Operation Desert Shield, minimum regulations existed to manage private contractors on the modern battlefield. However, during the inter war years and OIF; contractors became an integral part of the battlefield for a number of factors. Army Field Manual 3-100.21, *Contractors on the Battlefield* (2003), attempted to build structure around managing a growing number of private contractors required for life support and many other logistics functions. Joint Publication 4-0, *Sustainment*, underpinned the sustainment actions taken at the strategic level.

**Case Study Question 2: What sustainment force structure and assets did planners utilize to facilitate planning and execution during military intervention?**

Pagonis clearly points out in his book, *Moving Mountains*, that no logistics infrastructure existed upon his arrival in Saudi Arabia. To alleviate the lack of theater infrastructure, Pagonis established the 22nd Support Command (Provisional) to serve as the theater level logistics chain of command and execute the 377th (TAACOM) mission during Desert Shield. Area Support Groups and Corps Support Groups filled the operational level of war logistics support for the Eighteenth and Seventh Corps. The Seventh Transportation Group met strategic transportation requirements while at the tactical level Division Support Command managed tactical logistics requirement.

OIF (2003) represented a leaner yet more efficient in principle sustainment and logistics infrastructure. The 377th Theater Support Command now performed its wartime mission in conducting theater level logistics support. A theater level transportation command managed strategic transportation requirements. Three Area Support Groups provided sustainment and logistics to units in their sectors. Four Corps Support groups supported one Corps Headquarters and three Divisional Headquarters. As in Operation Desert Storm, four Division Support Commands provided tactical level logistics support. Army Transformation changed logistics dramatically in 2004. Brigade Combat Teams became the classic maneuver unit. Area Support Groups and Corps Support Groups disappeared replaced by Expeditionary Support Command at the operational level of war, and divisional support brigades that provided area support to divisions in their assigned areas of responsibilities.

### **Case Study Question Three: What was the duration of the conflict?**

Operations Desert Shield, Desert Storm, and Desert Farewell lasted approximately twenty-four months. Operation Desert Shield began in August 1990 and ended on January 1991. Operation Desert Storm began on February 24, 1991, and ended on February 28, 1991, with a ceasefire. Following Operation Desert Storm, Operation Desert Farewell began immediately on February 1991 to redeploy troops and equipment to their home station locations. Operation Desert Farewell ended on July 1992. Logistics preparation to support OIF began in late 2002 with reserve units deploying into theater. The Air War began on March 17, 2003, and lasted twenty-one days. The Ground War began on March 19, 2003, and lasted approximately one hundred days.

### **Case Study Question Four: What was the type of Military Intervention**

Operations Desert Shield, Desert Storm, and OIF (2003) represented the tenets of Air Land Battle Doctrine. The focus of Air Land Battle Doctrine was conventional war. Air Land Battle emphasized close coordination between Army and Air Force to produce an integrated attack plan that would use land forces in an attack while air power prevented enemy reserves from reaching front lines. Both operations were conducted along these principles and training prior to the conflicts. The military interventions discussed in this paper represent conventional offensive and defensive operations from secure bases. The rise of the Iraqi Insurgency in 2004 changed military operations and resulted in new doctrine to deal with this threat. Army Sustainment adapted to this new threat and consolidated logistics in large bases across Iraq to minimize road travel requirements to sustain maneuver units.

**Case Study Question Five: What types of Private Contractors were utilized by sustainment planners to fill logistics shortfalls?**

The use of private military contractors began in earnest during Operations Desert Shield and Desert Storm. During OIF, the use of private contractors was at an all time high to support military operations. Private contractors covered a range of life support, intra-theater transportation requirements, the provision of food and water, port operations, and airfield operations for deploying and redeploying troops after the completion of the conflict. In addition to these areas, the transportation of bulk fuel to Forward Operating Base and critical infrastructure security requirements was largely dependent on private military contractors.

Table 1. Case Study Findings

Question		Operation Desert Shield/Storm	Operation Iraqi Freedom 2003
Question 1	What Army sustainment doctrine and theory were in place that influenced sustainment planning and execution during this military intervention	FM 100-10, Combat Service Support (1990) FM 100-10-1 FM 100-10-2, Staff Officers Organizational, Technical, and Logistical Data (1987)	FM 100-10, Combat Service Support (1995) FM 4-0, Sustainment JP 4-0, Sustainment FM 3-100.21, Contractors on the Battlefield
Question 2	What sustainment force structure and assets did planners utilize to facilitate planning and execution during military intervention	22 <sup>nd</sup> SUPCOM ASG x 1 CSG x 1 7th Trans Grp DISCOM x 4	Theater SPT CMD x1 TRANSCOM x 1 Area SPT Grp x 3 Corps SPT GRP x 4 DISCOM x 4
Question 3	What was the duration of the conflict	Operation Desert Shield –Six Month (Aug 90-Jan 91) Operation Desert Storm (24 Feb 91-28 Feb 91) Operation Desert Farewell (Feb 91 to Jul 92) Total 22 months 4	Theater wide preparations after DS/DS USAR Reserve CSS (Sep 2002-Mar 2003) Operation OIF (Mar 2003-May 2003-

		Days	Official Combat Phase)
Question 4	What was the type of military intervention	Defense/Offense/ Stability Operations	Air Land Battle Doctrine- MCO
Question 5	What types of Private Military Contractors were utilized by sustainment planners to fill logistics shortfalls	Life Support Transportation Food/Water Port Ops Airfield Ops	Life Support Transportation Food/Water Fuel Port Ops Airfield Ops Security

### Analysis

Hypothesis 1 states, when the duration of a military conflict increases there is an increase in the use of private contractors. Operation Desert Storm lasted approximately 100 hours. This short offensive operation measured against the six-month duration of Operation Desert Shield, and the twenty-two months of redeployment activities during Operation Desert Farewell, cannot justify the involvement of private contractors to the extent described by Pagonis. This level of involvement is indicative of the U.S. Army's inability to sustain itself over a long period.

OIF and Desert Storm were classic major combat operations against a conventional enemy with conventional weapons and tactics on the battlefield. As stated earlier in this paper, Iraq's Army was battle tested and one of the largest in the world. U.S. and Coalition forces engaged the Iraqi military with deep operations and coordinated attacks with Air Force elements. Considering the types of contractors used during both military interventions, one can surmise that insufficient assets exist to support logistics and sustainment at the strategic level of war. The U.S. Army did not rectify any sustainment shortcomings during the interwar years. Based on the type of private contractor used in both military interventions one can assume that an imbalance of

equipment exists between maneuver and support forces necessitating the need for private contractors. Private contractors have followed U.S. military forces since the days of George Washington. Alarming, as the technology and sophistication of war grows the need for private contractors increases as evidenced during OIF. The evidence of this hypothesis supports the thesis of this paper.

Hypothesis 2 states, When the U.S. Army engages in a military intervention of significant duration then it cannot sustain itself without private contractor support in the areas of life support, basing, and services. Initially, as Pagonis pointed out, the logistics infrastructure, command, and control did not exist during the initial stages of Operation Desert Shield. Pagonis quickly rectified this situation and created infrastructure and command elements to begin the logistics build-up to support Desert Shield. OIF witnessed a more robust command and control structure to meet the challenges of the invasion. Technology to support innovation in Army Sustainment grew immensely in the interwar period. Sustainment during OIF met the logistics requirement in most cases but lacked sufficient assets in strategic transportation and life support. Innovations such as water purification technology, fuel delivery systems, and transportation closed the gap on private contractor requirements at the tactical level. Conceivably, there are sufficient tactical sustainment assets to conduct a forced entry operation. However, at the strategic level the Army may lack sufficient assets and capability to sustain a forced entry operation. Therefore, the evidence for this hypothesis supports the thesis of this paper.

Hypothesis 3 states, When the U.S. Army engages in a military intervention then its sustainment force structure, doctrine, and assets are insufficient to support extended combat operations. Both military interventions began with sufficient Army Sustainment

doctrine and sustainment assets to arm planners with the necessary tools to conduct planning. Operations Desert Shield, Desert Storm, and Desert Farewell made use of Army Field Manual 100-10, *Combat Service and Support* (1988), to execute their planning in a very austere environment. Army Field Manual 100-10, *Staff Officers Organizational, Technical, and Logistical Data* (1987) provided extensive detail on consumption rates and logistics planning factors. Planners in OIF shared an extensive doctrinal basis to conduct their sustainment planning. Joint Publication 4-0, *Sustainment*, and Army Field Manual 4-0, *Sustainment*, represented a new Army Sustainment system based on corporate business theories and a renewed focus on efficiency. However, considering the extensive logistics requirements in Desert Storm, OIF, and the Iraqi Insurgency of 2004, this case study question produced mixed results in support of the thesis of this paper. Joint and Army Doctrine support the principles of Army Sustainment but do not go in-depth on the utilization of sustainment during forced entry operations. Therefore, the evidence for this hypothesis does not support the thesis of this paper.

Table 2. Case Study Analysis

Hypothesis		Was thesis supported by case study questions Operation Desert Shield/Storm	Was thesis supported by case study questions Operation Iraqi Freedom 2003	Thesis – Was thesis supported by case study questions
Hypothesis 1	When the duration of a military conflict increases there is an increase in the use of private contractors	Supported	Supported	Supported
Hypothesis 2	When the U.S. Army engages in a military intervention of significant duration then it cannot sustain itself without	Supported	Supported	Supported

	private contractor support in the areas of life support, basing, and services.			
Hypothesis 3	When the U.S. Army engages in a military intervention then its sustainment force structure, doctrine, and assets are insufficient to support extended combat operations.	Not Supported	Not Supported	Not supported

**Summary**

Overall, the research questions posed during the examination of the case studies in this paper produced mixed results in support of the proposed thesis. U.S. Army Sustainment planners cannot sustain military operations over a lengthy duration of time without considerable private contractor assistance due to issues in sustainment force structure and the availability of logistics assets. Military history is replete with examples of private contracting in support of military operations. War is inevitable, and the complexity of future war will necessitate the continued use of private contracting. However, improving the ability of the Army to sustain itself during a military intervention of any duration will reduce the cost of war in financial terms.

**Conclusion**

**Findings**

This study answered the thesis with overall mixed results. (1) Case study question one concerning the U.S. Army Sustainment doctrine in use during the military intervention produced mixed results. (2) Case study question two relating to sustainment force structure and assets in use produced mixed results. (3) The duration of the conflict



directly correlates the private contractor requirement to sustain operations. This case study question produced mixed results. (4) Both military interventions were major combat operations and not forced entry operations. The type of military intervention does not negate the sustainment requirement. Therefore, this case study question produced no result in evaluating the validity of the proposed thesis of this paper. (5) The types of private contractors used during both military interventions supported the proposed thesis of this paper. The types of private contractors represent the shortcomings in Army sustainment.

### **Methodology Issues**

The methodology of this paper produced several limitations that will present problems to be considered in future study of this issue. (1) Only two case studies were examined. Additional case studies such as U.S. military operations in Bosnia and Somalia could have provided additional succinctness for this study. (2) The conclusions reached in this study remain contextual due to classification issues of pertinent data. (3) Military planners should dismiss the rise and cost of private contractors in relation to Army Sustainment shortcomings.

### **Policy Implications**

Military planners and national policy makers cannot reject the implications of utilizing private contractors to fulfill sustainment shortcomings. Likewise, the transition of sustainment assets and capabilities to the U.S. Army Reserves and National Guard cannot become the solution during projected downsizing and budget reductions. The inability to sustain military operations can become dangerous when considering conducting a forced entry or area denial operations. Military planners cannot discount

China's growing influence in the Pacific Region. However, the land locked countries of the Pacific region present a formidable challenge in an environment where U.S. military focus is on Naval and Air Force assets. An expeditionary Army can combat such a threat, yet without the military sustainment capabilities at every level of war, winning becomes harder to achieve.

In the current U.S. fiscal crisis and projected Department of Defense budget cuts, how do Army Planners improve sustainment capabilities to support forced entry operations in the first ninety days with minimal Primary Military Contract support?

(1) Operational planner must examine current sustainment force structures to determine shortfalls. (2) Operational planners must avoid the tendency to move sustainment capabilities assets to the Army Reserves to create space in a smaller Army to maintain offensive capabilities. (3) Planners must create balance between Army sustainment capabilities and Primary Military Contractor support. Lastly, Operational Planners must consider the application of new Sustainment theories that begin where Velocity Management and Just in Time Logistics end. The development of theories to support an efficient sustainment system during combat operations are critical and must close the gap between corporate business theories that work in a peacetime environment, and continued sustainment in the ambiguity of combat.

### **Future Research**

The military operations in Bosnia and Somalia merit further examination and study. Declassified information can make available additional information to delve into the private contracting issue, and the continued reduction in active Army sustainment

capabilities. To assemble additional data on the cost of private contracting, further study on the implications of private contracting on the success of military operation is in order.

## Bibliography

### Books

- Brinkenhoff, John R., Ted Silva, and John A. Seitz. *The Case of the Unit that was not Called: The 377th Theater Army Area Command*. Arlington, VA: ANDRULIS Research Corporation, 1991.
- Clancy, Tom. *Into the Storm*. New York: Berkley Books, 1998.
- Cordesman, Anthony H. *The Iraq War: Strategy, Tactics, and Military Lesson*. Washington, DC: The Center for Strategic and International Studies, 2003.
- Eccles, Henry E. *Logistics in the National Defense*. Westport, CT: Greenwood Press, 1959.
- Fontenot, Gregory, E. J. Degen, and David Tohn. *On Point: The United States Army in Operation Iraqi Freedom*. Fort Leavenworth, KS: Combat Studies Institute Press, 2004.
- George, Alexander L., and Andrew Bennett. *Case Studies and Theory Development in the Social Sciences*. Cambridge, MA: MIT Press, 2004.
- Hillstrom, Laurie Collier. *War in the Persian Gulf Almanac*. Detroit, MI: Thompson and Gale, 2004.
- Keegan, John. *The Iraq War*. New York: Vintage Books Press, 2004.
- Khalid bin Sultan. *Desert Warrior*. New York: Harper Collins Publisher, 1995.
- Mazarr, Michael J., Don M. Snider, and James A. Blackwell. *Desert Storm: The Gulf War and What We Learned*. Boulder, CO: Westview Press, 1993.
- McGrath, John J. The Long War Series Occasional Paper 23, *The Other End of the Spear: The Tooth to Tail Ratio in Modern Military Operations*. Fort Leavenworth, KS: Combat Studies Institute Press, 2007.
- Pagonis, William G. *Moving Mountains: Lessons in Leadership and Logistics from the Gulf War*. Boston, MA: Harvard Business School Press, 1992.
- Schubert, Frank N., and Theresa L. Kraus. *The Whirlwind War*. Washington, DC: Center for Military History, 1995.
- Walden, Joseph L. *Velocity Management in Logistics and Distribution*. New York: Taylor and Francis, 2001.
- Walker, Martin. *The Iraq War*. Dulles VA: Brassy's Inc., 2004.

Wang, Mark D. *Accelerated Logistics: Streamlining the Army's Supply Chain*. Arlington, VA: RAND Publishing, 2005.

Woods, Kevin M. *The Mother of all Battles*. Annapolis MD: Naval Institute Press, 2008.

Wright, Donald P., and Timothy R. Reese. *On Point II, Transition to the New Campaign*. Fort Leavenworth, KS: Combat Studies Institute Press, 2005.

#### Periodicals

Anderson, David A., and Dale L. Farrand. "An Army Revolution in Military Logistics?" *Army Logistician* 39, no. 4 (July-August 2007): 19-23.

Bacon, Lance M. "Army to Lose another 5 BCTs," *Army Times*, March 5, 2012.

Myers, Laurel K., Ph.D. "Eliminating the Iron Mountain." *Army Logistician Magazine* 36, no 4 (July-August 2004).  
[http://www.almc.army.mil/alog/issues/JulAug04/C\\_iron.html](http://www.almc.army.mil/alog/issues/JulAug04/C_iron.html) (accessed October 7, 2011): 40-43.

Salomon, Leon E., and Harold Bankier. "Total Army CSS: Providing the Means for Victory." *Military Review* 71, no. 4 (April 1991): 3-8.

#### Theses, Dissertations, Studies, Journals

Burnham, Paul M. "Increasing Combat Support and Combat Service Support Units in the US Military." Strategic Research Project, U.S. Army War College, Carlisle Barracks, PA, March 2005.

Gustafson, Greg R. "Logistics Management Systems in Desert Shield and Desert Storm: How Well Did They Do." Strategic Research Project, U.S. Army War College, Carlisle Barracks, PA, 1992.

Ladd, Paul L. "Focused Logistics and the Sustainment of Deployed Forces." Monograph, Naval War College, Newport, RI, 1998.

Noon, Scott. "Evaluating CSS Transformation for the Contemporary Operating Environment." Monograph, School of Advanced Military Studies, Fort Leavenworth, KS, 2006.

Peltz, Eric. "Toward an Expeditionary Army: New Options for Combatant Commanders." Testimony, presented to the House Armed Service Committee, RAND Corporation, Arlington, VA, 2004.

Peltz, Eric, John M. Halliday, Marc L. Robbins, and Kenneth J. Girardini. "Sustainment of Army: Forces in Operation Iraqi Freedom Battlefield Logistics and Effects on Operations." Research Project, RAND Corporation, Arlington, VA, 2005.

Peltz, Eric, Marc L. Robbins, Kenneth J. Girardini, Rick Eden, John M. Halliday, and Jeffrey Angers. "Sustainment of Army Forces in Operation Iraqi Freedom." Research Project, RAND Corporation, Arlington, VA, 2005.

Petersohn, Ulrich, and Fritz Thyssen. "Outsourcing the Big Stick the Consequences of Using Private Military Companies." Working Paper, Waterhead Center for International Affairs, Harvard University, Cambridge, MA, 2008.

#### White House Reports

Department of Defense. "Sustaining, U.S. Global Leadership: Priorities for 21st Century Defense," January 5, 2012. <http://fulltextreports.com/2012/01/05/sustaining-u-s-global-leadership-priorities-for-21st-century-defense/> (accessed March 17, 2012).

The White House. *National Security Strategy 2011*. Washington, DC: The White House, 2011.

#### Government Reports

Commission on Wartime Contracting in Iraq and Afghanistan. *At What Cost: Contingency Contracting in Iraq and Afghanistan*. Interim Report, June 2009. <http://www.wartimecontracting.gov/index.php/reports> (accessed March 17, 2012).

Department of Defense. Office of Force Transformation. *Operational Sense and Respond: Coevolution of an Adaptive Enterprise Logistics*. Washington, DC: Government Printing Office, May 6, 2004.

U.S. General Accounting Office. NSIAD 93-39, *Military Afloat Prepositioning: Wartime Use and Issues for the Future*, November 1992. <http://www.gao.gov/products/NSIAD-93-39> (accessed March 17, 2012).

———. GAO-04-305R, *Defense Logistics: Preliminary Observations on the Effectiveness of Logistics Activities during Operation Iraqi Freedom*, December 2003. [www.gao.gov/assets/100/92396.pdf](http://www.gao.gov/assets/100/92396.pdf) (accessed March 17, 2012).

———. GAO-04-954, *Military Operations: DOD's Extensive Use of Logistics Support Contracts Requires Strengthened Oversight*, July 2004. <http://www.gao.gov/products/GAO-04-854> (accessed March 17, 2012).

———. GAO-05-966, *Defense Management DOD: Needs to Demonstrate That Performance-Based Logistics Contracts Are Achieving Expected Benefits*, September 2005. <http://www.gao.gov/products/GAO-05-966> (accessed March 17, 2012).

- . GAO-08-354R, *Force Structure - Need for Greater Transparency for the Army's Growth Force Initiative Funding Plan*, January 2008.  
<http://www.gao.gov/products/GAO-08-354R> (accessed March 17, 2012).
- . GAO-10-461, *Defense Logistics: Actions Needed to Improve Implementation of the Army Logistics Modernization Program*, April 2010.  
<http://www.gao.gov/products/GAO-10-461> (accessed March 17, 2012).

#### Government Documents

- Department of Defense. *Quadrennial Defense Review*. Washington, DC: Government Printing Office, September 2001.
- . *Quadrennial Defense Review*. Washington, DC: Government Printing Office, 2010.
- Department of the Navy. Marine Corps Doctrinal Publication 4, *Logistics*. Washington, DC: Government Printing Office, February 1997.
- Headquarters, Department of the Army. ADP 3-0, *Unified Land Operations*. Washington, DC: Government Printing Office, October 2011.
- . Field Manual (FM) 100-5, *Operations*. Washington, DC: Government Printing Office, 1986.
- . Field Manual (FM) 100-10, *Combat Service Support*. Washington, DC: Government Printing Office, October 1998.
- . Field Manual (FM) 101-10-1, *Staff Officers Field Manual Organizational, Technical, and Logistical Data*. 2 Vols. Washington, DC: Government Printing Office, 1987.
- . Field Manual (FM) 4-0, *Sustainment*. Washington, DC: Government Printing Office, April 2009.
- . Field Manual (FM) 3-0, *Operations*. Washington, DC: Government Printing Office, February 2011.
- . *The United States Army Posture Statement*. Washington, DC: Government Printing Office, 2003.
- Joint Chiefs of Staff. Joint Publication (JP) 3-0, *Operations*. Washington, DC: Government Printing Office, 2011.
- . Joint Publication (JP) 3-18, *Joint Forcible Entry*. Washington, DC: Government Printing Office, June 2008.

- . Joint Publication (JP) 4-0, *Joint Logistics*. Washington, DC: Government Printing Office, July 2008.
- Joint Warfighting Center. *Joint Vision 2010 Focused Logistics: A Joint Logistics Roadmap*. Fort Monroe, VA: Joint Warfighting Center, 2010.
- U.S. Army Reserves. *The United States Army Reserve 2011 Posture Statement*. <http://www.usar.army.mil/arweb/mission/ARPS2011/Pages/ARPS2011.aspx> (accessed March 17, 2012).
- U.S. Congress. A Statement on the Posture of the United States Army Fiscal Year 1997 by Honorable Togo D. West Jr. and General Dennis J. Reimer presented to the United States Senate and the House of Representatives. 104th Cong., 2nd sess., 1997.
- . A Statement on the Posture of the United States Army 2003 by Honorable Thomas E. White and General E. Shinseki presented to the United States Senate and the House of Representatives. 108th Cong, 1st sess., 2003.
- . Statement by General Craig R. McKinley Senate Appropriation Committee, Subcommittee on Defense. 112th cong., 1st sess., 2010
- . Submitted by Lieutenant General Jack C. Stultz and Command Sergeant Major Michael D. Schultz to the United States Senate and the House of Representatives. 112th Cong., 1st sess, 2010. <http://www.usar.army.mil/arweb/mission/ARPS2011/Pages/ARPS2011.aspx> (accessed March 17, 2012).
- U.S. National Guard. *The 2011 National Guard Posture Statement*. [http://www.ng.mil/features/ngps/2011\\_ngps.pdf](http://www.ng.mil/features/ngps/2011_ngps.pdf) (accessed March 17, 2012).
- 22<sup>nd</sup> Support Command After Action Review. *Command Report Operation Desert Storm*. Volume 3, 1991.
- United States Transportation Command. *Annual Report 2001: Managing Customer Relations in 15 Countries Across Europe*. <http://www.transcom.com/Investor-Relations/Financial-reports/Annual-reports/> (accessed March 17, 2012).
- . *Getting Closer to Customers: Annual Report and Accounts 2010*. <http://www.transcom.com/Investor-Relations/Financial-reports/Annual-reports/> (accessed March 17, 2012).
- . United States Transportation Command 2011 Strategic Plan. Scott AFB: Government Printing Office, 2011.