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14. ABSTRACT
Operating in a contested environment from an Expeditionary Advanced Base (EAB) with a Stand-In Force will provide new and dynamic challenges for conventional military forces. The Marine Corps has access to relevant historical cases and modern concepts to effectively sustain forces in this environment. However, refinements are required to materialize these lessons and concepts in tangible processes. Over the past two decades Special Operations Forces have effectively developed processes and procedures in support of forces in contested and semi-permissible environments. Ultimately, it is incumbent upon the Marine Corps to develop effective means of distribution, integrated supply chain management, and cross MOS training to prepare its forces for the future fight. Further, historically significant lessons learned from the Falkland/Malvinas War, the 1944 German Offensive in the Ardennes, and the Special Purpose Marine Air Ground Task Force 18.1 Rotation assist in answering the sustainment in a contested environment problem. The Marine Corps no longer has the luxury of large scale supply sustainment chains supported by unimpeded resource distribution. Therefore, failure to identify realistic or sustainable support models will devastate the momentum of the operational force if not adequately planned. Logistics will continue to drive or stifle operations based on the completeness of the concepts of support developed and the critical thought germinated by planners.

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TITLE:

The Challenges of Logistically Sustaining and Supporting an Operational Force in a Contested Environment

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Executive Summary

Title: The Challenges of Logistically Sustaining and Supporting an Operational Force in a Contested Environment

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Thesis: To effectively sustain forces in a contested environment the Marine Corps must apply logistics and supply chain management lessons learned from previous conflicts by studying historical logistics case studies, incorporating innovative logistics sustainment techniques and concepts, and managing their relationships with partners and allies to enable effective support of an Expeditionary Advanced Base.

Discussion: Operating in a contested environment from an Expeditionary Advanced Base (EAB) with a Stand-In Force will provide new and dynamic challenges for conventional military forces. The Marine Corps has access to relevant historical cases and modern concepts to effectively sustain forces in this environment. However, refinements are required to materialize this lessons and concepts in tangible processes. Over the past two decades Special Operations Forces have effectively developed processes and procedures in support of forces in contested and semi-permissible environments. Ultimately, it is incumbent upon the Marine Corps to develop effective means of distribution, integrated supply chain management, and cross MOS training to prepare its forces for the future fight. Further, historically significant lessons learned from the Falkland/Malvinas War, the 1944 German Offensive in the Ardennes, and the Special Purpose Marine Air Ground Task Force 18.1 Rotation assist in answering the sustainment in a contested environment problem. The Marine Corps no longer has the luxury of large scale supply sustainment chains supported by unimpeded resource distribution. Therefore, failure to identify realistic or sustainable support models will devastate the momentum of the operational force if not adequately planned. Logistics will continue to drive or stifle operations based on the completeness of the concepts of support developed and the critical thought germinated by planners.

Conclusion: The Marine Corps has access to the requisite history, processes, procedures, and concepts to logistically plan, support, and sustain operational forces in a contested environment. However, a paradigm shift must occur to incorporate these lessons learned from historically significant case studies and the inclusion of preexisting concepts and procedures into training and education.

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Preface and Acknowledgements

Logistics is more than a profession for me; it is an artful and scientific way of thinking and maneuvering through life. I have dedicated an enormous amount of my personal and professional time studying, learning, and understanding what has driven logistics support operations over the past 100 years. History coupled with the implications of supporting and sustaining the Marine Corps in the future operational environment were the primary drivers of my thesis.

I must extend a personal thanks to my mentor Dr. Anne-Louise Antonoff, who assisted me in more ways than she knows, by intellectually stimulating and aiding me during this process. Her expert guidance and mentorship were invaluable. Thank you to LtCol Donald Harlow and LtCol Kevin Dewitt for their guidance and instruction, specifically regarding logistics and strategic thinking. To Dr. Douglas Streusand, thank you for challenging me more intellectually than anyone up to this point in my life. The way you drove me to find the very best part of myself was inconceivable, yet necessary to this process. And LtCol Eduardo Bitanga, thank you for the academic flexibility and freedom to think and create without the burden of prescriptive guidance—you allowed me to be myself without judgment. Additionally, the Joint Operational Logistics Elective (JOLE) during my year at the Marine Corps' Command and Staff College positively shaped my thinking and exposed me to concepts and key personnel I would not have otherwise been exposed.

Finally, a special thanks to my wife, best friend, and confidante Jaira Faith for your unwavering patience and devotion to this process. You skillfully managed our household and four loving daughters as I committed countless hours to perfecting this product—this would not be possible without you.

Introduction

“The battle in the logistics world when your supply lines are wide open to attack is always about the balance between celerity and security of delivery. It’s a bit over-stated but often the faster you go, the less likely you are to get there, strangely enough. Convoys are the classic example – not confined to sea warfare... Yes, the land forces may had been frustrated at the short notice with which tactical deployment changes of ships were made – but they’d have been a damn sight more annoyed if the ships had all been sunk before they unloaded.”¹

Admiral Sir John Forster "Sandy" Woodward

“The more I have seen war, the more I realize how it all depends on administration and transportation (what our American allies call logistics). It takes little skill or imagination to see where you would like your army to be and when; it takes much knowledge and hard work to know where you can place your forces and whether you can maintain them there. A real knowledge of supply and movement factors must be the basis of every leader’s plan; only then can he know how and when to take risks with those factors; and battles and wars are won only by taking risks.”²

Field Marshal Archibald Wavell ‘Advice to a Soldier’,
in the Sunday Times, 13 August 1944

In July 2019, General David H. Berger delivered his Commandant’s Planning Guidance, specifying his vision for the future force structure, innovation, and employment of the Marine Corps.³ These three categories must be understood in the context of a future operating environment that, in the case of Great Power competitors, will be contested or semi-permissive. The Marine Corps has access to the requisite knowledge, resources, and historical lessons at its disposal to fight and sustain in a contested or semi-permissive environment. The Commandant’s approach to operating in future war provides a paradigm shift in thinking, planning, and operating, one that the Corps will need to outpace the adversary. The Commandant’s paradigm shift in warfighting depends, however, on concomitant innovation in logistics. Logistics is the lifeblood of armed conflict and must be planned in depth, in conjunction with operations, for effective employment. From the standpoint of logistics, the Marine Corps must focus its efforts towards maintaining and strengthening current partnerships and alliances as the future fight will

likely occur on friendly occupied terrain in concert with US partners or allies, but under conditions that preclude resupply and support from outside the Weapons Engagement Zone (WEZ) created by the adversary's ever-increasing capabilities in long-range, precision-guided munitions systems for anti-access and area denial (A2/AD). Marines working alongside the indigenous force can expect to operate within the WEZ, where they will already be established in peacetime; in wartime, however, they cannot be reinforced until sea control and air superiority have been established. To effectively sustain forces in a contested environment the Marine Corps must apply logistics and supply chain management lessons learned from previous conflicts by studying historical logistics case studies, incorporating innovative logistics sustainment techniques and concepts, and managing their relationships with partners and allies to enable effective support of an Expeditionary Advanced Base.

Sustainment within the WEZ raises particular logistical questions and challenges. Can the Marine Corps sustain the Stand-In force in a contested environment? In the absence of established ground and sea lines of communications providing access to resources in the rear, how can those Marines persisting forward in peacetime sustain themselves in wartime without overwhelming the host nation's local economy? Methods of supporting forces within the WEZ now form the subject of research and development within the Corps and in the Pentagon writ large. The intent of this paper is to help inspire and advance those deliberations by pointing to lessons learned from both historical and contemporary case studies of support and sustainment in a new and contested environment, without standing infrastructure or established procedures. These historical and contemporary case studies demonstrate that, without logistics appropriately integrated into an operational plan, the culminating point is reached at a much faster rate.

Future Operating Concept and Future Operating Environment

Within the likely future operating environment, fighting on friendly sovereign territory within the WEZ of A2/AD systems, with precision lethality, ubiquitous sensing, unmanned/autonomous vehicles and weaponry, will challenge the Marine Corps' ability to effectively establish logistics support. A2/AD capabilities are developing faster than the Marine Corps is evolving its techniques to respond to these threats. Under cover of their rapidly advancing A2/AD capabilities, adversaries and malign actors, particularly peer competitors or Great Powers, are encroaching upon sovereign land and maritime territory belonging to the treaty partners and allies of the United States, while attempting to intimidate the United States into acquiescing in a fait accompli. Russia, for example, has developed the SS-26 Stone/Iskandor with a range up to 500 kilometers, with obvious threats to the Baltic States and Scandinavia.⁴ China has developed the DF-21/21A, with a range up to 2,150 kilometers.⁵ Figures 1.1 and 1.2 outline the threats these ballistic missiles present for the surrounding countries, the standoff distance it creates from Russia and China, and the risks posed for the Marine Corps if it attempts to establish an EAB in either region.



Figure 1.1 – Russia's Land Based Missiles



Figure 1.2 – China's Ballistic Missiles

The recent history of the Ukraine exemplifies this pattern and calls into question the future security of the Baltic States. Judging from its activities, China seems equally intent on exploiting its own A2/AD advances in pursuit of contested areas of the South and East China Seas. Such behavior poses a challenge not only to the sovereignty, independence, and territorial integrity of US allies and treaty partners, but also to the value and credibility of the alliances, treaty organizations, and regional security architectures on which preservation of peace and the status quo now depend.

The emerging concept for defending the sovereignty and territorial integrity of US allies and treaty partners in the face of such encroachment is Expeditionary Advance Base Operations (EABO.) The Commandant's Planning Guidance 2019 dictates the Marine Corps must prove it can persist and defend forward against Great Power threats within the anticipated future operating environment.⁶ EABO accordingly serves to counter a peer-competitor's A2/AD capabilities by facilitating operations inside the Weapons Engagement Zone (WEZ.) With EABO, the Marine Corps seeks to support the Joint Force Maritime Component Commander (JFMCC) with complementary advantages of the strategic offense and tactical defense.⁷ The concept of EABO, version 1.1, was published 1 June 2018. Under the EABO concept, the indigenous force enabled by a U.S. Stand-In Force during peacetime engages critical capabilities to gain, maintain, and exploit key maritime terrain to achieve sea control. Together, this EAB Force advances, sustains, and maintains naval and joint sensor, shooter, and sustainment capabilities to leverage the capabilities of the outside force with enhanced situational awareness, augmented fires, and logistical support.⁸

In concept, the EAB, like the MAGTF, is scalable and task-organized; details of duration and distance will depend heavily on the situation for which the EAB is used. Uncertainty thus

prevails regarding the overall composition of an EAB force, the length of employment, and the area of operations within which the force should expect to operate. This uncertainty, while resolved in the individual case, creates conceptual difficulties in the abstract, magnified by the unpredictable pattern of future adversary behaviors.

Marine Corps sustainers and maintainers are charged with developing a realistic concept of support for EABO contingencies. Their solutions, too, must be flexible and responsive. The challenges include dispersion, concealment, and anti-A2/AD defense. Adversaries are likely to target areas and staging points the Marine Corps finds attractive as collaborative support network location. The challenge of supporting EABO forces is further compounded by the lack of specific information on logistical support within the 70-page EABO handbook. The handbook artfully articulates details on an EAB force, yet there is only a modicum of literature service-wide dedicated to how the force will receive support and sustainment.⁹ These matters while currently the subject of intense study across the Marine Corps; have not yet given rise to a coherent body of new doctrine.

Sustainment of the Stand-In Force, which in itself assumes peacetime responsibility for supporting the indigenous force, presents significant wartime difficulties. The WEZ poses one of the greatest threats to logistics sustainment. It encompasses in part what the Marine Corps regards as littorals and, in naval concepts, has constituted maneuver space from the sea. This region historically has allowed the superior naval force to establish sea lines of communications (SLOCs) and ground lines of communications (GLOCs), as well as the naval and air superiority or dominance to maintain those support lanes and facilitate maneuver. Today, the prevalence of long-range, precision-guided defensive munitions for A2/AD means that the stand-in positional

force capable of establishing sea control and thus ensuring access to the global commons will, itself, be obliged to fight unsupported for an indefinite period of time.

While current logistics doctrine does not yet address such a contingency, innovative concepts have evolved to fit emerging sustainment needs. These newer methods are founded in logistics operational publications, but have been tailored by common user Marines to address specific problem sets. Special Operations Forces (SOF) and Special Purpose Marine Air-Ground Task Forces (SPMAGTF) both have developed techniques and procedures on which the Marine Corps and the Joint Force can base larger logistics concepts for future war. However, these techniques have not been employed to support dispersed conventional forces over sustained periods and across widely dispersed, rapidly shifting locations. Operating within the WEZ will necessitate such distributed operations, without reliance on a large, static, forward operating base (FOB) such as the United States and its coalition partners have been accustomed to using in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF.)

On Deterrence

To understand the full logistical challenge in EABO, one must see the concept's wider significance in terms of conventional deterrence. Sustainability lies at the heart of credible operational capability, on which conventional deterrence depends. The adversary needs to know that, should he persist, he cannot prevail except at great cost. At the same time, however, imposing any such cost on the adversary requires friendly sustainment within the WEZ in the event of deterrence failure. Logistical sustainability will stand at the heart of future EABO. Should deterrence fail, the mutually supporting operations of stand-in forces, inside forces, and outside forces must be able to degrade the adversary's network of A2/AD systems and thereby

open up the WEZ. This achievement will in turn create conditions for wider employment of force, if needed, along with the lines of communication to support them. Overall success will depend critically, however, on the success of initial operations within the WEZ, which in turn will require support and sustainability. Conventional deterrence is not the only conceivable mission for the Marine Corps, yet it is a primary point within the EABO discussion.

The immediate EABO challenge is to ensure sustainment and resupply in place, within the WEZ, while pursuing the multi-domain fight for supremacy. This initial phase will ensure that external resupply, if necessary, happens within a once more permissive environment. Such operations within the WEZ may support a defense in depth or set up a more offensive approach, such as blockade. Logistical sustainability thus will ensure that EABO provides strategic options for the decision maker.

Supporting and sustaining forces in war is never stress-free and becomes far more demanding while working under compressed timelines and an enemy threat. As previous conflict proves, future war will likely not occur at a time or place of our choosing; rather than a mature theater, US forces may have to contend with locations without adequate infrastructure for supplies and sustainment. These factors ultimately strain operations and logistics support. The following historical and contemporary case studies demonstrate some key challenges for future consideration.

Historical and Contemporary Case Studies

The Falklands/Malvinas War and Second World War provide two vastly different examples of supplying war. The Falklands/Malvinas is an example of a force without prepositioned stocks or partner and alliance logistics support, while the Second World War

example illustrates the failure of the Germans in the 1944 Ardennes offensive with extensive prepositioned supplies and sustainment provided from partners and alliances. Although the Germans thoroughly planned for raw materials from their partner nations to move into country in support of their Ardennes Offensive, they failed to account for the impacts of contested lines of communications to receive the materials—this misstep in planning cost the Germans their offensive momentum.

The United States Marine Corps can also look to recent US experience in expeditionary warfare in austere, though uncontested, environments. The development of a Special Purpose Marine Air-Ground Task Force (SPMAGTF) for a mission in Africa led to valuable lessons learned. During OEF and OIF, moreover, special operations forces (SOF) employed methods relevant to future warfare in an EABO context. Though not without drawbacks, these methods will provide the basis for an EABO-suitable logistics concept, when integrated with other historical lessons learned.

The Falkland/Malvinas Island Conflict

The Falkland War provides a relevant historic example of the logistical challenges faced while operating under compressed timelines in a contested environment. The British amphibious task force and amphibious landing force were directed to deploy within one week from England to the Falkland/Malvinas Islands by Prime Minister Margaret Thatcher. The scenario unfolded at a unique time historically, yet it parallels challenges the current United States military may encounter in a current or future conflict if a Stand-In force is not established during peacetime.

The challenges in a similar United States scenario without a Stand-In force may include tyranny of distance, extremely compressed timelines, and a lack of immediate partner and

alliance resource support. However, EABO would build up the treaty partner's inside force through the peacetime efforts of the USMC/SOF Stand-In force. The Falklands case demonstrates the need for EABO as it embodies why we would not or could not operate at such a distance, traversing a zone without air superiority or through an adversary's WEZ. Given current day capabilities, a similar operation today against a near-peer competitor would likely encounter a competitive A2/AD threat, precluding the freedom of choosing the landing site that the British enjoyed in 1982. Stark as it is, the case study thus understates the severity of the logistics problem in the future fight.

The compressed timeline predisposed the British to limitations that only considerable planning can overcome. They lacked partner and alliance buy-in, established logistics chains, preplanned logistics support locations, and a thorough assessment of the local logistics network and its challenges. Given sufficient lead time the British could have solicited the cooperation and support of their partners and allies. The British could have also established and prepositioned stocks of supplies on Ascension Island and aboard more capable shipping vessels, while establishing a force to conduct a physical network analysis of the logistics capabilities of Ascension and the Falkland/Malvinas Islands. Without such measures, a more determined foe, particularly in today's terms of warfare, might have prevented Britain's successful reclamation of the Falkland/Malvinas Islands.

The distance between the United Kingdom and the Falkland/Malvinas Island conflict zone totaled approximately 8,000 miles. The nature of the operation prevented the preplanning and establishment of logistics, sustainment, and a reception, staging, and onward integration (RSO&I) plan in support of forces arriving in the area of operations. Logistics support personnel traveled with operational forces rather than ahead of them as is normally the preferred course of

action. Additionally, the British were forced to load ships under the Embarkation Movement Planning Rehearsal Assault (EMPRA) model versus the Planning Embarkation Rehearsal Movement Assault (PERMA) model. Although EMPRA proved most effective for time management, it precluded combat loading, thus creating disadvantages in offloading equipment. The EMPRA stowage locations of critical supplies created additional friction, brought British operations to a standstill, and generated unnecessary British vulnerabilities. Additionally, the British lacked suitable logistics support ashore in the Falkland/Malvinas Island, a deficit that proved almost insurmountable as all support was delivered via air or sea from naval vessels without the advantage of GLOCs or land based supply networks. As a customer of the logistics in the Falklands/Malvinas, an experienced 3 Commando Brigade Company Commander summed up the complexities and challenges of logistics in a contested environment:

“All comments and lessons from the logistics of this campaign should be leavened by the fact that this must one of the few campaigns fought by a regular force since the internal combustion engine became generally available, where the widespread use of wheeled transport was not possible. This, combined with the speed with which it was necessary to put the whole act together, and the enemy’s efforts to disrupt the act, make it arguably that we were fortunate to have any logistics at all.”¹⁰

Logisticians were required to assist in landing crafts and helicopters, getting combat units ashore quickly in the right places, and then rapidly establishing logistics wherewithal to allow units to constitute and advance.¹¹

The British logisticians adapted to the time, distance, and capacity challenges by incorporating Ships Taken up from Trade (STUFT).¹² These challenges eerily parallel potential Marine Corps and Navy challenges today, if not appropriately thought through. STUFT is equivalent to the United States Voluntary Intermodal Sealift Agreement (VISA); the United States can direct commercial shipping to serve in a military function in cases involving national

security. However, these ships were not equipped with the defensive systems required to sustain themselves in a combat zone, but the ships did offer otherwise unavailable space and capacity. The STUFT also lacked the reverse osmosis systems required for producing potable water; further challenging the Class I rations.¹³ The British were forced to convert a total of twenty-five freighters, tankers, tugs and short-sea ferries commercial assets in support of logistics operations in the Falklands/Malvinas. Regardless of the sea-lift capacity acquired, Britain still met the challenge of possessing a suitable site to stage, buildup logistics, and provide a suitable location for the landing force to rehearse the amphibious assault landing. Ultimately, Ascension Island was identified as the most suitable intermediate staging base for logistics and rehearsals. However, Ascension Island was approximately 4,000 miles away from the Falkland/Malvinas Islands—this equated to approximately 3-5 days of travel from the intermediate staging base to the objective by sea-lift based on the speed and weight of the vessel. For the United States, Hawaii and Guam are akin to Ascension Island for the British.

While the utilization of Ascension Island answered the intermediate staging base problem, the challenge of providing sustained logistics support ashore in the Falkland/Malvinas remained unresolved. The British determined their primary means of supporting ground troops was via helicopter support team (HST) or portage troop— a human supply chain consisting of roughly 34 commando troops.¹⁴ HST resupply was the most efficient in comparison to portage troop, yet the British lacked air superiority or dominance over the Argentines. Therefore, redundancy must be built into the calculus of logistics support to prevent the Marine Corps from reverting to rudimentary concepts as portage troop movements to support Stand-In forces.

Moreover, the Falklands case illuminates the need for redundancy in supply sourcing from landward and seaward means. Establishing logistics support afloat and ashore remains

essential for operations. The British had to draw their sustainment from the ships' supplies that were originally stocked and loaded in the United Kingdom. They did not have mechanisms in place to source their supplies from the local Falkland/Malvinas economy or Ascension Islands. This deficiency, though understandable given the short timeframe within which the operation took shape, led to truncated resources since, in moving to the area of operations, the forces drew on the same resources afloat that would sustain them during the conflict. It is vital to establish methods and means of support prior to forces pursuing their identified objectives from the sea to the shore and landward. Although supply sustainment and support can remain afloat during operations, it must be responsive and reflexive to the demands of the land force requirements. Further, these supply chains must manage risk and minimize being targetable by precision guided long-range munitions.

Supply sustainment in the Falklands case was further challenged by allied and partner nations' reluctance to provide logistics support. Their reluctance germinated from fear of operating under a conflict where they had shared interests between two allies or partners, the Argentines and British. The United States should skillfully continue to build and support its allies and partners in efforts to further strengthen these bonds, while maintaining stable logistics support networks abroad. Partner and alliance relationships are critical to the success of operations in future war, above all under the circumstances now envisioned. Without fully considering the fragility of these relationships, however, the mission is all but destined to experience nearly insurmountable challenges.

This Falkland/Malvinas Island conflict is a likely scenario for the United States, given the current geopolitical environment and impulsive tensions throughout the world. Without these partnerships and alliances, the United States would encounter a similar scenario as the United

Kingdom—attempting to support and sustain forces in a distant foreign territory without the benefit of a suitable intermediate staging base (ISB) or adequate supplies and sustainment in proximity to the conflict. Projected forward into the 21st century, however, the case also suggests some necessary capabilities to build into an EABO construct not limited to establishing a Stand-In Force to integrate and train with indigenous forces during peacetime, prepositioning stocks and personnel on key friendly host nation terrain, using intelligence for better logistical understanding of the operational environment, and deepening the Navy/Marine Corps relationship to enable a defense in depth EABO fight.

The German Logistics Challenges during the 1944 German Ardennes Offensive:

During the 1944 German offensive in the Ardennes, the Germans held a marked advantage over allied forces with respect to personnel, equipment, resources, and geography. However, this case will provide examples of the challenges to an operational force when access to resources through expected means of logistics distribution and resupply methods, particularly through partner and allied relationships, are disrupted in a contested environment. The case thus provides key lessons learned for operating in a contested environment applicable to the United States military and recommendations for mitigating these challenges. First, the German economy was not equipped for a long war of attrition, specifically in supplying sufficient fuel, equipment, and ammunition. Next, by now the Germans loss of air superiority led to a severe reduction in their industrial base. Last, the materials required to sustain the Germans against allied forces from German allies became virtually inaccessible.¹⁵

Even in the midst of operating largely within their own geographical territory, the German Army failed to fully anticipate the challenges of not adequately forecasting logistics

requirements. The Germans also placed too much faith in the abilities of their partners and allies to provide resources. Table 1 outlines the raw material, supplying country, and use regarding German war materials which were agreed upon but were not deliverable from other nations.¹⁶ The German's lacked air superiority, making delivery of these items via air or ground assets untenable. The German's logistics support plan was fairly well thought through, but made some dangerous assumptions regarding control of the air and access to supplies and raw materials. The United States may not experience the same difficulties as the Germans. However, the salient point of over dependence on partner nations for sustainment in war can lead to devastating results if the United States under assumes adversary capabilities to interdict support.

<u>Raw Material</u>	<u>Country</u>	<u>Use</u>
Aluminum	Hungary	Aircraft Production
Chromium	Bulgaria, Greece	Steel Production
Nickel	Finland, Norway	Ammunition
Copper	Finland, Norway, Yugoslavia	Ammunition Casings
High Grade Iron Ore	Sweden	Steel Production
Manganese Ore	Russia	Steel Production
Oil	Rumania, Hungary	Fuel and POL
Bauxite	France, Yugoslavia	Steel Production

Table 1: List of raw materials from other nations planned to support Germany

This case offers key lessons for future war. The United States' overall concepts of logistics rely largely on the support of partners and allies. However, redundancy must be built into the equation to ensure the United States— specifically the Marine Corps does not replicate the mistakes and challenges encountered by the Germans in 1944. Furthermore, it is inconceivable that the United States possesses sufficient access to resources to sustain itself during a conflict without the support of its partners and allies. It is therefore especially important

to proactively manage these relationships prior to the need leverage them during conflict.

Special Purpose Marine Air Ground Task Force (SPMAGTF) 18.1 Rotation:

As a contemporary case highlighting the potential opportunities and pitfalls of relying on supply and support from partners and allies, even in a relatively benign, permissive environment, one might consider the crisis response mission of the 22d Marine Expeditionary Unit Command Element (CE) from July 2017 through April 2018. During this period, the 22nd MEU CE was tasked to composite as a Special-Purpose Marine Air Ground Task Force (SPMAGTF) in a “be prepared to (BPT)” mission in support of new normal and crisis response operations, primarily in Africa. The case underscores the challenging, yet necessary relationships with partners and alliances to enable logistics support functions for an operational force.

The CE established a forward base on Moron, Spain, while utilizing Naval Support Activity, Sigonella, Italy (NASSIG) as an ISB. NASSIG stands in closer geographic proximity to the continent of Africa than Moron, Spain. Utilizing NASSIG as a launch site shortened the transit time to Africa, provided greater staging capacity for personnel and equipment, and collocated the operational force with multiple supply distribution sourcing agencies. However, due to space requirements of a fully composited SPMAGTF (~2000 Marines and Sailors)—the entire force could not base from a single location whether it was NASSIG or Moron.

The SPMAGTF’s distributed construct further challenged the timeline of logistics support operations, yet it also provided some irreplaceable benefits. NASSIG gave the SPMAGTF direct access to the Defense Logistics Agency (DLA), Fleet Logistics Center (FLC), the NASSIG calibrations facility, and the functionally required ramp space. NASSIG also provided the necessary space and infrastructure critical to maintaining the Enroute Care Team

(ECT), Shock Trauma Platoon (STP), and the Forward Resuscitative Surgical System (FRSS) personnel and equipment; this capability coupled with the Naval Hospital on NASSIG provided a critical medical capability to the SPMAGTF. These capabilities provided depth, value, and capacity in extending the operational reach of the SPMAGTF; without these capabilities the SPMAGTF mission would culminate much more quickly. Under the EABO construct these capabilities and their locations are enticing for Marine forces, but also for adversary targeting purposes; this risk must be considered during planning.

In preparation for the operational and logistical challenges of deploying a unit from Europe to Africa, the SPMAGTF routinely conducted combat and logistics drills. The logistics drills included validating Cooperative Security Locations (CSL). The validation process included deploying a Forward Logistics Element (FLE) from Europe to Africa to CSLs locations. As would be the case in a future EABO-based contingency, these CSLs were located in the sovereign territory of United States partners and allies. Once at a predetermined CSL, the FLE ensured critical items including water, meals-ready-to eat (MRE), and limited engineer equipment was usable or functional. The training proved valuable to working through real-world operations, yet more difficult than expected when supporting a conventional sized force.

The difficulties were further highlighted when the SPMAGTF received the task to exercise its prepared logistics capabilities in support of a named operation in November 2017. The force was directed by the Africa Command Geographic Combatant Commander (GCC) to deploy in support of a contingency operation in the vicinity of Niger and Mali. The logistical challenges posed by the tyranny of distance, highly scrutinized personnel entry access, lack of overflight rights, inadequate host nation support, and delayed delivery of support directly impacted the tempo of operations.

The logistics support required various actions to occur simultaneously for the operation to succeed and meet the outlined objectives. Upon notification two FLEs were deployed to set conditions logistically for follow on forces to flow into identified areas of operations. The operations took place in an uncontested environment. The first twelve-person FLE was dispatched to Niamey, Niger, while a four-person FLE was dispatched to Senegal, Dakar. The Dakar FLE established a location to reconstitute the force en route to the final operations location in the vicinity of Niger and Mali. The Niger FLE established the RSO&I for the arrival of the entire force of the MAGTF.

The difficulties encountered by both FLEs proved almost insurmountable. The Dakar FLE experienced challenges with inadequate aircraft ramp space, limited acceptance of payment methods by the host nation, unexpected fees imposed by the host nation, extended time required to activate necessary contracted services, delayed or denied assistance from partners and allies in zone, and increased security posture requirements. The Niger FLE encountered challenges with aircraft ramp space, transportation of troops in and around the local area, bed space capacity, command and control infrastructure, ability of the host nation to support the force beyond 96 hours, and time-space-distance required to move critical classes of supply to the staging site in Niger. The entire movement of the approximately 300 personnel spanned 2 continents and 15 countries, totaling over 44 hours and 9,500 miles of travel. Transporting personnel and equipment to the designated area of operations was the beginning of the challenges encountered. Unforeseen bureaucratic red tape further complicated the logistical support of the operation.

Regardless of the circumstances prompting deployment of United States military forces, some United States partners and allies are reluctant and outright unwilling to flex outside their standard operating timeliness if the mission is not a part of that nation's national concern. For

example, a request to a partner or allied country for overflight in an operation that does not include a direct request from that country or a validated medical evacuation may not receive approval sooner than 30-45 days. This delay adds significant time, distance, and logistical considerations to an operation on the continent of Africa. Non-doctrinally, a unit can expect to add 3-4 days and 4,000 to 6,000 additional miles of travel each way to support operations under these constraints based on anticipated wait times and fly around distances.

Once in country, the logistics personnel should expect a finite amount of support from the local economy, solely due to capacity. Although likely eager to provide support to boost their local economy by the windfall of income generated by military forces in the area, the host nation is often incapable of supporting the Marines with the goods or services required for an extended period of time. Subsistence in the Niger case was available for purchase, yet not in the quantities or quality the Marine Corp required. Class I (food and water) must be purchased from approved vendors if using government funds, which is always the case. The logistics section therefore used creative methods to fly sustainment around the continent with the aid of the Air Force until overflight rights were approved. These support Marines leached support from other units in the zone until their established means of support arrived in Niger. In a contested environment, however, delay in establishing supply distribution lines may slow and shorten an operation. In future operations, the Marine Corps should commission the stand-in force to coordinate these efforts during sustained peacetime. Under the premise of current Marine Corps constructs, the Stand-In Force can resolve or establish these requirements during peacetime, prior to the joint Marine Corps and Naval forces arriving in theater. In doing so, however, the logistics team must expect to have to overcome difficulties not unlike those encountered in the Niger case, or risk similar delay to future operations.

Once fully established in country, the logistics personnel coupled with a modest security element are postured forward, setting conditions for follow-on forces. The challenge then arises of building an adequate, yet mobile logistics supply point to receive, sustain, and complement operational support and flow of forces. The friction experienced by the SPMAGTF FLE was magnified due to degraded communications and a lack of established supply support networks in zone. Ancillary items including quality of life and fortification supplies are challenging to acquire because lift required for moving essential supplies naturally takes a higher priority of movement. Food, water, ammunition, fuel, and maintenance supplies are vital to EAB establishment. If these items are more available in zone by way of operational contract support, then the logistics support personnel can phase the previously mentioned ancillary items in zone.

Once operations begin, persistent force sustainment becomes necessary. For example, a vehicle tow bar's estimated ship date might be over 24 months out, while an extra hydraulic pump for an aircraft receives a dedicated fragment order (FRAGO) to receive and move a single part the entire 9,500 miles in less than 72 hours. FRAGOs are published as additive or subsequent orders to a higher base orders by the commander. This disparity in priorities and movement of goods and services adds additional complexities to an already strained process.

The FLE experiences all the challenges in reverse when retrograding the personnel and equipment back to the ISB or home station. The FLE and the security element serve as the advance party and remain behind element. The Stand-In Force may receive the task of dispatching a portion of its force in support of the FLE mission. Additionally, the FLE must take care to depart the host nation with courtesy to retain the respect of the partner or alliance.

The military occupational specialties within the FLE allow for little flexibility in force structure and accomplishment of key tasks. This constraint in flexibility is controlled by the United States embassy to the respective host nation. Specific personnel and equipment are allowed in country prior to the main body of the force under a highly scrutinized process. These restrictions imposed by a treaty partner may seem extreme, but United States treaty partners have a right and obligation to question and scrutinize all actions within their sovereignty.

The SPMAGTF experiences described above occurred in an uncontested operational environment with moderately established logistics and supply distribution networks. If conventional forces seek to achieve a modicum of logistical success under less favorable conditions, they should take a closer look at the Special Operations Forces (SOF) logistics support model. SOF's model for inserting forces in a contested environment and sustainment is noteworthy, principally because it works. The conventional logistics support models should apply successful procedures implemented by SOF prior to attempting to support operations in a contested environment.

Special Operations Forces (SOF):

This section will examine practices from two special operations models: Army Special Operations (ARSOF) and Marine Corps Special Operations (MARSOC) Commands. As with the expected distribution of forces in future war, ARSOF and MARSOC forces disperse across wide geographical areas in small numbers SOF units execute creative, flexible, and well-planned logistics in support of special operators inserted in contested or uncertain environments on a regular basis. In the case of EABO, the force will not be inserted regularly but will persist forward; however, many of the SOF lessons carry over to the more austere USMC case.

While not exact, the SOF-EABO comparison is illuminating. Special operators do seek to establish sea, land, or ground access networks to support supply chain management and distribution prior to the insert of SOF; in contrast, EABO depends on the success of the Stand-in Force in working with the locals to assist in establishing access to the sea, land, or ground lines of communications. Lack of such supply lanes will inevitably affect the character of future conflict support. Nevertheless, although SOF can in principle receive support through distributed combat service support (CSS), aerial supply, and host nation/contingency contracting, these methods of supplying forces forward are not suited for all situations and operations.¹⁷ When necessary, the relatively small SOF personnel numbers allow these forces to tap into host nation resources without overwhelming the local economy. The Marine Corps must analyze how to exercise this model for the Stand-in Force, while adapting the broader methodology to sustainment of a larger scale force in subsequent phases of the conflict.

A key lesson learned from both the SPMAGTF-CR-AF 18.1 rotation and ARSOF forces concerns local capacity. Host-nation support and contingency contracting may prove ineffective when an impending conflict causes the populace to hoard supplies for their personal use or when the campaign degrades sources and routes of supply, both civil and military, into the region.¹⁸ Effective host-nation contracting support requires reasonable dependability and a local security element.

An additional component of contracting host-nation support is the extensive statement of requirements (SOR) process. SORs are collaborative documents between the supported (logistics personnel/SOF personnel) and the supporting (host-nation) that facilitate functional and detailed planning and arrangement of goods and services staged for future conflict. Again, broaching such discussions for the first time in a contested environment is likely untenable,

based on the time necessary to execute these actions, unless the Stand-In force makes this task a priority of its mission in working with the host nation forces before the outbreak of formal hostilities.

Time is a critical requirement for all logisticians. ARSOF and MARSOC forces experienced unforeseen difficulties in receiving support in environments such as Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) due to the fluidity and the ever-changing nature of SOF operations. These challenges occurred even with the availability of established sea, land, and air lines of communications. Without the time required to provide push and pull logistics to the warfighter, logisticians will likely suffer significant misallocation of resources in attempts to support the forward fight.

One saving grace of small forces is that their footprint limits the degree of friction. The relatively low volume of requirements and size of SOF do not overburden existing supply infrastructures and allow for more flexibility to adjust to inaccuracies and misallocations. Depending on the scale, location, and mission of the anticipated expeditionary advanced bases, Stand-In forces conducting EABO may likewise be able to overcome the friction experienced in OIF and OEF, provided they exploit the lead time available through peacetime access.

Although not immune to logistical challenges, SOF offers some valuable examples for effective logistical support, though with caveats. When operating in uncertain environments, Marine Special Operations Command (MARSOC) employs multiple principles that extend beyond the conventional logistics support networks. MARSOC depends heavily on contracted non-standard maintenance and supply capabilities, United States Special Operations Command

(USSOCOM) equipment to bridge capability gaps, cross-functionality in military occupational specialty (MOS) training, and collaborative logistics support.¹⁹

However, each of these principles of MARSOC logistics support comes with respective pros and cons. Heavy reliance on contracted non-standard maintenance and supply provides flexibility and simplicity, yet this form of support often does not meet the United States standard of commercial or government manufacturing and safety standards, which mean the Commander must assume increased risk to mission and force. USSOCOM assets used to bridge capability gaps allow MARSOC to exercise creative and artistic support methods for transportation, subsistence, communications, medical support, and maintenance service, yet MARSOC lacks the personnel staffing within the CSS force structure to fully support these capabilities in a larger conventional fight without USSOCOM assets. Cross-functionality MOS training allows MARSOC CSS personnel to provide flexible tactical and operational logistics with host nations, interagency partners, embassy personnel, and partner nation forces from a standard and non-standard supply interface perspective. However, this process requires an extensive training timeline to ensure each CSS support Marine is knowledgeable and capable of providing all functions of logistics without conventional force support infrastructure.

Although these principles come with such caveats, they minimize restrictions on logistics support for SOF. Provided they pay sufficient heed to the caveats, conventional forces can likewise gain flexibility from SOF principles of logistics in sustaining forces in the future operating environment, particularly in distributed operations within the WEZ. MARSOC logisticians continue to enable the projection of combat power without the burden of worrying over the buildup of supporting infrastructure, iron-mountains, or established logistics lines of communications.

The Recommended Approach to Future Logistics Challenges:

While lessons of history and examples of unconventional forces provide a number of points to bear in mind for future logistical support plans, the place to start is first principles. The two paths to logistical sufficiency are enhancing the force's ability to tap into capacity (general support) or increasing organic force structure (direct support), which means increased manning/staffing goals. Larger conventional units should expect to lose the direct support construct as there are not enough CSS units within the Marine Expeditionary Forces (MEF) to levy anything more than a general support relationship. Therefore, units should not expect assigned support. A general support construct provides the greatest flexibility for the logisticians to support the warfighter; at the cost of additional time as all support is prioritized and channeled through centralized support nodes.

To effectively support and transform logistics for future warfare, the Marine Corps must clearly establish command relationships of direct and general support; direct support being units dedicated to support specific unit and general support being units tasked to support multiple units based on support request priorities established by the Joint Force Commander. (For example, priorities of support for medical may be 1. medical evacuation, 2. medical supply distribution, 3. dental care support.) This prioritization allows the logistics support commander to respond to support requests based on their asset and personnel availability.

Another fundamental consideration is risk. The challenge the Marine Corps now faces is how to effectively employ a new concept of logistics support in contested domains. Such conditions will oblige the overall force Commander to assume risk abnormal to previous operational environments. Moreover, instead of operations driving logistics, logistics

requirements for operating in a future environment will drive operations and focused intelligence collection assets—inherently creating risk to mission and risk to force. This dynamic applies not only in conceptual development, but also in operational planning. Without thoroughly accounting for logistics support in establishing EABs, the Marine Corps and Joint Force cannot expect any concept or plan to succeed in application.

Beyond these basic principles, however, historical and contemporary case histories suggest some specific methods for logistical supply and support of forces in an EABO context. The most basic point is that, in supporting stand-in forces within the WEZ, the Marine Corps with the support of the joint force should seek to conditionally divorce its staple logistics support concepts, which are heavily reliant on established sea, land, and air lines of communications. The logistics concepts of old depended upon commercial network transportation and a large buildup of supplies and materials near the operational area. The danger with the older archaic staple concepts is that they assumed an unrealistic level of domain dominance and superiority, specifically sea, air, land, and cyber. Although superiority and dominance have proven a necessity in previous conflicts, the Marine Corps can no longer assume such control and must learn to operate logistically without this benefit.

In addition, the Marine Corps must reconsider older practices that resulted in an easily detected and targetable buildup of supplies. Future warfare amid ubiquitous sensing within the WEZ will require a smaller footprint and lower signature. At the same time, however, prearranged logistics coordinated by the Stand-In Force are essential to effective operations in zone and will therefore become a part of the main effort in the shaping phase.

The Marine Corps will need creative logistics that encompass relationships rather than self-sufficiency. Such a strategy includes acquisitions and cross service agreements (ACSA), diplomatic access, basing, overflight, operational contract support, and the joint logistics enterprise system (JLEnt).²⁰ JLEnt connects logisticians to supply chain networks with established government approved commercial and military resources able to support operations across the entire globe.²¹ While ACSAs synchronize support between the Marine Corps and the private and public sectors of allies, partners and host nations resources.

Such methods should be integrated into a revised concept for Logistics. As presented in 2018 by then Central Command Commander General Joseph Votel and Central Command J3 Colonel Eero Keravuori, ACSA's provide services with a by-with-through (BWT) operational approach. This approach identifies logistics requirements to U.S. partners and allies and increases overall logistics interoperability, while simultaneously building partner capacity and increasing support from other countries by working through and with them rather than for them.²²

The future success of the Marine Corps in a contested environment revolves around partner and alliance relationships. The Marine Corps cannot succeed without these relationships supporting its logistical efforts. These are important requirements in establishing and supporting the theater logistics networks. Beyond partners and allies, the Marine Corps requires the assistance of its sister services—specifically the Army. The Army is tasked with the Title 10 responsibility of establishing theater logistics. Under the auspices of theater logistics, ACSAs constitute prearranged agreements between the United States and treaty partners. These agreements encompass goods and services that treaty partners provide to the United States during operations. Above all, ACSAs enable effectiveness of the overall force. Between Army,

partner, and allied support, the Marine Corps gains the geographic proximity, adequate resource stocks, and redundancy in resources for logistical support.

Achieving sustainable and predictive logistics requires access, pre-set agreements, dynamic forward posturing, agile sustainment, and leveraging of emergent technology; tenets only sustainable with the assistance of partners and in the vicinity of future operations.²³ In the midst of operating within the WEZ with degraded communication networks, a lack of established or consistently accessible SLOCs and GLOCs, autonomous host nation support, and the capability for medical evacuation of personnel to higher echelons of medical support facilities, these tenets become even more vital to success. Uncertainty is a known point of friction for future logistics support and future warfare, but mitigatable through partner relationships and logistics support networks.

Diplomatic access in peacetime forms the foundation of EABO. It not only ensures sustainability within the WEZ, but also provides strategic opportunities to intertwine theater logistics network systems with partner nations to maintain credible logistics assurance once the WEZ has been degraded.²⁴ Preset agreements increase the depth of prepositioned supplies and equipment, while increasing U.S. partner economies and increasing the availability of critical materiel, medical, and infrastructure opportunities.²⁵

Dynamic forward positioning is one of the most critical components of large-scale combat operations (LSCO) in contested environments. The Indo-Pacific region presents unique sustainment challenges from a proximity perspective. As stated by General Gustave Perna, Commander of United States Army Materiel Command in his Army Sustainment article in 2017, “Providing Materiel Readiness on a Joint Battlefield”, “Force projection...entails prepositioned

stocks that are configured to strengthen national defense and build capacity.”²⁶ Commodity readiness is only effective when it is well placed.²⁷ In future warfare, given an operating environment replete with sensors and precision guided munitions and a warfighting concept accordingly based on a small footprint, low signature, and rapid mobility, placement must take into account ease of distribution and vulnerability to detection and targeting.

Leveraging relevant emerging technology to its full potential is vital to logistics success in an austere, contested environment. Beyond additive manufacturing and sustainable water and energy, relevant emerging technologies include unmanned logistics delivery systems, artificial intelligence, and DLA logistics oversight dashboard platforms. These platforms provide real-time data to combined treaty partner and military staging points for fuel, subsistence, and construction. The location of these supplies reinforces the importance of technology to logistics and necessity for agility in supply locations.

Finally, agile sustainment congeals all other sustainment integration methods together. Agility in sustainment requires flexibility in coordination by integrating service components, agencies, and other capabilities to meet the theater commander’s sustainment requirements.²⁸ Ultimately, the Marine Corps must work with the joint force logistics department to apply visionary and innovative principles to logistics sustainment and supply distribution, building on lessons learned from the SPMAGTF NASSIG rotation and SOF best practices.

Conclusion

As seen in the Falklands War, sufficient logistics capabilities must exist afloat and ashore to sustain forces as they defend their key terrain against an adversary’s advance. However, the danger from modern A2/AD systems to sizable, standing infrastructure begs the question, how and where can such redundancy be established? As both the German experience in the Ardennes

and recent US operations in Africa demonstrate, moreover, local resources may not prove viable as a means of sustaining a force during conflict. This lesson underscores the need for peacetime preparation of locally sustainable logistics, as an integral part of operational planning and exercises. Indeed, a key function of Marines operating within the WEZ during peacetime is to supply and equip the inside force in advance.

The Marine Corps as a service component cannot operate indefinitely without support in a contested environment. The service requires the deep support and assistance of various agencies, partner nations, sister services, and other government organizations to achieve any modicum of success in a contested environment. The challenges are not insurmountable, but they will force the service to lean heavily on interagency and international partnerships and alliances for assistance to support the future fight, and therein lie some important dangers.

Historical and contemporary case studies demonstrate that, without logistics appropriately integrated into an operational plan, the culminating point is reached at a much faster rate. Singularly focusing logistics planning without regard to partners will inevitably lead to the repeat of the Falkland/Malvinas campaign, but taking access for granted will risk a replay of the German Ardennes campaigns. Recent experiences in Africa moreover underscore the fragility of partner and host nation supply arrangements.

Despite their vulnerability and their need for self-sufficiency, 21st Marines operating along the principles of EABO, within range of the adversary's A2/AD systems, nevertheless do have options. The Marine Corps needs to look to potential lessons and solutions derived from SPMAGTF, Army, and SOF practices. With the assistance of established and emerging concepts such as JLEnt, ACSAs, and the by-with-through operational approach, the Marine Corps can

fight, sustain, and win against any adversary. These concepts, processes, and procedures are a conglomeration of the ways the Marine Corps can sustain itself as part of a larger naval force. The Marine Corps force must be able to integrate seamlessly with the Navy and provide the land-based, preestablished support to open up contested narrow and confined seas.

To sustain EABO in a contested environment, the Marine Corps should apply lessons learned from logistics and supply chain management procedures during previous conflicts in contested environments, incorporate innovative logistics sustainment techniques, and deepen the necessary relationships with partners and allies. Further, they must make the most of prepositioned supplies and mitigate friction encountered thus far when working with and in partner nation supply arrangements. Maintaining positive strategic relationships with treaty partners and allies is essential to logistically sustaining forces in the future operating environment. Without a firm grasp of the support capabilities and limitations of these partners and allies, the United States is likely to replicate the mistakes made by the Germans in the 1944 Ardennes offensive or enter the fight alone as the British did in the Falkland/Malvinas Islands.

In sum, the evolution of the future operational environment is forcing active changes to the United States military writ large. The Marine Corps specifically must evaluate its utility and contribution to the nation's security in future war, and in doing so must recognize that its logistical capabilities will directly affect its warfighting potential. In past years the Marine Corps relied heavily on the concepts, techniques, and tactics that brought success in previous conflicts. Logistically sustaining forces in a contested environment is not a new concept—it challenged previous conflicts and will undoubtedly challenge future engagements. To adapt to the evolving operational environment, Marine Corps logistics will need to employ new and old logistics concepts in an innovative fashion and in concert with improved operating procedures.

Notes

¹Kenneth L. Privratsky, *Logistics in the Falklands War: A Case Study in Expeditionary Warfare*. (Pen and Sword Military, 2014), Kindle edition, 173.

²Kenneth L. Privratsky, *Logistics in the Falklands War: A Case Study in Expeditionary Warfare*. (Pen and Sword Military, 2014), Kindle edition, 25.

³Headquarters Marine Corps, *Commandant's Planning Guidance* (Washington, DC: Office of the Commandant of the Marine Corps, July 2019), 1-23.

⁴Missile Defense Project, "Missiles of Russia," Missile Threat, Center for Strategic and International Studies, June 14, 2018, last modified June 15, 2018, <https://missilethreat.csis.org/country/russia/>.

⁵Missile Defense Project, "Missiles of China," Missile Threat, Center for Strategic and International Studies, June 14, 2018, last modified January 13, 2020, <https://missilethreat.csis.org/country/china/>.

⁶Headquarters Marine Corps, *Commandant's Planning Guidance* (Washington, DC: Office of the Commandant of the Marine Corps, July 2019), 11-14, 17.

⁷Expeditionary Advanced Base Operations Handbook Considerations for Force Development and Employment, version 1.1, 2018, 5-6.

⁸Expeditionary Advanced Base Operations Handbook Considerations for Force Development and Employment, version 1.1, 2018, 5-6.

⁹Expeditionary Advanced Base Operations Handbook Considerations for Force Development and Employment, version 1.1, 2018, 27-28.

¹⁰Kenneth L. Privratsky, *Logistics in the Falklands War: A Case Study in Expeditionary Warfare*. (Pen and Sword Military, 2014), Kindle edition, 25.

¹¹Kenneth L. Privratsky, *Logistics in the Falklands War: A Case Study in Expeditionary Warfare*. (Pen and Sword Military, 2014), Kindle edition, 235.

¹²Kenneth L. Privratsky, *Logistics in the Falklands War: A Case Study in Expeditionary Warfare*. (Pen and Sword Military, 2014), Kindle edition, 22, 55, 56, 57, 60-62.

¹³Kenneth L. Privratsky, *Logistics in the Falklands War: A Case Study in Expeditionary Warfare*. (Pen and Sword Military, 2014), Kindle edition, 22, 55-56.

¹⁴Kenneth L. Privratsky, *Logistics in the Falklands War: A Case Study in Expeditionary Warfare*. (Pen and Sword Military, 2014), Kindle edition, 278.

¹⁵James L. Kennedy Jr., *Failure of German Logistics During the German Ardennes Offensive of 1944*, (Pickle Partners Publishing, 2007), 12.

¹⁶James L. Kennedy Jr., *Failure of German Logistics During the German Ardennes Offensive of 1944*, (Pickle Partners Publishing, 2007), 91.

¹⁷David E. A. Johnson, Mark Hollingsworth, and Vincent Nwafor, "ARSOF Logistics Transformation." *Military Review* 85, no. 3 (May, 2005), <https://search-proquest-com.lomc.idm.oclc.org/docview/225306758?accountid=14746>, 77.

¹⁸David E. A. Johnson, Mark Hollingsworth, and Vincent Nwafor. "ARSOF Logistics Transformation." *Military Review* 85, no. 3 (May, 2005), <https://search-proquest-com.lomc.idm.oclc.org/docview/225306758?accountid=14746>, 76.

¹⁹Ian Fletcher, Steven Coulon, and John Bailey. "Tomorrow Will be Different." *Marine Corps Gazette* 102, no. 1 (01, 2018), <https://search-proquest-com.lomc.idm.oclc.org/docview/1980918179?accountid=14746>, 22-23.

²⁰Charles R. Hamilton, and Edward K. Woo, "The Road to Predictive Logistics: Perspectives from the 8th Theater Sustainment Command: Army Logistician." *Army Sustainment* 51, no. 4 (Oct, 2019), <https://search-proquest-com.lomc.idm.oclc.org/docview/2317841238?accountid=14746>, 26.

²¹Joseph L. Votel and Eero R. Keravuori, "The by-with-through Operational Approach." *Joint Force Quarterly : JFQ* no. 89 (Second, 2018), <https://search-proquest-com.lomc.idm.oclc.org/docview/2041572879?accountid=14746>, 40, 41, & 46.

²²Charles R. Hamilton, and Edward K. Woo, "The Road to Predictive Logistics: Perspectives from the 8th Theater Sustainment Command: Army Logistician." *Army Sustainment* 51, no. 4 (Oct, 2019), <https://search-proquest-com.lomc.idm.oclc.org/docview/2317841238?accountid=14746>, 24-27.

²³Charles R. Hamilton, and Edward K. Woo, "The Road to Predictive Logistics: Perspectives from the 8th Theater Sustainment Command: Army Logistician." *Army Sustainment* 51, no. 4 (Oct, 2019), <https://search-proquest-com.lomc.idm.oclc.org/docview/2317841238?accountid=14746>, 24-27.

²⁴Charles R. Hamilton, and Edward K. Woo, "The Road to Predictive Logistics: Perspectives from the 8th Theater Sustainment Command: Army Logistician." *Army Sustainment* 51, no. 4 (Oct, 2019), <https://search-proquest-com.lomc.idm.oclc.org/docview/2317841238?accountid=14746>, 24-27.

²⁵Charles R. Hamilton, and Edward K. Woo, "The Road to Predictive Logistics: Perspectives from the 8th Theater Sustainment Command: Army Logistician." *Army Sustainment* 51, no. 4 (Oct, 2019), <https://search-proquest-com.lomc.idm.oclc.org/docview/2317841238?accountid=14746>, 26.

²⁶Charles R. Hamilton, and Edward K. Woo, "The Road to Predictive Logistics: Perspectives from the 8th Theater Sustainment Command: Army Logistician." *Army Sustainment* 51, no. 4 (Oct, 2019), <https://search-proquest-com.lomc.idm.oclc.org/docview/2317841238?accountid=14746>, 26.

²⁷Charles R. Hamilton, and Edward K. Woo, "The Road to Predictive Logistics: Perspectives from the 8th Theater Sustainment Command: Army Logistician." *Army Sustainment* 51, no. 4 (Oct, 2019), <https://search-proquest-com.lomc.idm.oclc.org/docview/2317841238?accountid=14746>, 26.

²⁸Charles R. Hamilton, and Edward K. Woo, "The Road to Predictive Logistics: Perspectives from the 8th Theater Sustainment Command: Army Logistician." *Army Sustainment* 51, no. 4 (Oct, 2019), <https://search-proquest-com.lomc.idm.oclc.org/docview/2317841238?accountid=14746>, 27.

Bibliography

- Belogolova, Olga. "Draft Expeditionary Force Concept Charts Marine Corps Return to Roots." *Inside the Pentagon* 30, no. 8 (Feb 20, 2014). <https://search-proquest-com.lomc.idm.oclc.org/docview/1500276647?accountid=14746>.
- Bradford, James C. 2006. "The Missing Link: Expeditionary Logistics." *Naval History*, 02, 54-61. <https://search-proquest-com.lomc.idm.oclc.org/docview/203461703?accountid=14746>.
- Clement, Jeffrey. *The Lieutenant Don't Know: One Marine's Story of Warfare and Combat Logistics in Afghanistan*. Casemate Publishers, 2014.
- Creveld, Martin Van. *Supplying War: Logistics from Wallenstein to Patton*. Cambridge University Press, 1977, 2004.
- Cruz, Miguel A., Jr. "Dawn of Hybrid Logistics." *Marine Corps Gazette* 101, no. 8 (08, 2017): 24-28. <https://search-proquest-com.lomc.idm.oclc.org/docview/2025644473?accountid=14746>.
- Fletcher, Ian, Steven Coulon, and John Bailey. "Tomorrow Will be Different." *Marine Corps Gazette* 102, no. 1 (01, 2018): 21-26. <https://search-proquest-com.lomc.idm.oclc.org/docview/1980918179?accountid=14746>.
- Hamilton, Charles R. and Edward K. Woo. "The Road to Predictive Logistics: Perspectives from the 8th Theater Sustainment Command: Army Logistician." *Army Sustainment* 51, no. 4 (Oct, 2019): 24-27. <https://search-proquest-com.lomc.idm.oclc.org/docview/2317841238?accountid=14746>.
- Hudson, Lee. "Marines Establish Expeditionary Advanced Base Operations Task Force." *Inside the Pentagon's Inside the Navy* 31, no. 13 (Apr 02, 2018). <https://search-proquest-com.lomc.idm.oclc.org/docview/2020469378?accountid=14746>.
- Headquarters Marine Corps. *Commandant's Planning Guidance*, Washington, DC: Office of the Commandant of the Marine Corps, July 2019.
- Hertlein, Ross M. "The Joint Logistics Enterprise Enables Operation United Assistance: Army Logistician." *Army Sustainment* 47, no. 4 (Jul, 2015): 30-33. <https://search-proquest-com.lomc.idm.oclc.org/docview/1701575948?accountid=14746>.
- Johnson, David E. A., Mark Hollingsworth, and Vincent Nwafor. "ARSOF Logistics Transformation." *Military Review* 85, no. 3 (May, 2005): 76-80. <https://search-proquest-com.lomc.idm.oclc.org/docview/225306758?accountid=14746>.
- Jones, Kenneth D. "The Joint Logistics Enterprise of the Future: Army Logistician." *Army Sustainment* 50, no. 2 (Mar, 2018): 20-23. <https://search-proquest-com.lomc.idm.oclc.org/docview/2049987388?accountid=14746>.

- Kennedy Jr., James L. *Failure of German Logistics During the German Ardennes Offensive of 1944*. Pickle Partners Publishing, 2007.
- McChrystal, Stanley, Tantum Collins, David Silverman, and Chris Fussell. *Team of Teams: New Rules of Engagement for a Complex World*. New York, NY: Penguin Publishing Group, 2015. Kindle edition.
- Perna, Gustave "Gus". "Providing Materiel Readiness on a Joint Battlefield: Army Logistician." *Army Sustainment* 49, no. 4 (Jul, 2017): 2. <https://search-proquest-com.lomc.idm.oclc.org/docview/1943599046?accountid=14746>.
- Privratsky, Kenneth L. *Logistics in the Falklands War: A Case Study in Expeditionary Warfare*. Pen and Sword Military, 2014 (Reprinted 2016).
- Santiago, Eduardo and Johnson, William C., Jr. "Transformation of Logistics Support of Special Forces: Army Logistician." *Army Logistician* 38, no. 5 (Sep, 2006): 32-34. <https://search-proquest-com.lomc.idm.oclc.org/docview/197284070?accountid=14746>.
- Tate, Lee. The Joint Staff J-4 Directorate for Logistics—Operational Contract Support Division. Powerpoint Presentation. Marine Corps University, Quantico, VA, January 21, 2020.
- US Department of Defense. *National Defense Strategy Summary*. Washington, DC: Office of the Secretary of Defense, January 2018.
- Votel, Joseph L. and Eero R. Keravuori. "The by-with-through Operational Approach." *Joint Force Quarterly : JFQ* no. 89 (Second, 2018): 40-47. <https://search-proquest-com.lomc.idm.oclc.org/docview/2041572879?accountid=14746>.