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14. ABSTRACT The Indo-Pacific theater challenges the United States (U.S.) military's ability to support joint operations during a potential kinetic conflict with China. Using historian Duncan S. Ballantine's framework of military logistics helps conduct an assessment on why logistic tasks may fail, or reach a logistics culminating point (LCP), and provides a foundation to identify sustainment shortfalls in a contested environment. To enable a future joint fight, the Indo-Pacific theater requires a Joint Logistics Command (JLC) to prevent planning-based, resource-based, and distribution-based logistics culminating points.					
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A Joint Logistics Command in the Indo-Pacific Will Prevent Logistic Culminating Points

The Indo-Pacific theater challenges the United States (U.S.) military's ability to support joint operations during a potential kinetic conflict with China. U.S. national security rhetoric has cited China as a peer-competitor in the region because its growing military, anti-access aerial-denial (A2/AD) capabilities, and theater-based resource advantages would significantly challenge U.S. combat power and sustainment capabilities in conflict.¹ While the DoD has reallocated a significant portion of resource solutions, like leveraging operational resources with allies and partners, the U.S. military has also looked to modernize how it fights.² The Department of Defense (DoD) has called for "expanded maneuver," particularly studying how to respond in a contested logistics environment.³ Even with additional localized support, the Indo-Pacific's theater size and distance from continental U.S. (CONUS), along with regional threats, has forced the creation of new individual service concepts. The Indo-Pacific subordinate component commands, U.S. Army Pacific (USARPAC), Marine Forces Pacific (MARFORPAC), Pacific Air Force (PACAF), and Pacific Fleet (PACFLEET) are all responsible for implementing these new warfighting ideas to enhance joint operational effectiveness, or the mobilization of any Indo-Pacific Joint Task Force (JTF). However, these concepts must consider the sustainment requirements.

¹ Garamone, "China Military Power Report Examines Changes in Beijing's Strategy." *DOD News*, November 29, 2022, <https://www.defense.gov/News/News-Stories/Article/Article/3230682/china-military-power-report-examines-changes-in-beijings-strategy/>;

"China's Anti-Access Area Denial," *Missile Defense Advocacy Alliance*, August 24, 2018, <https://missiledefenseadvocacy.org/missile-threat-and-proliferation/todays-missile-threat/china/china-anti-access-area-denial/>.

² "USINDOPACOM Area of Responsibility," *United States Indo-Pacific Command*, accessed April 1, 2022, <https://www.pacom.mil/About-USINDOPACOM/USPACOM-Area-of-Responsibility/>.

³ David Vergun, "DOD Focuses on Aspirational Challenges in Future Warfighting," *U.S. Department of Defense*, July 26, 2021, <https://www.defense.gov/News/News-Stories/Article/Article/2707633/dod-focuses-on-aspirational-challenges-in-future-warfighting/>;

Andrew F. Krepinevich Jr., *The Origins of Victory: How Disruptive Military Innovation Determines the Fates of Great Powers*, (New Haven and London: Yale University Press, 2023), 438;

Theresa Hitchens, "The Joint Warfighting Concept Failed, Until It Focused on Space and Cyber," *Breaking Defense*, July 26, 2021, <https://breakingdefense.com/2021/07/the-joint-warfighting-concept-failed-until-it-focused-on-space-and-cyber/>.

According to historian Duncan S. Ballantine, military logistics follows three main tasks: planning, resourcing, and distribution.⁴ Using contemporary sustainment reports and Ballantine's framework to assess why Ballantine's logistic tasks may fail, or reach a logistics culminating point, provides a foundation to identify sustainment shortfalls in a contested environment. A logistics culminating point (LCP) is a moment in a conflict in which sustainment planning, resource management, or distribution limitations inhibit an operation's ability to achieve its desired objective.⁵ Nested within Clausewitz's culminating point of attack (CPA), an LCP is a functional focus on the acts of sustainment.⁶ The Indo-Pacific theater requires a Joint Logistics Command (JLC) to prevent planning-based, resource-based, and distribution-based logistics culminating points to enable a future joint fight. Reviewing the Indo-Pacific's operational environment alongside sustainment vulnerabilities in each major service's new doctrine shows the likelihood of LCPs. Next, evaluating examples of how joint sustainment can overcome each LCP provides evidence of how a JLC can mitigate LCPs in the Indo-Pacific environment. While the U.S. Indo-Pacific Combatant Command (INDOPACOM) commander can design a JTF to support warfighting concepts, a JLC is necessary to create unified action for the integrated logistics and command emphasis required for a joint fight.

Background: Untested Service Doctrines in the Indo-Pacific Invite LCPs

⁴ Duncan S. Ballantine, *U.S. Naval Logistics in the Second World War*, (New Jersey: Princeton University Press, 1949), 1.

⁵ Per Skoglund, Tore Listou, and Thomas Ekström, "Russian Logistics in the Ukrainian War: Can Operational Failures be Attributed to logistics?" *Scandinavian Journal of Military Studies* 5(1), September 8, 2022, 103.

⁶ Michael I. Handel, *Masters of War: Classical Strategic Thought* (London: Cass, third edition, 2001), 192.; Carl von Clausewitz, *On War*, Peter Paret and Michael Howard trans. and eds. (Princeton: Princeton Univ. Press, 1976), 358.

The Indo-Pacific operational environment explains why each major service has developed new warfighting doctrines to be employed by the Indo-Pacific service component commands. Still, assumptions about joint and service sustainment capabilities explain why a campaign may reach a planning, resource, or distribution-based LCP. The U.S. Army (USA) created its new warfighting concept, Multi-Domain Operations (MDO), centered around a Division's ability to conduct large-scale land operations in a noncontiguous area to support the joint fight.⁷ The U.S. Air Force (USAF) developed the Agile Combat Employment (ACE) which uses many decentralized central airfields and basing nodes to hold an adversary at risk from multiple locations.⁸ The U.S. Navy (USN) is taking on three doctrinal concepts, Distributed Maritime Operations (DMO), Littoral Operations in a Contested Environment (LOCE), and Expeditionary Advanced Base Operations (EABO), supported by a much larger, and hybrid fleet.⁹ Lastly, the U.S. Marine Corps' (USMC) Pacific-based III Marine Expeditionary Force (III MEF) is developing a low-signature Stand-In Force (SIF) capability to endure inside the A2/AD weapons range to serve as a sensor for joint requirements.¹⁰ However innovative, these doctrinal service concepts face various LCPs in a contested logistics environment.

While most services speak of "jointness," service cultures will likely reinforce a planning-based LCP that prohibits joint sustainment integration pre-war and challenges

⁷ Department of the Army, *Operations*, FM 3-0 (Washington DC: HQDA, 2022), ix, 7-8.

⁸ Department of the Air Force, *Agile Combat Employment*, AFDN 1-21 (Curtis E. Lemay Center for Doctrine Development and Education: HAF, 2023), 3-4. https://www.doctrine.af.mil/Portals/61/documents/AFDN_1-21/AFDN%201-21%20ACE.pdf.

⁹ Department of the Navy, Department of the Navy: United States Marine Corps, and the United States Coast Guard, *Advantage at Sea: Prevailing with Integrated All-Domain Naval Power* (Washington DC, December 2020), 7. <https://media.defense.gov/2020/Dec/17/2002553481/-1/-1/0/TRISERVICESTRATEGY.PDF/TRISERVICESTRATEGY.PDF>;

Department of the Navy, *Navigation Plan* (Washington DC: Chief of Naval Operations, 2022), 9-10.

¹⁰ Department of the Navy, *Commandant's Planning Guidance* (Washington DC: HQMC, July 2019), 3, 10; Jeffrey W. Donnithorne, *Four Guardians: A Principled Agent View of American Military Relations* (Baltimore: Johns Hopkins University Press, 2018), 85.

integration during war. Analysis of the USA culture is one that continuously subordinates its individual service needs to the greater need of the nation, so it is no surprise that the USA, likely templated to serve as the joint sustainment integrator, is already advocating for a Joint Logistics Command to support the theater's sustainment challenges.¹¹ From birth the USAF has been aligned with disruptive technology and USAF culture continuously reaches for unconventional thinking and creative solutions, especially new ways to logistically support the expansion of required joint capabilities to support ACE.¹² Chief of Staff of the Air Force, General C.Q. Brown, recently cited the need for a JLC in the Indo-Pacific as a sustainment solution as well.¹³ The USN's culture of operational autonomy and independence grew from conducting centuries of power projection missions all over the world, but decades of sustaining in a non-kinetic environment has weakened agile planning operations which may increase dependency on other services for support.¹⁴ Lastly, the USMC culture is founded on its continued existence and remaining beneficial to national requirements, but the service's continued small size suggests that the integration with larger service sustainment will be necessary for operational contingencies.¹⁵

¹¹ "Campaigning in the Pacific: A Conversation with General Flynn," *War Room* from U.S. Army War College, March 14, 2023, <https://warroom.armywarcollege.edu/podcasts/usarpac/>; Major General Charles R. Hamilton and Major Aaron J. Shattuck, "Shaping a Sustainment Community from Half a World Away," *U.S. Indo-Pacific Command*, November 1, 2018, <https://www.pacom.mil/Media/News/News-Article-View/Article/1679457/shaping-a-sustainment-community-from-half-a-world-away/>.

¹² Donnithorne, *Four Guardians*, 106, 127; Department of the Air Force, *Agile Combat Employment*, 10; Lieutenant General Warren Berry, "Air Force Persistent Logistics: Sustaining Combat Power during 21st Century Competition and Conflict," *The Mitchell Forum* No. 37, December 2020, 2, https://mitchellaerospacepower.org/wp-content/uploads/2021/01/a2dd91_e5e06eb2f4254bcbaa9fa7452de5eece.pdf.

¹³ General C.Q. Brown, "Naval War College Address," (presentation, Naval War College Visit, Newport, RI, April 4, 2022).

¹⁴ Donnithorne, *Four Guardians*, 44.;

Burton L. Streicher and Daniel D. Steeples, "Joint Theater Logistics: Maritime Support," *Center for Naval Analysis*, November 2006, 1, <https://www.cna.org/reports/2006/D0014827.A2.pdf>.

¹⁵ Donnithorne, *Four Guardians*, 66, 69.

Resource-based and distribution-based LCPs will be more material-focused due to the need to acquire and move resources with people and platforms, and each service generally will run into the same constraints for both LCPs. Each service today has individual procurement procedures, and these decentralized accounts could naturally limit any cross-sustainment administrative or operational flexibility in a joint fight. Additionally, one of the most common resources across all services is one of the most severe dependencies — the need for fuel. While developing a single fuel concept has streamlined sustainment operations within the USA, USAF, and USN, this resource has also created a huge vulnerability for a contested logistics environment. Limitations in fuel distribution, especially with the closure of Red Hill in Hawaii, have increased the complexity and urgency of how the U.S. can stockpile this resource in theater.¹⁶ Alternatively, the USMC SIF is trying to forgo this constraint by using fewer materials and “living off the land” in an attempt to alleviate its dependency on external fuel resupply; nevertheless, the SIF would have to consider how even local resources are dependent on fuel availability.¹⁷

Lastly, all services will likely see distribution-based LCPs because the size of the Indo-Pacific theater, limited platforms, and external dependencies will create imbalances between time, space, and the forces available. While the USA is practiced in moving supplies over ground and by air via rotary wing support, USA maritime units remain untested at sea and in littoral operations.¹⁸ While the Indo-Pacific USAF footprint is quite large, the risk of platform attrition,

¹⁶ “What is the Red Hill Bulk Fuel Storage Facility?” United States Environmental Protection Agency, last updated August 31, 2022, <https://www.epa.gov/red-hill/what-red-hill-bulk-fuel-storage-facility>.

¹⁷ Major Dustin Nicholson, “Marines Need Regenerative Logistics,” *U.S. Naval Institute*, November 2022, [https://www.usni.org/magazines/proceedings/2022/november/marines-need-regenerative-logistics#:~:text=The%20service%20must%20sustain%20stand,of%20a%20push%2Dpull%20tail.&text=Stand%2Din%20forces%20\(SIF\),fundamental%20improvements%20to%20sustainment%20resiliency](https://www.usni.org/magazines/proceedings/2022/november/marines-need-regenerative-logistics#:~:text=The%20service%20must%20sustain%20stand,of%20a%20push%2Dpull%20tail.&text=Stand%2Din%20forces%20(SIF),fundamental%20improvements%20to%20sustainment%20resiliency).

¹⁸ Brian Molloy, “Frustrated Cargo: The U.S. Army’s Limitations in Projecting Force from Ship to Shore in an A2/AD Environment,” *National Defense University Press*, February 10, 2020,

aging transport aircraft, and dependency on untested airmen to perform multiple sustainment or base defense duties will limit aircraft availability.¹⁹ The USN today is reliant on a limited amount of combat sustainment ships, mainly manned by civilians, which would contribute to a resource and distribution-based LCPs.²⁰ Lastly, the USMC SIF calls for small-scale distribution operations with contested area to connect with protected assets beyond the contested area, but SIF operations inside of the contested area may also be affected by local platform availability.²¹ Despite the sustainment liabilities in each warfighting concept, an Indo-Pacific JLC can prevent these LCPs and support operational campaign requirements.

LCP #1: Missing Logistics in Campaign Planning

A JLC in the Indo-Pacific can prevent a planning-based LCP by enabling continuous and realistic sustainment planning for joint operations. Therefore, a planning-based LCP occurs when a campaign or major operation fails to include the function of sustainment in the operational idea effectively. An operational idea is defined as the basis of an operation's design and supports a commander's vision of how to employ forces to achieve a desired objective.²² A successful operational idea creates multiple dilemmas for an adversary, avoids routine operating

<https://ndupress.ndu.edu/Media/News/News-Article-View/Article/2076632/frustrated-cargo-the-us-armys-limitations-in-projecting-force-from-ship-to-shor/>.

¹⁹ "2021 USAF and USSF Almanac: Equipment," *Air and Space Forces Magazine*, June 30, 2021, <https://www.airandspaceforces.com/article/2021-usaf-ussf-almanac-equipment/>; Department of the Air Force, *Agile Combat Employment*, 3-5.

²⁰ Austin D. Folster, David C. Eggers, and Ryan Sawko, "Availability of Refined Fuel Within the Indo-Pacific Area of Responsibility," *Naval Post Graduate School*, December 2018, 39;

Todd Kutkiewicz, "Military Sealift Command's Combat Logistics Force in Contested Environments," *Naval War College*, May 12, 2017, iii;

"U.S. Navy's Military Sealift Command," *Military Sealift Command*, January 2023, https://www.msc.usff.navy.mil/Portals/43/Posters/MS_CUSNavyShips2023.pdf.

²¹ United States Marine Corps, *A Concept for Stand-in Forces* (Washington DC: HQMC, December 2021), 21.

²² Milian Vego, *Joint Operational Warfare: Theory and Practice* (Newport: U.S. Naval War College, 2009), IX-103

procedures, and both deceives and surprises the enemy.²³ While an operational idea includes many theoretical elements, ensuring that the operation is coherently sequenced and synchronized, especially in helping to generate combat potential, is an example of how logistic planners are critical to a campaign's design.²⁴ Looking at two different scales of joint logistics integration before a major campaign articulates the positive effect of joint planning on operations and suggests the impact of a JLC to the Indo-Pacific theater.

The transitions from the interwar period to the Pacific Theater in World War II, as well as military drawdown and reduced jointness before the Falklands War, show how joint logistics sequencing and synchronization within an operational idea can prevent a planning-based LCP in conflict. After the Battle of Midway in World War II, the U.S. gained offensive momentum, but sustainers were underprepared for the upcoming combat requirements, as seen in an early offensive operation at Guadalcanal. Rushing into operational preparation created sustainment planning gaps, resulting in supply download backlogs on shore and a landing plan that failed to think about sustainment comprehensively.²⁵ Additionally, failure to proactively compensate for the lack of nearby dock facilities to handle aviation fuel download impacted timely air support operations.²⁶ While Japanese planning assumptions failed to take advantage of the U.S. military's extremely vulnerable supply trains, Guadalcanal's logistical nightmare was significant enough that senior U.S. military leadership implemented the Basic Logistical Plan in March 1943 which directed theater commanders to enforce joint theater logistics.²⁷ Therefore,

²³ Vego, *Joint Operational Warfare*, IX-104.

²⁴ Ibid., IX-107.

²⁵ Thomas M. Kane, *Military Logistics and Strategic Performance* (Portland: Frank Cass Publishers, 2001), 52; Benjamin King, Richard C. Biggs, and Eric R. Criner, *Spearhead of Logistics: A History of the United States Army Transportation Corps* (Washington DC: Center of Military History, 2001), 273.

²⁶ Kane, *Military Logistics and Strategic Performance*, 57.

²⁷ Kane, *Military Logistics and Strategic Performance*, 57; Ballantine, *U.S. Naval Logistics in the Second World War*, 125-128.

introducing joint sustainment planning early into operations can help mitigate any potential planning-based LCPs, but having a joint organization already established before war provides an operational advantage to planning.

The British task force employed for the Falklands War, also known as the Malvinas War, utilized a joint logistics unit for operational sustainment planning, showing how preexisting joint sustainment can benefit campaign planning during conflict. The Lieutenant Colonel Ivar Hellberg and Commando Logistics Regiment (CLR) of the 3rd Commando Brigade (3CB) played a pivotal role in logistical lines of communication in the British task force, from the midway stop at Ascension Island to the Falkland Islands. Being a unit staffed with logisticians from the British Army, Royal Marines, and Royal Navy, the CLR was able to appreciate the sustainment challenges from different service perspectives to support the task force.²⁸ Additionally, as plans adapted for the fight, military leadership attached additional sustainment units to the CLR, and the CLR was able to best integrate and leverage these units from arrival to the point of need.²⁹ The CLR's joint familiarization helped them synchronize air, land, and maritime support within the Atlantic fight, despite the continuous changes in task organization and timeline constraints. The Falklands shows that a preexisting joint logistics unit can effectively integrate service-specific sustainment to support a campaign.

Creating a JLC in the Indo-Pacific would ensure that new service doctrinal concepts avoid a planning-focused LCP by conducting joint sustainment planning before a conflict. While all units may be basing their sustainment planning on their individual warfighting requirements, only two services have expressed desires to integrate sustainment to improve planning.

²⁸ Kenneth L. Privratsky, *Logistics in the Falklands War* (Yorkshire: Pen & Sword Books Ltd, 2021), 49.

²⁹ Privratsky, *Logistics in the Falklands War*, 245.

Sustainment wargaming is another way to develop a more holistic understanding of the Joint Logistics Enterprise (JLEnt) to better appreciate an operational environment and its requirements, but even JLEnt wargames recognized the need for more deliberate planning across actors.³⁰ Additionally, in other service wargames, the sustainment requirements can often be ignored due to complexity.³¹ A JLC infused with layers of service logisticians, and potentially interagency partners, can forecast and translate specific requirements faster for a commander with the authority and incentive to see sustainment collaboration between service domains. Additionally, a JLC offers a planning touchpoint for any supported allies and partners, and additional strategic logistics support outside of the theater. Creating a scalable JLC to accommodate different levels of planning or expanding the 8th Theater Sustainment Command's (TSC) current joint sustainment role into a deliberate joint organization would be another efficient way to introduce a JLC in the theater.³² While supporting campaign plans with sound sustainment ideas helps enable successful synchronization and sequencing of operations, being able to manage resources effectively is also vital to preventing other LCPs.

LCP #2: Poor Resource Management

³⁰ Robin L. Mays et al., "Advancing Globally Integrated Logistics Effort 2017 Wargame Report," *Center for Naval Analyses*, September 2017, v, https://www.cna.org/archive/CNA_Files/pdf/drm-2017-u-015748-final.pdf; United States Department of Defense Inspector General, *Evaluation of the DoD's Actions to Develop Interoperable Systems and Tools for Forecasting Logistics Demand Across the Joint Logistics Enterprise* (Washington DC: DOD, 2022), 2, https://media.defense.gov/2022/May/04/2002989683/-1/-1/1/DODIG-2022-088_REDACTED.PDF.

³¹ Sydney Litterer, et al., "Network Logistics Games," *RAND Corporation*, 2023, iii, https://www.rand.org/pubs/research_reports/RRA470-2.html.

³² Mark W. Akin and George L. Topic, "Transforming Joint Operational-level Logistics," *Joint Force Quarterly Issue 47*, 2007, 90, <https://apps.dtic.mil/sti/pdfs/ADA518743.pdf>; Hamilton and Shattuck, "Shaping a Sustainment Community from Half a World Away," 2018.

A JLC in the Indo-Pacific can prevent a resource-based LCP by effectively managing resources, particularly fuel, across services to support a joint fight. A resource-based LCP occurs when there is a variance over time between an operation's intensity and sustainment capability to provide adequate resources, known as a logistics vacuum or "bullwhip effect."³³ The single fuel concept, what former U.S. Central Command Commander, General James Mattis, called a "tether of fuel," is based on the idea that all U.S. military operations are heavily dependent on the availability of this commodity.³⁴ At the same time, while resource-based LCPs have the potential to occur across all supply commodities, fuel has proven to consistently limit a military's offensive momentum. Effective joint management of this resource can dramatically affect combat power and advances the need for an Indo-Pacific JLC.

The centralization of fuel requirements for Nazi Germany's Operation BARBAROSSA in World War II shows how fuel supply can shape a resource-based LCP, limiting service capabilities. Germany conducted Operation BARBAROSSA, a surprise invasion of the Soviet Union in June 1941 to take control of Soviet oil fields in the Caucasus region.³⁵ Hitler and his generals executed the operation with the assumption that the Soviets would be defeated in a few months, but German forces found themselves in an unexpected extended campaign that strained the routine *Blitzkrieg* sustainment concepts.³⁶ Despite head Army Quartermaster expressing

³³ Skoglund, Listou, and Ekström, "Russian Logistics in the Ukrainian War," 104.

³⁴ Paul J. Kern, et al., "An Albatross Around the US Military's Neck: The Single Fuel Concept and the Future of Expeditionary Energy," *Modern War Institute*, June 29, 2021. <https://mwi.usma.edu/an-albatross-around-the-us-militarys-neck-the-single-fuel-concept-and-the-future-of-expeditionary-energy/>;

"Energy for the War Fighter: The Department of Defense Operational Energy Strategy," *Department of Energy*, June 14, 2011, <https://www.energy.gov/articles/energy-war-fighter-department-defense-operational-energy-strategy>.

³⁵ Joel Hayward, "Hitler's Quest for Oil: The Impact of Economic Considerations on Military Strategy, 1941-1942," *The Journal of Strategic Studies*, Vol. 18, No. 4, December 1995, 94.

³⁶ Major Shawn P. Keller, "Turning Point: A History of German Petroleum in World War II and its Lessons for the Role of Oil in Modern Air Warfare," *Air Command and Staff College, Air University*, 2011, 12; Robert M. Citino, *The German Way of War: From the Thirty Years' War to the Third Reich* (Lawrence: University Press of Kansas, 2005), xiv.

logistics concerns, the fuel consumption required for BARBAROSSA had cascading effects for other services and German efforts at large.³⁷ The cost of Operation BARBAROSSA significantly degraded total German fuel capacity affecting BARBAROSSA's air support and adjacent naval operations, and the Germans were unable to capture their oil field objectives.³⁸ Operation BARBAROSSA shows how the lack of joint resource management can both limit service initiatives and cause a resource-based LCP in a campaign, so ensuring resource availability across the forces is critical in supporting a joint fight.

Conversely, the Allied forces in the lesser-known World War II China-Burma-India (CBI) theater, focused on ejecting the Japanese expansion into China and Burma, prevented a resource-based LCP through joint sustainment operations. While the USAF was not yet an individual service, separately assessing CBI's air and ground fuel requirements illustrates the benefit of joint sustainment integration. The CBI theater held challenging environmental features and little preexisting logistical infrastructure, and aerial resupply became a validated method of sustainment through interservice cooperation.³⁹ A symbiotic effort emerged under Major General R. A. Wheeler and the theater's Service of Supply Command (SOS) to build combat power to expel the Japanese from the region: ground operations created supported air bases forward, which enabled lengthy aerial resupply missions supporting ground operations, and ground

³⁷ Williamson Murray and Allan R. Millet, *A War to be Won: Fighting the Second World War* (Cambridge: The Belknap Press of Harvard University Press, 2001), 119.

³⁸ Murray and Millet, *A War to be Won*, 127;
Hayward, "Hitler's Quest for Oil," 101, 104-105.

³⁹ Major General Julian Thompson, *The Lifeblood of War: Logistics in Armed Conflict* (New York: Macmillan Publishing Company, 2001), 79-87;

Leo J. Daugherty III, "Supplying War: Interservice and Interallied Cooperation in China-Burma-India," *Joint Force Quarterly*, Summer 2006, 95;

Thompson, *The Lifeblood of War*, 91;

Daugherty, "Supplying War," 96.

success then created more conditions to build air bases.⁴⁰ Joint communication reinforced support operations regarding the construction of fuel pipelines, fuel transport via rail and waterways, and the construction of above ground storage tanks to expand the sustainment reach for air drops.⁴¹ Theater forces were able to effectively consider and manage each other's fuel requirements in a contested environment to avoid a resource-based LCP by adapting to operational challenges through the development of joint logistics.

Historical examples show how fuel management affects joint operations' success. Creating a JLC in the Indo-Pacific would help empower more agile and responsive sustainment efforts and avoid a resource-based LCP. While the U.S. military has looked at distributed stockage solutions across the Indo-Pacific, as well as created mutual support agreements with other nations, the management of all these programs to ensure that fuel makes it to the right operational place at the right time across the theater is still going to take significant administrative coordination.⁴² Therefore, if the U.S. military chooses to adopt a more diversified energy footprint to free itself from the fuel tether, a JLC can help introduce and manage these diverse energy pools. Examples like mobile nuclear reactors, varieties of synthetic fuels, or

⁴⁰ Daugherty, "Supplying War," 105;

Major Bruce U. Roett Jr, "The US Strategic Logistics Plan in the CBI Theater and its Contemporary Significance," *U.S. Army Command and General Staff College, School of Advanced Military Studies*, October 3, 2016, 35; Major Adrian Rainier Byers, "Air Supply Operations in the China-Burma-India Theater Between 1942-1945," *U.S. Army Command and General Staff College*, October 12, 2010, 120.

⁴¹ Daugherty, "Supplying War," 98;

Tillman Durdin, "2,000-Mile Pipeline Nears China with War Fuels from Calcutta," *New York Times*, November 20, 1944;

Graham Dunlop, "British Army Logistics in the Burma Campaign 1942-1945," *The University of Edinburgh*, 2009, 69-71, 94-97, <https://era.ed.ac.uk/handle/1842/29091>.

⁴² Mahealani Richardson, "Plans for Fuel Storage Facilities in the Pacific Could Offer Alternatives to Red Hill," *Hawaii News Now*, updated January 25, 2022, <https://www.hawaiinewsnow.com/2022/01/26/plans-more-fuel-farms-pacific-could-offer-alternatives-red-hill/>;

Heather Mongilio, "SECNAV Del Toro: Navy Will Not Need to Build Fuel Facilities to Replace Red Hill Fuel Depot," *USNI News*, March 11, 2022, <https://news.usni.org/2022/03/11/secnav-del-toro-navy-will-not-need-to-build-fuel-facilities-to-replace-red-hill-fuel-depot>.

Lisa Curtis et al., "Operationalizing the Quad," *Center for a New American Security*, June 2022, 17.

hydrogen-based solutions could all be operational energy possibilities in the future, and a JLC could identify where to appropriately introduce these options for force validation.⁴³ Additionally, being able to communicate about these new resources will require practical combat ontology and education. Leaders will need to understand and resource commodities that power the force, help electrify the battlespace, and how to command and control the energy available.⁴⁴ A JLC can streamline the integration of alternative energy, economize fuel supply, and support INDOPACOM by conducting a logistics-specific wargames for each operational plan (OPLAN) to identify existing and required joint energy considerations. However, understanding the distribution capabilities of each service also shows the benefit of a JLC to the final executed leg of sustainment operations.

LCP #3: Inadequately Assigned Distribution

A JLC in the Indo-Pacific can prevent a distribution-based LCP by effectively utilizing limited distribution assets to transport necessary resources to support a campaign or major operation. An LCP caused by transportation shortfalls is identifiable when there are not enough assets to move supplies, equipment, or service members to the point of requirement. Employing available sustainment assets in the most effective way ensures economy of force across an operation. Ground, sea, and land operations all use different platforms to distribution, but using these sustainment assets in a massed transportation effort or in coordination with one another can help to maximize operational success. Looking at how two different campaigns used or failed to

⁴³ Kern, et al., "Single Fuel Concept."

⁴⁴ Mason Carpenter, Dr. Paul Sullivan, Dan Nussbaum, "Operational Energy — Essential Knowledge for Military Officers," *Naval Post Graduate School*, accessed March 2023, <https://nps.edu/web/eag/operational-energy-essential-knowledge-for-military-officers>.

use a joint distribution network demonstrates the potential impact of JLC on overseeing asset management in the Indo-Pacific.

Russia's invasion of Ukraine to take control of Kyiv in February 2022 lacked a joint distribution network which slowed its campaign operations, leading to a distribution-based LCP. While trying to encircle Kyiv, the ground lines of communication faced environmental route challenges, sustainment distribution issues were communicated poorly, and necessary equipment suffered attrition leading to insufficient supplies on hand.⁴⁵ At one point, a convoy of 40 vehicles was stalled for hours due to lack of logistics.⁴⁶ Russia ground sustainment has limited assets, trained to rely on rail as a primary ground line of communication, and the absence of a joint distribution concept significantly contributed to the offensive's advance.⁴⁷ While Russia's airlift and sealift capacity today is much reduced since the Cold War, Russia still failed to leverage any aerial resupply or naval supply operations in any adjacent manner.⁴⁸ Additionally, Russia does not have any joint transportation coordination command or forum that could have identified or mitigated distribution challenges.⁴⁹ Due to Russia's ground force dependencies, any joint

⁴⁵ Skoglund, Listou, and Ekström, "Russian Logistics in the Ukrainian War," 107; Seth G. Jones, "Russia's Ill-Fated Invasion of Ukraine: Lessons in Modern Warfare," *Center for Strategic and International Studies*, June 1, 2022, <https://www.csis.org/analysis/russias-ill-fated-invasion-ukraine-lessons-modern-warfare>;

"Ukraine: Why has Russia's 64km convoy near Kyiv stopped moving?" *BBC*, March 3, 2022, <https://www.bbc.com/news/world-europe-60596629>;

Mykhaylo Zabrodskiy et al., "Preliminary Lessons in Conventional Warfighting from Russia's Invasion of Ukraine: February – July 2022," *Royal United Services Institute*, November 30, 2022, 32,35. <https://static.rusi.org/359-SR-Ukraine-Preliminary-Lessons-Feb-July-2022-web-final.pdf>.

⁴⁶ "Ukraine: Why has Russia's 64km convoy near Kyiv stopped moving?" *BBC*.

⁴⁷ Alex Vershinin, "Feeding the Bear: A closer look at Russian Army Logistics and the Fait Accompli," *War on the Rocks*, November 23, 2021, <https://warontherocks.com/2021/11/feeding-the-bear-a-closer-look-at-russian-army-logistics/>.

⁴⁸ Ben Connable et al., "Russia's Limit of Advance: Analysis of Russian Ground Force Deployment Capabilities and Limitations," *RAND Corporation*, 2020, 57;

Heather Mongilio, "Russian Navy Taking on Resupply Role Nearly 50 Days Into Ukrainian Invasion," *USNI News*, April 11, 2022, <https://news.usni.org/2022/04/11/russian-navy-taking-on-resupply-role-nearly-50-days-into-ukrainian-invasion>.

⁴⁹ Connable et al., "Russia's Limit of Advance," 57.

sustainment effort at any level, tactical, operational, or strategic, may have created more logistic options for Russian operations and prevented a distribution-based LCP. Alternatively, the effective employment of sustainment assets for a joint fight has been proven to support operational offensives.

Services based in the Pacific Ocean area created an innovative joint distribution network in World War II that facilitated a high-tempo offensive campaign. In the Pacific Ocean Area during World War II, Admiral Chester Nimitz supported the Basic Logistics Plan guidance and developed the Service Force Pacific Fleet, a joint operational logistics structure that prevented a distribution-based LCP.⁵⁰ Service Force Pacific fleet was composed of USA, USN, and USMC elements, and control of shipments to advanced bases by determining routes, appropriate convoys, and prioritized material, helped leverage economy of force.⁵¹ Service Force Pacific fleet also helped develop innovative resupply concepts where fleets used Service Squadrons and advanced bases to refuel at sea, which prepared forces for major offensive operations, like Operation Galvanic.⁵² Recognizing the limitations in platform availability and adapting joint sustainment to optimize distribution assets creates operational flexibility which avoids a distribution-based LCP.

A JLC in the Indo-Pacific will prevent a distribution-based LCP by managing the limited transportation assets of the major services for joint sustainment operations in the sizeable Indo-Pacific theater. Each service has limited transportation platforms to conduct resupply operations, and service logisticians will try to find non-organic means to help fulfill requirements.

⁵⁰ Robert W. Coakley and Richard M. Leighton, *United States Army in World War II: Global Logistics and Strategy 1943-1945* (Washington DC: Center of Military History, 1989), 449.

⁵¹ Coakley and Leighton, *Global Logistics and Strategy 1943-1945*, 449, 451.

⁵² Thomas Wildenberg, "Gray Steel and Black Oil: Fast Tankers and Replenishment at Sea in the U.S. Navy, 1912-1992," *HyperWar Foundation*, <https://www.ibiblio.org/hyperwar/USN/GSBO/GSBO-17.html>.

Unfortunately, the aggregation of information across network enclaves has significantly challenged distribution coordination and forecasting in the Indo-Pacific, and developing rapid and reliable joint force distribution solutions for sustainers will be challenging.⁵³ The establishment of a JLC can help the INDOPACOM commander maximize their directive authority for logistics (DAFL) by leveraging a JLC to use limited assets for priority operations effectively. Assigning transportation assets to a JLC is beneficial because a JLC has a larger perspective on theater sustainment risks which enables the longevity of operations. One way the INDOPACOM commander can test a JLC's distribution control is incorporating a JLC in Valiant Shield. Valiant Shield is INDOPACOM's primary U.S.-only joint training exercise and is an ideal venue to exercise new logistics concepts, like DAFL adjustments, for a contested environment.⁵⁴ Overall, a JLC provides a neutral, balanced, and equipped sustainment organization that can provide timely and consistent command oversight to limited distribution assets in conflict.

Is a JTF Self-Sustainable?

However, some may argue that the INDOPACOM commander can design a JTF to support the service warfighting concepts. Services continue to exercise innovative training to find gaps in logistic plans, the management of fuel resources, and ways to mitigate distribution assets. PACAF has been practicing providing communications in a contested logistics

⁵³ United States Department of Defense Inspector General, *Evaluation of the DoD's Actions to Develop Interoperable Systems and Tools for Forecasting Logistics Demand Across the Joint Logistics Enterprise* (Washington DC: DOD, 2022), 20, 28, https://media.defense.gov/2022/May/04/2002989683/-1/-1/1/DODIG-2022-088_REDACTED.PDF.

⁵⁴ First Lieutenant Jade Watkins, "Valiant Shield 2022 Draws to a Close," *United States Indo-Pacific Command*, June 17, 2022, <https://www.pacom.mil/Media/News/News-Article-View/Article/3067760/valiant-shield-2022-draws-to-a-close/>.

environment, USARPAC has been studying operations along interior lines, PACFLEET has experimented with rearming and repair at sea, and MARFORPAC is training logistics SIF capabilities across the Pacific and CONUS.⁵⁵ The continued rehearsal of these new warfighting concepts will aid a JTF commander's J-4 logistics staff. Designed to hold necessary service, interagency, and coalition assets to manage the required sustainment for operations, a J-4 staff would be the key logistics touch point for the sustainment requirements of the service warfighting concepts within its JTF organization.⁵⁶ Units assigned to a JTF will know their minimum support requirements and will be able to feed the J-4 to create appropriate sustainment concepts. In short, the activities of subordinate component commands will be able to support a JTF J-4's staff in sustaining forces in conflict and avoiding LCPs.

However, a lack of actual sustainment interoperability and control from a sustainment commander will overwhelm a JTF J-4 staff to synchronize a joint fight. First, services continue to remain unfamiliar with each other's logistics, inhibiting sustainment responsiveness in JTF operations. In the past ten years, the Maritime Advanced Warfighting School (MAWS) has had about five percent representation of either USMC or USA logistic students, and the School of Advanced Military Studies (SAMS) has had about seven percent of either USMC, USN, or

⁵⁵ Technical Sergeant Nick Wilson, "PACAF Airmen overcome contested C4 and logistics during BLUE FLAG 23-1," *United States Indo-Pacific Command*, February 9, 2023, <https://www.pacom.mil/Media/News/News-Article-View/Article/3294642/pacaf-airmen-overcome-contested-c4-and-logistics-during-blue-flag-23-1/>;

General Charles Flynn and Lieutenant Colonel Sarah Starr, "Interior Lines Will Make Land Power the Asymmetric Advantage in the Indo-Pacific," *Defense One*, March 15, 2023, <https://www.defenseone.com/ideas/2023/03/interior-lines-will-make-land-power-asymmetric-advantage-indo-pacific/384002/>;

Sam LaGrone, "PACFLEET CO Paparo Talks Combat Logistics Chinese Coercion," *USNI News*, February 14, 2023, <https://news.usni.org/2023/02/14/pacfleet-co-paparo-talks-combat-logistics-chinese-coercion/>;

Third Marine Division, "Marine Littoral Regiment Concludes Historic Exercise, Set to Joint Stand-in Force: 'From This Point Forward, We Are Integrating Them Into our Operations,'" *The Official Website of the United States Marine Corps*, March 14, 2023, <https://www.marforpac.marines.mil/News/Article/Article/3329425/marine-littoral-regiment-concludes-historic-exercise-set-to-join-stand-in-force/>.

⁵⁶ Joint Force Development, *Joint Task Force Headquarters*, JP 3-33, (Washington DC: DOD, January 31, 2018), VIII-1 – VIII-2, https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3_33.pdf.

USAF logistician attendees.⁵⁷ While services maintain proficiency in their sustainment, the lack of institutional exposure to adjacent service sustainment concepts will prevent optimal JTF support design for the time and space challenges in the Indo-Pacific. Second, history has shown in the Falklands, CBI Theater, and Pacific Ocean Area that it takes actual command emphasis to integrate joint logistics. Even if a JTF commander prioritizes “joint sustainment,” the complexity of planning, resources, and distribution in the Indo-Pacific will require consistent engagement, especially when internal competition exists for assets. A JLC provides operational redundancy that can empower a JTF’s command and control by covering gaps in joint sustainment domain knowledge and capabilities during task force operations. An adjacent JLC will ensure that sustainment remains seamless and prevents LCPs, relieving the JTF commander and the J-4 to focus on the near fight.

Conclusion

In sum, a JLC in the Indo-Pacific theater would be the best solution to integrate new service concepts and prevent a logistics culminating point by ensuring adequate integration of sustainment planning in an operational idea, managing resources in the theater for joint requirements, and ensuring the optimal tasking of distribution assets. Other nations are already embracing the idea of joint sustainment as they recognize how the aggregation of joint sustainment helps maximize operational reach.⁵⁸ Establishing a unit for joint sustainment with a

⁵⁷ Email correspondence with staff member at the School of Advanced Military Studies, April 17, 2023; Email correspondence with staff member at the Maritime School of Advanced Warfighting, April 11, 2023.

⁵⁸ “Joint Expeditionary Force,” 2022, 7, https://www.mil.lv/sites/mil/files/document/JEF%20Brochure%20Apr_2022.pdf; James Wharton, “What is the Joint Expeditionary Force?” *Forces.net*, March 16, 2022, <https://www.forces.net/operations/what-joint-expeditionary-force>; “Joint Capabilities Group,” *Australian Government*, accessed April 2023, <https://www.defence.gov.au/about/who->

commander's emphasis will ensure that joint logistics concepts survive service parochialism in the face of adversity and prevent planning-based LCPs. Additionally, a single sustainment command responsible for managing fuel and energy resources across the Indo-Pacific theater will provide deliberate control over a significant U.S. military dependency and inhibit a resource-based LCP. Lastly, having joint command control of critical limited distribution assets will leverage economy of force for joint sustainment operations to avoid a distribution-based LCP. While a J-4 staff can equip a JTF with institutional service knowledge and necessary sustainment assets, the unpredictable character of war will challenge an underdeveloped joint logistics network in the Indo-Pacific environment.

Recommendations

To streamline and effectively integrate a JLC in the Indo-Pacific to avoid LCPs, INDOPACOM should build upon existing task organization in the theater to prevent planning-based LCPs, run more joint wargames that identify resource-based LCPs, and integrate a JLC into Valiant Shield to exercise DAFL adjustments that help avoid distribution-based LCPs. Since the USA will be the joint sustainment provider during conflict, enhancing the 8th TSC's capabilities to better support the other services will avoid drastic reorganizations in theater while providing a deliberate node for joint sustainment integration under a command. Conducting joint OPLAN wargames focusing on resource limitations, like fuel and energy needs, will ensure a JLC can anticipate and serve joint sustainment requirements. Lastly, flexing DAFL authorities

we-are/organisation-structure/joint-capabilities-group;
 "PLA Joint Logistics Support Force Builds New System to Support Joint Operations," *Ministry of National Defense of the People's Republic of China*, accessed April 2023,
http://eng.mod.gov.cn/xb/News_213114/Videos/4923891.html.

during Valiant Shield would create opportunities for the joint force to experiment with a JLC to maximize distribution capabilities in a contested environment. As sustainment is the “lifeblood” of war, it always deserves critical analysis.⁵⁹ A JLC amplifies the U.S. military’s sustainment posture advantageously to support kinetic operations in the Indo-Pacific.

⁵⁹ Thompson, *The Lifeblood of War*, 344.

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