Bridging the Gap Together:
Send in the Joint Engineer Support Brigade

By Captain Thomas J. Van Kirk

China seeks "Western Pacific dominance by 2035" and has its sights set on "becoming a leading world power by 2049" by increasing the ability of the People's Liberation Army (PLA) to operate within all domains of the operating environment.[1] In order to maintain superiority within the Pacific Theater, the United States must now rely on joint capabilities harmoniously working together. As a result, the U.S. military developed a "joint combined arms" strategy to maintain its advantages within contested environments.[2]

Although the notion of joint combined arms is a relatively new concept, interoperability between military Services across multiple domains is not. In past wars, Army engineers conducted amphibious shore-to-shore operations to project combat power from friendly seaports to enemy-controlled shores.[3] The Army did away with these amphibious engineer units in the mid-20th century and began to focus on other forcible-entry operations. Similarly, U.S. Marine Corps engineers divested themselves of capabilities that support assured mobility in land environments to focus on expeditionary operations within littoral environments.[4] The elimination of these capabilities from both Services has created capability gaps that adversaries can exploit to their advantage; therefore, the Army and Marine Corps must develop a joint engineer support brigade (JESB) to bridge existing gaps, enhance inter-Service capabilities, and provide full spectrum engineering for the joint force commander. The JESB would redevelop an amphibious capability for the Army while enhancing Marine Corps skills for conducting expeditionary operations and sustaining knowledge about conducting inland mobility operations.

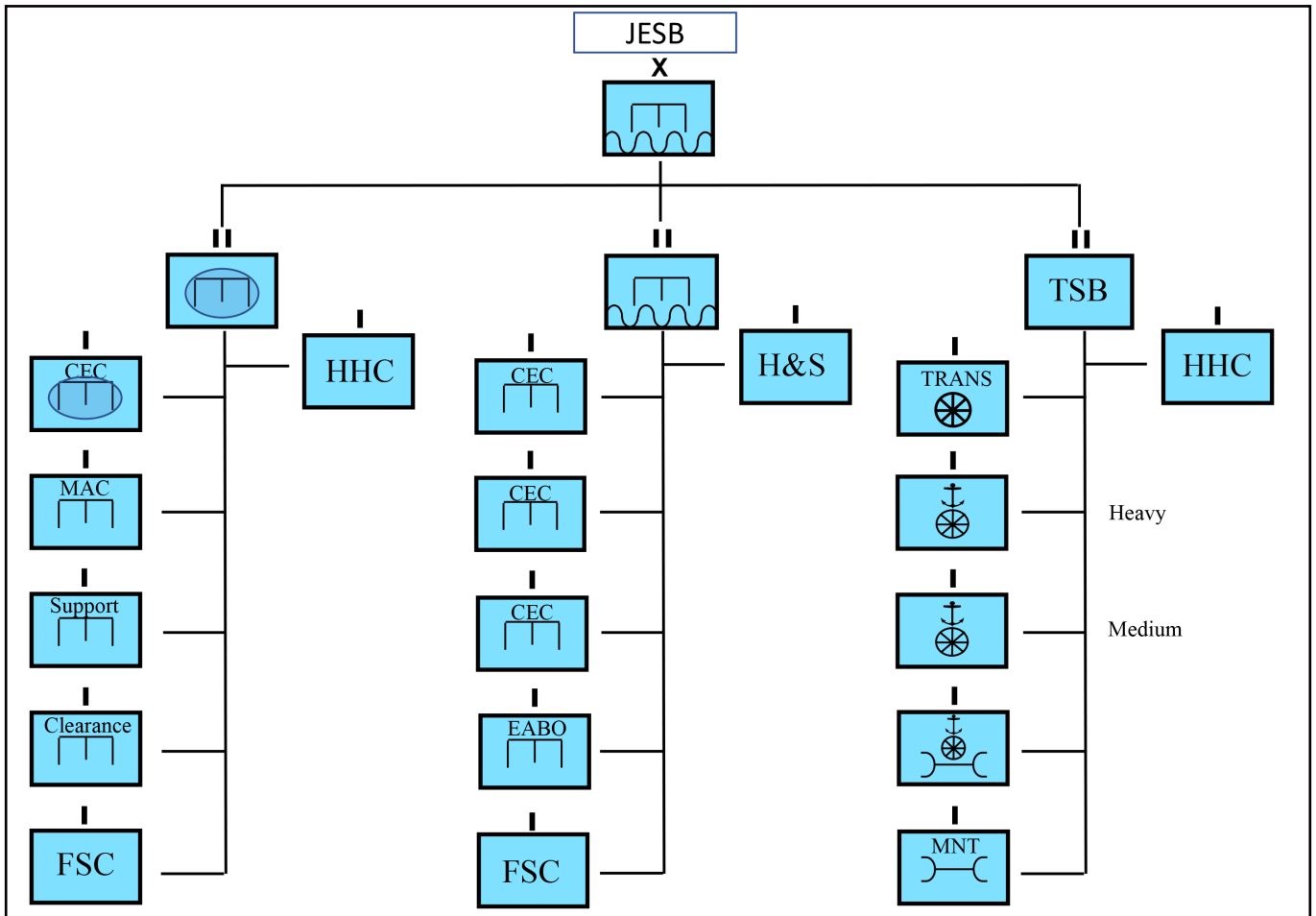
During the early years of World War II, the Army identified the importance of conducting amphibious operations for power projection into the European theater.[5] Development of the Engineer Amphibian Command provided this capability. The command was composed of subordinate engineer amphibian brigades capable of providing operational maneuverability and logistical support.[6] These brigades, later renamed engineer special brigades, conducted amphibious assaults, defended beachheads, constructed facilities, and transported logistical supplies from shore to shore within both the European and Pacific Theaters.[7] As a result of previous political disputes with the Navy and in order to focus on other forcible-entry operations, the Army eliminated the remaining engineer amphibian brigades after the Korean War.[8] Therefore, the Army currently lacks the ability to operate within a littoral environment and conduct amphibious operations. The lack of an amphibious capability forces the Army to rely on airborne operations for power projection within the Pacific Theater. With the growing and robust PLA arsenal of air defense capabilities, it is unlikely that U.S. airborne operations will be as successful as they have been in previous conflicts. Commanders risk losing combat forces and aircraft by relying solely on airborne operations for power projection in the Pacific Theater.

Beyond the littoral environment, Marine Corps engineers cannot sufficiently support assured mobility due to changes in *Force Design 2030*.[9] The Marine Corps recently divested itself of many assets and reorganized its forces in hopes of naval integration via a return to its historic roots of operating within the marine littoral environment.[10] Gap-crossing and armored capabilities, which serve as critical enablers for extending a commander's operational reach on land, were among the divested assets. There are more than 15 major rivers throughout China which the PLA could leverage as obstacles that the Marine Corps will be unable to breach—and the Marine Corps divestment of tanks provides additional advantages for the PLA. The loss of tanks severely reduces the ability of Marine Corps engineers to create mobility lanes to support armored maneuver or potentially combat armored PLA assets. PLA armored battalions, on the other hand, have assets capable of operating on land and in amphibious environments.[11] The PLA will likely seek opportunities to leverage its advantages against the Marine Corps within the littoral environment. The recent divestments of Marine Corps gap-crossing and armored capabilities will prompt Marine commanders to accept unnecessary risk in conducting expeditionary operations within littoral environments due to effects on their ability to seize contested beachheads ashore and to support assured mobility for continued operations.

Marine Corps engineers also lack some of the expertise necessary to support assured mobility and expeditionary advanced base operations (EABO) within littoral environments. Marine Corps engineers are not trained in operating geospatial technologies, which support assured mobility (by enabling commanders to visualize the operational environment)[12] and EABO (by enabling a commander to analyze

lines of communication, infrastructure, hydrological data, and other intelligence relating to the physical environment).[13] Additionally, most Marine engineers lack professional engineering credentials, organic contracting specialties, and tactical leadership training (Army Sapper Leader Course, Ranger Leader Course, Urban Mobility Breacher Course).[14] These knowledge deficiencies further reduce the ability for Marine Corps engineers to support assured mobility and conduct EABO.

The mission of the proposed JESB would be to provide tactical maneuverability of troops and equipment for the joint force operating within littoral environments.[15] The proposed JESB would fill the inter-Service gaps with a centralized command, a diverse task organization, and joint training exercises. It would serve as a centralized engineer command under an Army colonel, improving Marine access to Army technical schools and geospatial and contracting officer courses. The JESB would consist of three subordinate battalions (see Figure 1)—two engineering battalions (one Army and one Marine) and one transportation support battalion. The transportation support battalion would provide mission command of terminal operations, two watercraft companies, and logistical support at embarkation sites to enable brigade overseas transportation.[16] The joint nature of the JESB would make it differ from previously proposed amphibious engineer units. The joint staff of the JESB would consist of leaders certified in planning joint engineer operations through a joint engineer operations course. This would enable the subordinate battalions to execute joint training exercises. Furthermore, the organization of each battalion would provide a full spectrum of engineer support for the joint force commander.



Legend:

CEC—combat engineer company
EABO—expeditionary advanced base operations
FSC—forward support company
HHC—headquarters and headquarters company
H&S—headquarters and service company
JESB—joint engineer support brigade
MAC—mobility augmentation company
MNT—maintenance
TRANS—transportation
TSB—transportation support battalion

Figure 1. Proposed JESB

The proposed Army engineer battalion would provide combat engineering support to a landing force while also supporting construction operations for expeditionary advanced bases. This battalion would consist of one headquarters and headquarters company, one armored combat engineer company (CEC), one mobility augmentation company, one engineer support company, one mobility augmentation company, one clearance company, and one forward support company (FSC). The headquarters and headquarters company would provide command and control for engineer operations ashore. The CEC would be responsible for conducting mobility and countermobility operations in support of armored maneuver units. It would also support the initial assault of a beachhead, enabling access to enemy territory for follow-on forces. The mobility augmentation company and clearance company would support mobility operations through gap-crossing and route clearance operations, respectively; additionally, these companies would facilitate the movement of troops ashore. The engineer support company would construct the infrastructure and survivability positions required to support expeditionary or other defensive operations. Finally, the FSC would provide sustainment and maintenance services to support the tactical effectiveness of the battalion. The JESB joint training exercises would provide Army leaders with the opportunity to work with their Marine counterparts to become educated on planning and executing amphibious operations. These joint training exercises would facilitate the development of the doctrine and tactical procedures necessary to rebuild Army engineer amphibious competencies. Such a reestablished capability could enable Army engineers to augment Marine forces in future amphibious operations and provide the joint force commander with more options for deploying ground forces in the Pacific Theater.

The proposed Marine combat engineer battalion (CEB) would consist of one headquarters and service company, three CECs, one EABO company, and one FSC. The headquarters and service company would maintain command and control of engineer forces operating within littoral zones. The CECs organic to the Marine CEB would support amphibious assaults and augment maneuver companies inside contested littoral environments. The EABO company would be responsible for reconnoitering tentative advanced base locations, conducting beach surveys, and serving as the subject matter expert for establishing future expeditionary bases;[17] the company would consist of small teams whose members were trained as bulk fuelers, construction engineers, heavy-equipment operators, geospatial intelligence engineers, and surveillants while also possessing the skills common to all combat engineers.[18] The FSC would provide the equivalent services for the U.S. Army and Marines, as well as maintain the capability to build expeditious forward-arming and refueling stations to support aircraft. JESB gap-crossing exercises would allow CEB Marines to maintain proficiencies that enabled assured mobility within littoral and inland environments. Additionally, these joint training exercises would help develop shared standard operating procedures and understanding of the institutional differences between Services.[19] Lastly, leaders within the Marine CEB would have access to Army technical and tactical leadership courses in support of the EABO concept. This task organization, lessons learned from joint exercises, and increased access to technical schools would assist in developing the skills required to support the initiatives of *Force Design 2030*.[20]

In opposition to support for a joint Army/Marine engineer brigade, the Marine Corps does not require large land-based capabilities to support expeditionary operations.[21] However, Army gap-crossing and armored capabilities would enable the mobility of Marine forces to support expeditionary operations within contested environments. Additionally, information gathered from previous joint operations in support of Operation Iraqi Freedom suggests that Army and Marine engineers are fairly aligned to one another, due to their similar focus on combat operations, mission sets, and capabilities.[22] Army and Marine Corps engineers provide general engineering support leading to the construction of several types of logistics facilities that support combat operations.[23] The diverse knowledge and capabilities nested within the JESB would fill the inter-Service gaps and provide operational flexibility for supporting assured mobility in support of expeditionary operations.

The United States must currently rely on symbiotic relationships between military Services to maintain its advantage against the rising threat within the Pacific Theater. The Army and the Marine Corps can support each other by resurrecting the amphibious capability of the Army and improving the technical proficiency of the Marine Corps in supporting assured mobility ashore. A JESB would enable the joint force to project combat power within a contested environment by combining knowledge, experience, and equipment capabilities under one command. With the technological advancements of the PLA in China, the joint engineer force will require more in-depth knowledge of inter-Service capabilities, which can be attained from joint training initiatives.[24] A JESB could bridge the gap between the two Services; consequently, leaders must consider its establishment.

Endnotes:

[1]Army Techniques Publication (ATP) 7-100.3, *Chinese Tactics*, 9 August 2021, p. 1-4.

[2]*Description of the National Military Strategy 2018*, The Joint Staff, 12 July 2019, p. 2, <https://www.jcs.mil/Portals/36/Documents/Publications/UNCLASS_2018_National_Military_Strategy_Description.pdf>, accessed on 29 November 2022.

[3]Alfred M. Beck, *The Corps of Engineers: The War Against Germany*, Center of Military History, U.S. Army, 1985, Washington, D.C., pp. 64–65, <https://babel.hathitrust.org/cgi/pt?id=uiug.30112037783245&view=1up&seq=84&skin=2021>, accessed on 28 November 2022.

[4]*Force Design 2030*, Headquarters, U.S. Marine Corps, Washington, D.C., 26 March 2020, p. 2, <https://www.hqmc.marines.mil/Portals/142/Docs/CMC38%20Force%20Design%202030%20Report%20Phase%20I%20and%20II.pdf?ver=2020-03-26-121328-460>, accessed on 28 November 2022.

[5]John T. Greenwood, "The U.S. Army and Amphibious Warfare During World War II," *Army History*, Summer 1993, p. 2, <http://www.jstor.org/stable/26304100>, accessed on 28 November 2022.

[6]Donald W. Boose Jr., *Over the Beach: U.S. Army Amphibious Operations in the Korean War*, Combat Studies Institute Press, Fort Leavenworth, Kansas, December 2008, pp. 35–38, <https://apps.dtic.mil/sti/pdfs/ADA507443.pdf>, accessed on 28 November 2022.

[7]Joshua P. Bost, "Amphibian Engineers in the Southwest Pacific," School of Advanced Military Studies, Fort Leavenworth, Kansas, 8 March 2017, p. 10, <https://apps.dtic.mil/sti/pdfs/AD1038874.pdf>, accessed on 28 November 2022.

[8]Boose, pp. 37, 327, 328.

[9]*Force Design 2030*.

[10]Ibid., p. 2.

[11]ATP 7-100.3, pp. A–1, A–2.

[12]ATP 3-34.80, *Geospatial Engineering*, 22 February 2017.

[13]Ibid, p. 1-8.

[14]Ademola D. Fabayo, "Marine Corps Engineering Pre-Mortem," Marine Corps University, 2021, p. 21, <https://usmc.primo.exlibrisgroup.com/view/delivery/01USMCU_INST/1254146290005241>, accessed on 29 November 2022.

[15]Robert F. Gold, "The Engineer Amphibious Support Brigade: Concept for Future Operations, Rooted in the Past," *Engineer*, January–April 2020, pp. 32–33.

[16]Ibid, p. 32.

[17]Walt Carr, "The Marine Combat Engineer Regiment," *Marine Corps Gazette*, Vol. 104, Issue 5, May 2020, p. 37, <https://www.proquest.com/docview/2397845819?accountid=14746&parentSessionId=a37AbJNoV3%2Bf1J%2BiZVxSsfWxX%2FdA9OaCVrMfrKNBzCI%3Dpqorigsite=primo>, accessed on 29 November 2022.

[187]Ibid.

[19]R. Daren Payne and Carol L. Anderson, "Joint Engineer Culture Clash—Lessons Learned from a Marine Expeditionary Force," *Engineer*, July–September 2006, pp. 11–13.

[20]*Force Design 2030*, pp. 2, 8, 9.

[21]Ibid.

[22]Payne and Anderson, p. 13.

[23]Ibid, pp. 11, 14.

[24]Rachel M. Walkenbach, "The Joint Engineering Way Ahead," *Engineer*, January–March 2008, p. 24.

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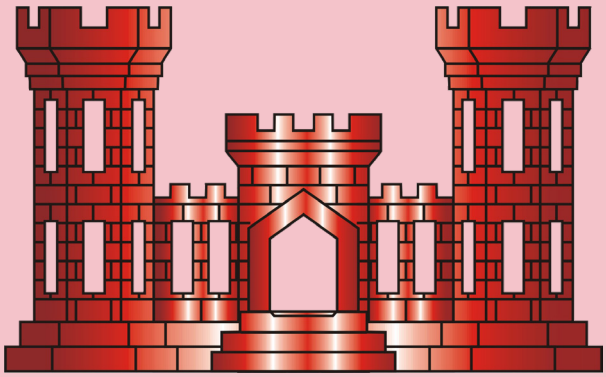
("Hamad Karzai International . . . ," continued from page 9)

the actions of the previous day. As a result, the pumps no longer transferred fuel from the four bulk fuel storage tanks to the generator day tanks. Coordination was immediately conducted with the fuel delivery unit to directly fill the day tanks for continued operations. For fueling to take place, disassembly of the inlet pipes was required. This course of action reduced the continuous operations timeline of PP3 to 16–24 hours because fuel was being drawn from the day tanks—not the underground storage tanks. The operation time that had previously been calculated for the generators at PP3 was roughly 21 days. On the evening of 29 August 2021, the Counter Rocket Artillery Mortar System lost electrical power. This required a controlled power reset. After this corrective action was taken, the power for the building was restored and was no longer dependent on its uninterrupted power supply system.

On the morning of 30 August 2021, the Counter Rocket Artillery Mortar System was back online and managed to thwart an attempted rocket attack aimed at HKIA. The end-of-mission plan consisted of one final check for all three plants. Since PP3 was slated to run out of fuel first, Chief Warrant Officer Two Cooper and Sergeant First Class Adkins ensured that the joint operations center powered by this plant was notified of the impending loss of power. Fortunately, all tactical operations had been switched over to the 82d Airborne Division. Cooper and Adkins completed their final checks of the power plants, prepared to retrograde with the trail element, and joined the 82d Headquarters and Headquarters Battalion Company later that afternoon. They departed HKIA in a C-17 aircraft and returned to Camp Arifjan that evening, completing the mission.

Chief Warrant Officer Two Cooper was the prime power officer in charge of a forward element from Company B, 249th Engineer Battalion (Prime Power), during the events described in this article. He now serves as a facilities engineer technician, 44th Medical Brigade, Fort Bragg, North Carolina. Chief Warrant Officer Two Cooper holds a bachelor's degree in construction management from Southern Polytechnic State University, Marietta, Georgia, and a master's of business administration degree in project management from Liberty University, Lynchburg, Virginia.