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Center for Strategic and Budgetary Assessments

## BEYOND COAST ARTILLERY CROSS-DOMAIN DENIAL AND THE ARMY



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# BEYOND COAST ARTILLERY

## CROSS-DOMAIN DENIAL AND THE ARMY

At the Association of the U.S. Army’s annual meeting in October 2014, Secretary of Defense Chuck Hagel made waves in Army circles by suggesting in his keynote address that the ground Service take on new missions in the Asia-Pacific. As part of the U.S. effort to “rebalance” to that region, he said:

[T]he Army could broaden its role by leveraging its current suite of long-range precision-guided missiles, rockets, artillery, and air defense systems. These capabilities would provide multiple benefits such as hardening the defenses of U.S. installations; enabling greater mobility of Navy Aegis destroyers and other joint force assets; and helping ensure the free flow of commerce. This concept is worthy of consideration going forward. Such a mission is not as foreign to the Army as it might seem. After the War of 1812, the Army was tasked with America’s coastal defense for more than 100 years.<sup>1</sup>

Hagel’s suggestion that the Army take on additional missions may have surprised some, especially in a speech in which he warned that the Army’s forecasted budget “falls short of what . . . is sufficient to defend our nation” and leaves “little choice but to make up the differences through cuts to readiness.” As the Secretary noted elsewhere in his remarks, however, the Army must strike a balance between the capabilities needed for the present and those needed for the future. The Army appears hesitant to take on new missions at present,<sup>2</sup> but looking ahead, there is a compelling argument that the Army can and should do so. By leveraging the capabilities Hagel mentions, the Army could do far more than defend coastlines—it could field a forward-deployed anti-access/area-denial force that would help the Army and the Joint Force deter and prevail in a wider spectrum of conflict.

### **The Coast Artillery Corps Strikes Back**

Hagel’s remarks have brought attention to the idea that the Army should invest in what could be called cross-domain denial capabilities—land-based systems that can deny adversaries sanctuary and freedom of maneuver and action in other domains. Yet this idea is not new. Last year Jim Thomas suggested in *Foreign Affairs* that the Army “resurrect its coastal defense mission—not to protect American shores but to defend

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<sup>1</sup> Chuck Hagel, remarks delivered to the Association of the U.S. Army, Washington, DC, Oct. 15, 2014.

<sup>2</sup> For example, when asked shortly before Hagel’s speech about developing anti-ship missile capabilities, the head of Army Space and Missile Defense Command, LTG David Mann, said that the Army “isn’t looking to take on a lot of large, costly, exquisite capabilities,” suggesting instead that, “It might be worthwhile to have the Navy address some of these threats.” Jen Judson, “Mann: Army isn’t seeking anti-ship missiles,” *Politico Pro*, October 15, 2014.

critical overseas theaters” by “establishing a constellation of forward-based missile forces” that would “deny would-be regional aggressors the ability to project power.”<sup>3</sup> That same year, several analysts at RAND conducted an Army-sponsored study of land-based anti-ship missiles in the Western Pacific and concluded that they could have substantial utility as a means of denying aggressors freedom of maneuver and action.<sup>4</sup>

More recently, indications have appeared that such thinking is beginning to take hold within the Army itself. In his March 2014 testimony before the House Armed Services Committee, Army Chief of Staff General Raymond Odierno said the RAND report was “worth taking a hard look at.”<sup>5</sup> Since then, the Army has released a new Army Operating Concept (AOC) that notes that the “range, lethality, and precision of surface-to-air, air-to-surface, and surface-to-surface fires may help overcome anti-access and area denial challenges, extend mutual support across long distances, and permit land forces to project power into the air and maritime domains.”<sup>6</sup> Going further, it assesses that certain threats, including the growing capability and assertiveness of China’s military, “highlight the *need* [emphasis added] for Army forces to project power from the land into the air, maritime, space, and cyberspace domains.”<sup>7</sup> Accordingly, in its list of the “first order capabilities that the Army must possess to win in a complex world,” the AOC includes the capability to “coordinate and integrate Army and joint, interorganizational, and multinational fires and conduct targeting across all domains to defeat the enemy and preserve freedom of maneuver and action across the range of military operations.”<sup>8</sup>

This acknowledgement is a welcome improvement upon older doctrine that was far more narrowly focused on controlling the land. Nevertheless, the AOC still falls short of fully embracing the *denial* missions that others have called upon the Army to perform. Although the concept repeatedly calls for the Army to operate across multiple domains, it is with the stated purpose of projecting power and achieving control, rather than denying others the ability to do so. The Army’s ability to conduct cross-domain operations is envisioned in the AOC as a solution to the anti-access/area-denial (A2/AD) challenges posed by others, not a means by which the United States could pose similar challenges to its own prospective adversaries. As will be explored below, the real logic of developing Army cross-domain capabilities lies in their inherent potential to accomplish both control and denial missions.

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<sup>3</sup> Jim Thomas, “Why the U.S. Army Needs Missiles: A New Mission to Save the Service,” *Foreign Affairs*, 92, No. 3, May/June 2013.

<sup>4</sup> Terrence K. Kelly, Anthony Adler, Todd Nichols, and Lloyd Thrall, *Employing Land-Based Anti-Ship Missiles in the Western Pacific* (Santa Monica: RAND Corporation, 2013).

<sup>5</sup> General Raymond T. Odierno, Chief of Staff, U.S. Army, testimony before the House Armed Services Committee, “Fiscal Year 2015 National Defense Authorization Budget Request from the Department of the Army,” March 25, 2014.

<sup>6</sup> U.S. Army Training and Doctrine Command (TRADOC), *The U.S. Army Operating Concept: Win in a Complex World*, TRADOC Pamphlet 525-3-1 (Fort Eustis, VA: U.S. Army, 2014), p. 13.

<sup>7</sup> *Ibid.*, p. 11.

<sup>8</sup> *Ibid.*, p. 30.

## Using the Land to Deny the Sea and Air

The best example of how land-based forces can be used to achieve cross-domain effects is provided by China's People's Liberation Army (PLA). A traditionally land-centric force with roots in guerrilla warfare, the PLA has increasingly emphasized "using the land to control the sea"<sup>9</sup> and other cross-domain operations. Over the past two decades, it has invested heavily in developing long-range, land-based capabilities such as radars, air defenses, and anti-ship missiles. With these capabilities, the PLA can now hold at risk U.S., ally, and partner forces entering or operating in large areas of the Asia-Pacific region, posing what the Department of Defense (DoD) has taken to calling "anti-access and area-denial" (or "A2/AD") challenges.<sup>10</sup> By doing so, the PLA has undermined the United States' ability to project power in the Western Pacific, imposing upon it the costs of developing countermeasures and creating conditions under which China can project its own power with a greater likelihood of success. Although the PLA is the world leader in developing and employing these capabilities, other states including Iran, Russia, and Vietnam, as well as U.S. allies and partners such as Taiwan, Japan, and Poland, have clearly seen the sense in doing so and appear to be following suit.

The United States, by contrast, has largely neglected land-based, cross-domain denial capabilities for several decades. As Secretary Hagel noted in his speech, the U.S. Army has a history of using land-based capabilities to deny adversaries freedom of movement and action at sea. The massive forts and coast artillery emplacements that still overlook our nation's strategic waterways are a testament to how seriously the Army took this mission before the World Wars drew the United States into an era of expeditionary operations.<sup>11</sup> Land-based air and missile defense in some ways assumed its place during the Cold War, but two decades of low-intensity conflict and unchallenged U.S. air supremacy have diverted attention and resources from air denial to missile defense and other missions. Meanwhile, having once led the world in the development of surface-to-surface missiles (conventional and nuclear), the Army has since relinquished all but its shortest-ranged systems to comply with the 1987 Intermediate-range Nuclear Forces (INF) Treaty.

Fortunately, there is ample opportunity for the Army to get back into the business of cross-domain denial. As Secretary Hagel and others have noted, the Army's existing offensive fires and air and missile defense capabilities could provide a jumping-off point for more robust cross-domain denial capabilities. The Army's HIMARS and MLRS rocket and missile artillery units, for example, could be adapted to provide a land-based

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<sup>9</sup> See Andrew S. Erickson and David D. Yang, "Using the Land to Control the Sea," *Naval War College Review*, 62, No. 4, Autumn 2009, pp. 53–85.

<sup>10</sup> According to the Joint Operational Access Concept, *anti-access* refers to "those actions and capabilities, usually long-range, designed to prevent an opposing force from entering an operational area," while *area-denial* refers to "those actions and capabilities, usually of shorter range, designed to limit an opposing force's freedom of action within an operational area." DoD, *Joint Operational Access Concept (JOAC), Version 1.0* (Washington, DC: DoD, 2012), p. 1.

<sup>11</sup> See Brian McAllister Lynn, *The Echo of Battle: The Army's Way of War* (Boston: Harvard University Press, 2007), pp. 10–39.

sea denial capability.<sup>12</sup> With their interchangeable payload pods and competence in conducting precision over-the-horizon strikes, all these units really lack is a long-range anti-ship missile—several of which are already under development by the Army’s sister Services and international partners. Far from providing mere coastal defense, forward-deployed Army fires units equipped with such a missile and provided with targeting data could command critical maritime chokepoints and large swathes of strategic waterways like the Baltic, East China Sea, and Persian Gulf. If equipped with longer-ranged land-attack munitions, these same units could hold at risk bases, staging areas, launchers, and other high-value targets deep within enemy territory.<sup>13</sup> Meanwhile, existing Army air and missile defense capabilities like Patriot that are normally used in a predominantly defensive role to protect bases and infrastructure could be forward deployed to deny the adversary freedom of movement and action in large swathes of contested airspace.<sup>14</sup>

Together, protected and supported by the other capabilities already possessed by the Army and its partners, these land-based denial capabilities could pose to adversaries the same vexing A2/AD challenges that U.S. forces currently face in the air, on land, and at sea. More specifically, they could better protect U.S. forces and partners from attack, deny adversaries freedom of maneuver and action in large swathes of the sea and air, deny adversaries sanctuary within their own A2/AD areas, and hold at risk a large and diverse set of targets. By doing so, they would reassure allies and strengthen deterrence by decreasing the likelihood that aggressors will be able to achieve their objectives.

### **The Case for Doing it With the Army**

Of course, the Army *could* decide to leave the contest for the air and sea domains to the Air Force and Navy, as it largely has since World War II. The Army is right to think that it can and should prioritize winning wars on land—that is central to its very being and its value to the nation. But too narrow a focus on the land discounts the Army’s inherent potential to project power into other domains, with all the advantages of doing so from the land.

In an era of air and maritime warfare that seems increasingly likely to be dominated by long-range sensors and precision strikes, ground forces enjoy inherent advantages over air and naval forces in the key attributes of resilience, persistence, and sustainability. Ground forces are free of the highly nodal structure of air and naval forces, which must concentrate their capability into a relatively small number of high-value and potentially

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<sup>12</sup> The M142 High Mobility Artillery Rocket System (HIMARS) and M270 Multiple Launch Rocket System (MLRS) are mobile launchers capable of launching several different rockets and missiles from interchangeable “pods.”

<sup>13</sup> At present, the Army’s longest-range land attack capability resides in later variants of the ATACMS missile, which can be launched by HIMARS and MLRS units and have a maximum range of 300 km (186 miles). Missiles with a maximum range of up to 500 km (311 miles) are permitted under the INF Treaty with Russia, although the United States is a voluntary adherent of the Missile Technology Control Regime (MTCR), which prohibits the *export* of systems that can deliver a 500 kg payload more than 300 km. Even within these confines, there is room for the Army to expand its deep-strike capabilities.

<sup>14</sup> The PLA has done this along its southeastern coastline, deploying long-range Russian-made S-300 (SA-20) surface-to-air missile batteries that provide coverage of almost the entire Taiwan Strait. Should the PLA acquire longer-range missiles like the S-400 (SA-21), these land-based systems will be capable of engaging aircraft over Taiwan itself.

vulnerable platforms and fixed bases. Ground forces are also able to harden, conceal, and disperse their capabilities (many of which are highly mobile) and to network them with terrestrial telecommunications links that are difficult for adversaries to access and disrupt. These ground force characteristics increase their resilience relative to air and naval forces while presenting adversaries with a target set that is larger and more difficult and costly for them to attack.<sup>15</sup>

Ground forces also enjoy logistical advantages over air and maritime forces. Based on land, ground forces are free of the platform-based constraints on “magazine depth” with which aircraft and ships must contend. Unlike most air and naval strike platforms, ground forces can also rearm, resupply, and refuel in the theater away from big, fixed bases that may be vulnerable. With access to land-based power generation and storage systems, ground forces will also enjoy a similar advantage in conducting electronic warfare and employing directed energy systems such as rail guns and lasers, if and when they are deployed. Together, these attributes enable ground forces to remain forward, “on station,” engaged, and in the fight.<sup>16</sup>

In addition to exploiting these advantages in survivability, sustainability, and persistence, using ground forces to conduct cross-domain operations would have other benefits. As Secretary Hagel noted in his speech, it could free up heavily burdened air and maritime forces for other missions that they alone can fulfill. Additionally, by denying adversaries sanctuary and freedom of action across multiple domains, Army forces could provide a form of overwatch that would enable its sister Services and its own maneuver forces to more effectively project power and operate in those areas under the ground forces’ aegis. For example, forward-deployed Army forces could provide additional air and missile defense coverage for surface naval forces offshore and engage any enemy vessels that might attempt to close with and attack them, reducing the need for friendly vessels to expend their more limited munitions. In a similar manner, land-based forces could create sheltered areas in which defenseless assets such as AWACS, aerial refueling tankers, replenishment ships, and merchant shipping could operate in relative safety. In littoral and archipelagic environments, the size of the area so covered could be considerable.

Meanwhile, by presenting adversaries with new, land-based threats to their air and naval forces and targets deep within their territory and along their coastline, Army forces would add complexity and uncertainty to adversaries’ calculations. By confronting them with a larger set of targets that could be dispersed, hardened, and concealed on land, they would impose upon adversaries the higher costs of finding and striking these challenging targets,<sup>17</sup> while reducing the susceptibility of U.S. forces to a first strike and

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<sup>15</sup> Thomas, “Why the U.S. Army Needs Missiles.”

<sup>16</sup> Ibid. Ground forces’ ability to use terrestrial communications could also give them an advantage in electronic warfare by enabling them to remain networked should radio and/or satellite communications be degraded.

<sup>17</sup> Evan Braden Montgomery, “How Should America Respond to China’s Deadly Missile Arsenal?” *The National Interest*, September 19, 2014.

thereby enhancing crisis stability. Since attacks on forward deployed cross-domain denial forces would have to occur on the sovereign territory of another state—as opposed to at sea or mid-air—they would entail greater diplomatic repercussions and risk of horizontal escalation, creating additional dilemmas for would-be aggressors. In doing all of the above, the Army could make essential contributions to joint efforts to deter and win conflicts in several theaters, including the crucial Asia-Pacific region.

### **Conclusion: A Way Forward for the Army**

Admiral Nelson famously said that “a ship’s a fool to fight a fort,” and though the heyday of the coast artillery may be long past, some of its advantages endure. In an era in which ground forces can see and strike far beyond the range of a cannon, it would be foolish for any nation to overlook the important advantages in resilience, persistence, and sustainability that ground forces can bring to bear in a contest to control or deny the other domains. The United States’ competitors are already exploiting these advantages, and, although symmetry is not always desirable in military strategy, the U.S. military has fallen far enough behind in this area that the emulation of others is warranted.

Going forward, the U.S. Army should seek to enhance its land-based cross-domain denial capabilities, with a particular focus on wide-area air denial and missile defense, sea denial, and long-range strike. This will be painful but imperative for the Army to do in the zero-sum budget environment that the Army and its sister Services currently face. Additional resources will likely not arrive until a crisis does—and by that point it may be too late to adapt. Capacity in existing mission areas can be expanded in a relatively timely fashion, but it is difficult to develop new capabilities from scratch. At a minimum, a “seed” of capability, doctrine, and organizational expertise is required.

In lean budget years, that seed can be developed and nurtured at low cost through concept development, wargaming, prototyping, experimentation, and field exercises. Perhaps the best example of how this can be done is provided by the tiny interwar German army which, constrained as it was, still managed to develop the doctrine and prototypical capabilities required for combined-arms mechanized warfare. Along these lines, the Army should do the following:

1. Begin developing operational concepts for cross-domain denial;
2. Use wargames to explore how these concepts might be applied in contingencies;
3. Develop prototypes of the systems envisioned;
4. Experiment with existing, partner/off-the-shelf, and prototypical systems; and
5. Conduct field exercises employing concepts and systems under development.

In doing all of the above, the Army should cooperate with its sister Services and foreign partners to leverage the relevant knowledge, insights, and capabilities that they already possess or are in the process of developing. With regard to anti-ship missiles, for example, the Army would be wise to work with both the U.S. Navy, which is already developing a next-generation anti-ship missile, and with the Japan Ground Self Defense Force, which has been employing truck-launched anti-ship missiles for over 25 years. As its own proficiency in such areas grows, the Army should seek to export its



capability and know-how in cross-domain denial. Leveraging its ability to engage partner forces, the Army could help the United States and its partners and allies create what Congressman Randy Forbes has described as an “integrated web of A2/AD systems among allies”<sup>18</sup> that would bolster our allies’ capacity for self-defense and collective security.

The overarching goal of these efforts should be to grow the Army’s incipient cross-domain denial capabilities into one of its “core competencies,” which the Army Operating Concept describes as “the Army’s strengths, strategic advantages, and essential contributions to the Joint Force.”<sup>19</sup> Cross-domain denial has the potential to be all three. Alongside combined-arms maneuver, wide area security, special operations, and the Army’s other existing competencies, cross-domain denial would enable the Army to make yet another essential contribution to the Joint Force and to better support the policy goals and objectives of the Army and the nation. Combined with the capabilities possessed by the Army’s sister Services and international partners, it would enable the Army to help deter and, if necessary, prevail in a still wider spectrum of conflict.

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<sup>18</sup> Randy J. Forbes, Letter to General Raymond Odierno, October 10, 2014.

<sup>19</sup> *U.S. Army Operating Concept*, pp. 20–22.



## Appendix: Cross-Domain Denial as a Core Competency for the Army

As mentioned in the conclusion, the Army Operating Concept provides a list of seven core competencies. At present, the Army's ability to conduct cross-domain operations is subsumed into other core competencies such as "set the theater" and "combined arms maneuver in the air, land, maritime, space, and cyberspace domains." Rather than being treated as supporting capability, cross-domain denial should be a core competency of its own. A description of an eighth core competency in cross-domain denial, written in the style of the Army Operating Concept, is offered below to provide a sense of the desired end-state envisioned here:

(8) *Cross-domain denial.* Cross-domain denial is the use of offensive and defensive capabilities to deny adversaries sanctuary and freedom of maneuver and action in the air, maritime, and land domains. Supported by joint forces, Army forces use land-based reconnaissance, surveillance, target acquisition, and strike capabilities to hold at risk enemy ground, air, and naval forces entering or operating in large areas of the theater. By denying adversary forces sanctuary and freedom of action and maneuver across broad areas and multiple domains, Army forces protect U.S. forces and partners from attack, strengthening deterrence, restoring friendly initiative and freedom of action, and facilitating the free flow of commerce and critical resources. In doing so from the land, Army forces free up friendly air and maritime forces for other missions and exploit ground force advantages in resilience, persistence, and sustainability to present dilemmas, impose costs, and complicate planning for adversaries.

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### About the Author

Eric Lindsey is a research fellow at the Center for Strategic and Budgetary Assessments. His primary areas of interest concern U.S. and world military forces, both current and prospective, and the future operational challenges that the U.S. military may face. Among other publications, he is the coauthor of *The Road Ahead*, an analytical monograph exploring potential future challenges and their implications for U.S. Army and Marine Corps modernization. Eric holds a B.A. in military history and public policy from Duke University and an M.A. in strategic studies and international economics from the School of Advanced International Studies (SAIS).

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