

Army crafting strategy to reduce logistics tail

By Jen Judson, Defense News

WASHINGTON — In the future operational environment, up against near-peer adversaries, the U.S. Army will be expected to be able to operate in smaller, more dispersed units far away from well-established military posts that offer creature comforts as well as essentials like fuel, water, ammunition and energy.

So the service is crafting a strategy to reduce the logistics tails for units expected to operate at the tactical edge.

“I don’t think we are going to have the luxury of having this massive amount of logistics behind us in future higher-end, higher-intensity conflicts, in my view,” Army Chief of Staff Gen. Mark Milley said at a May 4 Atlantic Council event in Washington.

The Army’s relatively new war fighting concept — multi-domain battle — acknowledges the battlefield is interconnected across domains from space to land to air to sea and even to cyberspace. The battlefield is expanding not just across geographic space but also the electromagnetic and cyber spectrums. Adversaries will be more closely matched in capability with U.S. forces and therefore smaller units will be expected to maneuver quickly semi-independently from larger formations during small windows of advantage.

This means dragging a massive amount of stuff needed to sustain a unit isn’t going to be possible, but soldiers still need water, fuel, power and equipment to survive and operate. The service is taking a hard look at how to reconcile such a conundrum through a concept it is calling demand reduction.

The Army Capabilities Integration Center held a demand reduction summit last month to help inform the strategy it is developing to address reducing the sustainment and logistics tail of the Army in multi-domain battle.

The goal is to “improve our ability to maintain freedom of movement in action during sustained and



U.S. Army photo released

high [operational tempo] operations especially at the end of extended lines of communication in austere environments,” Col. Stephanie Gradford, the ARCIC Sustainment Division chief, told reporters in a teleconference May 2.

As the Army and the Marine Corps examine multi-domain battle, they are “recognizing that reducing vulnerabilities inherent in deployment and sustainment activities also supports resiliency of U.S. forces,” she said. “We must pursue demand reduction efforts to create units needing less fuel, energy, water and other supplies.”

The Army doesn’t see reducing supplies and logistics as taking away capability from the force but rather as a “combat enabler that extends and enhances a brigade combat team’s ability to maintain a pace and tempo the enemy cannot sustain,” Gradford said.

ARCIC is tapping into technologies gaining momentum in the commercial and military worlds to help reduce logistics from additive manufacturing and 3-D printing to alternate fuels and advanced power generation to autonomy and artificial intelligence and even laser weapons to reduce the amount of ammunition

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needed on the battlefield.

The Army sees near-term promise in a variety of technologies that could reduce and streamline logistics on the battlefield, according to Col. Mark Simerly, Combined Arms Support Command Capability Development and Integration chief.

“For instance, the Army’s fuel automated management system,” Simerly said, “this is a capability that is going to allow us to understand how much fuel we have, where it is, and then be more precise in our understanding of how far our operations can extend and are better able to reprogram some of our resupply folks.”

The Army also sees near-term promise in additive manufacturing “to reduce demand at the point of need and allow us to produce combat spares or other critical items near the point of need or point of repair so we won’t need to have a reliance of a supply chain that can be over-extended,” Simerly said.

Tactical power generation and micro-grid technology are also developed to the point where such capability could be incorporated into operations in the near-term, he added.

Hydrogen fuel cell technology could bring stealth to Army vehicles

Autonomous distribution of supplies, particularly from the air, would also come later down the road, Simerly noted. Platforms that can deliver supplies 110 to 150 kilometers out with a payload up to 1,500 or 2,000 lbs “probably wouldn’t be available until the mid-term and potentially the far-term depending upon the advancements of certain artificial intelligence technologies that allow them to be fully autonomous,” he said.

The Army will experiment near-term capabilities likely to play a part in the demand reduction strategy at the Joint Warfighting Assessment in Germany next year in late April and early May.

Among the capabilities are additive manufacturing, small unit water purification, microgrids, the Joint Tactical Autonomous Aerial Resupply System (JTARS) and a tactical power management concept, according to Gradford.

Farther afield, the service envisions incorporating alternative sources of energy such as hydrogen. While the technology is available now, it likely won’t be integrated into combat vehicles until the mid- or long-term, Simerly noted.

Milley said at the Atlantic Council event that the Army relies on carbon-based fuel and that will likely remain the primary fuel for the time being. “Carbon-based fuels are here today and it is unlikely in terms of scale and scope that we will transform the U.S. military to something other than that in the near future -- defined as inside of 10 years,” he said.

While alternative power-generation exists now from electric cars to nuclear powered naval vessels, alternative fuels aren’t ready for prime time when it comes to large-scale Army use, Milley said, adding the service is doing a lot of research on it.

For instance, the U.S. Army’s Tank Automotive Research Development and Engineering Center and General Motors have partnered to build a hydrogen cell-powered demonstrator and are bringing the technology to soldiers for testing over the course of this year. 

The Army Research Laboratory and industry is working on a futuristic concept for aerial resupply — a small rectangular-shaped quadcopter called the Joint Tactical Aerial Resupply Vehicle or “hoverbike” — that could order and receive supplies to the battlefield rapidly.

Also underway is a three-month maneuver support exercise at Fort Leonard Wood, Missouri, where a semi-autonomous, leader-follower concept will be demonstrated for cargo resupply. Several unmanned tactical vehicles in a convoy will be equipped with sensors that allow it to autonomously follow a manned vehicle, Gradford said.

The demand reduction strategy is expected to be completed by the end of the year, Gradford noted, with last month’s summit serving as the first stepping stone in the process of shaping concepts for the final document. 