Is the United States Running out of Weapons to Send to Ukraine?

Photo By: Marine Corps Capt. Joseph DiPietro

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The United States has given Ukraine dozens of different munitions and weapon systems. In most instances, the amounts given to Ukraine are relatively small compared to U.S. inventories and production capabilities. However, some U.S. inventories are reaching the minimum levels needed for war plans and training. The key judgment for both munitions and weapons is how much risk the United States is willing to accept.

The Risks of Weapons Drawdown

For weapons, inventory concerns arise because the United States needs to have enough systems to equip operational units and an amount for maintenance pipelines and training organizations. In theory, the United States could take some systems from late-deploying units. For example, the U.S. Army could temporarily equip some artillery batteries with four howitzers instead of the customary six or eight. In the unlikely event of a major conflict, these units could get additional systems from overhead or new production. Because the units are late deploying, there would be enough time to redistribute assets.

Nevertheless, there would be risks. Unit training would be more difficult without a complete set of equipment, and mobilization might be slowed due to the cross-leveling process. Furthermore, there is a political challenge: most of these late-deploying units are in the National Guard. Because of its ties to states, the National Guard has strong representation in Congress and has historically been reluctant to accept any policy that implies second-class status.

For munitions, the United States needs to maintain stockpiles to support war plans. For some munitions, the driving war plan would be a conflict with China over Taiwan or in the South China Sea; for others, particularly ground systems, the driving war plan would be North Korea or Europe. Judgments about risk arise from assumptions about the length and intensity of the conflict, the role of allies and partners, and the nature of the threat. Decisionmakers could adjust assumptions and thereby free up additional inventory to send to Ukraine. For example, war plans involving Russia might be modified in the near- and mid-term to account for the degradation of Russia's capabilities as a result of the war in Ukraine. However, war plan development is a complex bureaucratic process involving many stakeholders, so revising assumptions and requirements takes time and effort. Many stakeholders are likely to object.

Decisionmakers are likely willing to accept more inventory risk if production lines are surging, so that replacement systems will arrive more quickly. The Department of Defense (DOD) has been talking with the defense industry about increasing production, and the industry is open to doing that. DOD has requested congressional approval to use some of the funds provided in May to increase production capabilities for High Mobility Artillery Rocket Systems (HIMARS) or Guided Multiple Launch Rocket Systems (GMLRS) and 155-millimeter (mm) ammunition. The industry's general position, however, is that DOD should make commitments for multiyear acquisition to justify industry investment in surge capabilities.

A CSIS study examined the ability of the defense industrial base to replace inventories in an emergency and found that the process would take many years for most items. The problem is that the defense industrial base is sized for peacetime production rates. Surge capabilities have been regarded as wasteful, buying factory capacity that was not planned to be used. Conversion of civilian industry to wartime production is theoretically possible but a long process. In World War II, that conversion took two to three years in a society and economy that was fully mobilized.

Even if declines in available inventories restrict transfers and new production cannot keep up with demand, the United States and allies could provide older equipment or equipment from third parties. Although these weapons can be effective, such an approach would be a change from the practice up to now of providing top-of-the-line equipment equivalent to what first-line U.S. and NATO forces use. That would likely engender concerns from those who advocate maximum support for Ukraine.

Because of these long production lead times, the delay between the shipment of weapons and munitions from existing stocks and when replacement systems arrive constitutes a risk. Congress has provided enough money to replace transferred equipment, but the process is lengthy. The United States has provided about $10 billion of equipment from stocks, but only $1.2 billion has been put on contract for replacements. Once contracts are signed, it will still take many years before the replacement equipment arrives at units.

Status of Weapons and Munitions Inventories

The table below summarizes the status of key weapons and munitions as a result of transfers to Ukraine. A detailed discussion of the individual items follows the table.

Status of Key Weapons and Munitions as a Result of Transfers to Ukraine

System	Manufacturer	Status of Production Line	Amount Given to Ukraine	Status of U.S. Inventory
MLRS rockets	Lockheed Martin	Active	Not specified	OK in short term, limited in medium term
HIMARS launchers	Lockheed Martin	Active	16	Limited
Javelin missiles	Raytheon/ Lockheed Martin	Active	8,500+	Limited
Other anti-tank missiles	Various	Active	32,000+	Possibly limited
Stinger missiles	Raytheon	Semi-active	1,400+	Limited
M-777 howitzer	BAE Systems	Closed	126	Limited
155 mm ammunition	Government arsenals	Active	At least 561,000	Limited
Counter-artillery radars (AN/TPQ-36, 37, 53)	Raytheon	Active	50	Possibly limited
Switchblade unmanned aerial systems (UAS)	AeroVironment	Open	700	Not applicable
Phoenix Ghost UAS	AEVEX Aerospace	Open	700	Not applicable
M113 armored personnel vehicles	BAE	Closed	200	Adequate
Small arms ammunition	Various commercial manufacturers	Open	Over 26,000,000	Adequate
105 mm howitzers	Rock Island arsenal	Closed	20	Adequate
105 mm ammunition	Government arsenals	Active	144,000	Adequate
Harpoon missiles	Boeing/MD	Possibly active	2 systems	Adequate

Note: Data through September 9, 2022; totals from DOD Fact Sheet on U.S. Aid to Ukraine.
Source: "Fact Sheet on U.S. Security Assistance to Ukraine," U.S. Department of Defense, September 8, 2022, https://media.defense.gov/2022/Sep/08/2003072446/-1/-1/0/UKRAINE-FACT-SHEET-SEPT-8-2022.PDF.

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MLRS Rockets

The inventory problem for MLRS rockets is that the types of usable munitions are limited. The most common rocket (M26) fired by HIMARS and its tracked cousin, the Multiple Launch Rocket System, uses bomblets and is, therefore, prohibited by policy.

The GMLRS comes in two types: the M31 with a unitary warhead, and the M30 with an "alternative warhead" that fires thousands of fragments. Both meet the requirements of arms control conventions. These guided rockets are enormously useful, but the numbers are likely limited. The United States has an estimated inventory of about 25,000 to 30,000 remaining from a production run of 55,000 rockets to date. If the United States sent one-third of that inventory to Ukraine (as has been the case with Javelin and Stinger), Ukraine would receive 8,000 to 10,000 rockets. That inventory would likely last several months, but, when the inventory is exhausted, there are no alternatives. Production is about 5,000 a year. Although the United States is working to increase that amount, and money has recently been allocated for that purpose, it will take years.

HIMARS Launchers

Total U.S. production has been about 450 HIMARS launchers and production had nearly ceased by 2021, though the United States is ramping up production now. Therefore, giving large numbers to Ukraine will be difficult. The United States could send some of the tracked MLRS instead of HIMARS as some allies have done, though these systems are also limited. As noted in the discussion of MLRS rockets, however, the availability of rockets is likely to be the constraint. There is no point in providing a large number of rocket launchers, all competing to fire a limited number of guided rockets.

Javelin Missiles

Reportedly, the United States has given about one-third of its inventory to Ukraine, and reports have emerged that the military has raised concerns about having enough for other conflicts. Surprisingly, the August 19 arms package includes another 1,000 Javelins despite the low inventory. The current production rate is about 1,000 a year. Although DOD is working to increase that, it will be many years before the inventory is fully replenished.

Other Anti-tank Missiles

Although Javelin has received the most attention, most anti-tank missiles provided to Ukraine are in this other category, mostly the Non-Line of Sight (NLOS) missile. Some of these are unguided (like the AT-4) but others, like NLOS, have guidance though as sophisticated as Javelins. Although inventories were likely large, particular for the unguided weapons, they may be getting short. This does not mean that Ukraine will be without infantry anti-tank weapons. Many countries produce such weapons, and the United States could supply older systems like the 106 mm recoilless rifle.

TOW Missiles

These guided anti-tank missiles (tube-launched, optically tracked, wire-guided missiles, or TOW) have been in the U.S. inventory for decades and have been continuously upgraded over time. Launchers are heavier than Javelin and NLOS, so they are generally vehicle mounted, not carried by infantry. Because launchers and missiles are plentiful, large numbers can be provided to Ukraine. The fact that they are showing up now, nearly seven months into the war, indicates that the infantry portable munitions are running low, and TOW is an alternative.

Stinger Missiles

This is an infantry portable antiair missile that tracks its target using an infrared sensor. It has been in the U.S. inventory since the early 1980s but has been upgraded several times. The United States has probably given a third of its inventory to Ukraine. The production line is warm, being kept open by a small foreign sale, so the United States can build a few additional systems and has added funding to do that. However, DOD is thinking about acquiring a follow-on missile rather than replacing the lost inventory with Stingers one-for-one.

M-777 155 mm Artillery Howitzer

This is the U.S. towed artillery system and used by infantry units. The United States had about 100 excess systems as the Marine Corps converted its artillery units from cannon artillery to rocket and missile launchers as part of its Force Design 2030. Those have been sent to Ukraine along with a small number of additional howitzers that were squeezed out of overhead activities. Total production was about 1,000 systems, divided about evenly between the U.S. Army and Marine Corps. Production stopped years ago, and it is unlikely that there are many more available without reducing the number of howitzers in existing units. Instead, the United States is sending the M119 105 mm howitzer, which is available from existing inventories because many units switched to the heavier 155 mm. Alternatively, the United States could send some older 155 mm howitzers, the M198, which are likely in storage.

155 mm Ammunition

This is the NATO standard medium-caliber ammunition. The United States has given over one and a half million projectiles to Ukraine, and this is probably close to the limit that the United States is willing to give without risk to its own warfighting capabilities. In FY 2023, the United States only planned to buy 29,000 of the basic high explosive projectiles (M795). Surge capacity was 288,000 projectiles per year, though with a 48-month lead time. However, because this is a NATO standard munition, a dozen countries can supply these projectiles. Therefore, transfers to Ukraine are unlikely to be constrained when the global market is considered.

Counter-Artillery Radars

These radars detect the trajectory of an enemy artillery shell and can calculate where the firing unit was. This allows Ukrainian artillery to attack enemy artillery rapidly. Transfers probably include several different kinds of radars. Unclear is the effect on U.S. inventories, but these systems are not numerous.

Switchblade and Phoenix Ghost UAS

These two systems are small "kamikaze" drones that can loiter while they look for a target and then attack. They are, essentially, experimental. Small numbers of Switchblades have been produced for the armed forces over the last 10 years, with some being used in Afghanistan, but it was not a program of record. Phoenix Ghost has been in development as a technology demonstrator—an effort to show what could be done but without the commitment of a full acquisition program. Because these programs are experimental and without any formal acquisition objective, the transfer to Ukraine does not affect U.S. inventory requirements. Indeed, the war in Ukraine will act as a massive testing program to see whether these weapons or some version should be distributed widely in the U.S. military.

M113 Armored Personnel Carrier

These tracked vehicles are used as "battlefield taxis," which give some protection to troops as they maneuver. However, they do not have the heavy armor of a tank or the weapons of a fighting vehicle. The United States produced about 80,000 in many configurations and variants since the original version entered the force in the early 1960s. Dozens of foreign countries use either the U.S. or domestically produced versions. The M113 is being replaced in some U.S. units by the armored multipurpose vehicle. Because the number of M113s produced is so large, and many are being replaced, the United States could provide many more to Ukraine. The constraint will the time required to repair these older vehicles and get them fully functional prior to transfer, as well as training maintainers and operators.

Small Arms Ammunition

Small arms are handguns, rifles, and portable machine guns, typically up to 7.62 mm caliber. While the 26 million rounds being provided to Ukraine may sound like a lot, it is not even 1 percent of annual U.S. production (8.6 billion in 2020). The U.S. civilian economy produces vast amounts of small arms ammunition for sport, so there is no danger of running out.

105 mm Howitzers and Ammunition

This lighter caliber artillery was once standard but has been replaced over time by the heavier 155 mm in most units. Although a few lighter units like paratroopers still use the system, there is likely a large reserve of excess howitzers and ammunition.

Harpoon Missiles

These are ship-based or shore-based anti-ship missiles. DOD lists two "systems" being delivered, likely launchers, though it is not clear how a system is defined. The total number produced in the United States is relatively large (7,500), and transfers to Ukraine, however defined, have been relatively small. Thus, U.S. inventories are adequate, and further transfers are unlikely to be a problem. The production line is kept open by foreign military sales. The U.S. Navy is not buying any new missiles, only modifying older missiles at a very low production rate.

Looking Ahead

Recent Ukrainian successes on the battlefield indicate that the war may not be as protracted as once feared. Nevertheless, Ukraine will still need a continuous flow of weapons and munitions to maintain its forces in combat. Although many countries have provided some support, the bulk has come from the United States, and that imbalance will continue. In the long term, this support can come from new production and the United States has already begun to make such arrangements. However, because these systems will not arrive for many years, they are useful in rebuilding a postwar Ukrainian military, not for fighting the current conflict. In the short-term, U.S. support needs to come from existing stocks that can be transferred quickly and have immediate effect on the battlefield.

Although some U.S. stocks are running low, alternatives—older, experimental, or nonstandard systems—are available, and these will constitute an increasingly large proportion of transfers. The United States might also acquire some stocks from third countries. The reliance on alternatives does not indicate a lack of commitment or a reduction in military capability. These systems can still be effective on the battlefield. However, they are an acknowledgment that the U.S. military was not structured to fight or support an extended conflict. That should, of itself, spark some debate in the national security establishment about budget priorities. In the meantime, the flow of weapons and munitions will continue, as will the war.

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