

Modernizing the U.S. Munitions Arsenal

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The adoption of the Convention on Cluster Munitions (CCM) in 2008 signaled a new chapter in the use of cluster munitions (CM). Coinciding with a 2008 Department of Defense (DoD) policy to abandon forms of CM most likely to cause harm to civilians, the international community decided that cluster munitions (also known as Dual-Purpose Improved Conventional Munitions, or DPICM), no longer belong in warfighting and should be eliminated. In November 2017, the US reversed nearly a decade of commitment to more closely align its arsenal with key tenets of the CCM: A DoD memo issued by Deputy Secretary Patrick M. Shanahan nullified the military's adherence to several standards aimed at diminishing the impacts of CM on non-combatants, including the assurance of a maximum 'dud rate' of one percent.¹

Rather than comply with the standards set forth in the policy implemented under Secretary Gates, the DoD chose to delay CM replacement and instead aimed to produce safer, non-cluster alternatives "as rapidly as industry can support."² The 2017 decision to stall the US military's pivot away from cluster munitions prolongs the inevitable and ignores opportunities to develop cheaper, more effective alternative weapons.

INTERNATIONAL CONSENSUS AND THE CCM

Despite initial difficulty and miscommunication, there is broadly supported consensus among the world's nations that CM does not belong in modern military arsenals. States initially sought to wrap CM regulation into the existing Convention on Certain Conventional Weapons (CCW) in the early 2000s, but the process came apart within a few years.³ By contrast, the adoption of CCM in 2008 took place with relatively few obstacles and has guided international action around the development of CM alternatives. In its present form, CCM even includes steps aimed at the creation of a cooperative, multi-state network to support the abolition of CM from regions with financial or logistical constraints.

Given these global trends, the US places itself into a difficult position by ramping down its

commitment to CM removal. Although direct and indirect casualties attributable to CM use have gone up over the years, there has been a measurable decline in the size of countries' CM arsenal, making it difficult to argue away claims that a change of heart from one of the world's largest CM stockpilers is unlikely to undermine efforts to remove deadly, undetonated ordnance from civilian locales.^{4 5} Indeed, the international community has condemned and punished states that violate both the letter and spirit of the Convention using investigations, arms sales refusals, and sanctions to sway non-compliant states towards the global consensus.^{6 7}

Although the ramifications for US military operations are perhaps the most pertinent, there is another component to consider: As America strays away from its commitments to international

weapons treaties, other states are taking notes and even following suit.⁸ The threat of non-adherence or full exit from the CCM by states parties may inspire UN leaders or individual signatories to make defensive maneuvers aimed at deterring US rejection of the Convention's restrictions.

This creates an undesirable dynamic to work around as the US and its allies strive to contain the use of controlled weapons by Russia and other violators of multi-state weapons pacts.^{9 10}

Further, while the US benefits from a unique amount of independence in procuring and implementing defense solutions, other countries may not be so flexible. The continued, sporadic use of cluster weapons coupled with selective enforcement of the regulatory framework banning their use places smaller states at a disadvantage – a trend demonstrated in the experience of Israel and the IDF. Despite a multi-year ban on US-manufactured CM munitions imposed by the Reagan administration and international backlash following its use of CM in the 2006 Lebanon War, the Israeli military is still figuring out details in its procurement: A recent purchase of artillery from German contractor Krauss-Maffei Wegmann (KMW) was nullified upon discovery of the artillery's lack of CM deployment capabilities.^{11 12}

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LEAVING NO OPPORTUNITY BEHIND

There are plenty of ‘push’ factors driving warfighting efforts away from CM, and the pre-2017 trajectory in both direct legislative regulation and indirect financial pressure indicates these factors will be magnified over time. However, the pull factors towards alternative technologies are no less interesting and compelling.

CM is an aging technology and, in many regards, less effective in achieving its intended outcomes than modern counterparts like the Guided Multiple Launch Rocket System (GMLRS) and “non-explosive kinetic projectiles.”¹³ First developed during World War II and deployed soon after, cluster munitions have been utilized for decades despite relatively little advancement in the underlying technology.¹⁴ However, as CM has mostly stood still, other munitions have been developed, tested, and utilized in a variety of battlefield settings: Various non-explosive kinetic projectiles are being proven effective and cost-efficient on an ongoing basis.¹⁵ ¹⁶ In the category of traditional explosive ordnance, GMLRS has been on track to replace cluster munitions across a variety of military functions, demonstrating its readiness as a battle-worthy technology.¹⁷

In the midst of regulatory action aimed at diminishing the use of cluster bombs internationally, munitions technology has advanced considerably and has rendered CM operationally inferior, expensive to maintain, and diminished from a strategic standpoint. Precision weaponry has become the standard in modern military operations, and relying on dated tools like CM prevents more targeted, effective military strikes; further, an over-commitment towards older technology shrinks the resources dedicated to testing, researching, and developing precision munitions.¹⁸ ¹⁹ Additionally, non-battlefield applications are increasingly becoming a less feasible secondary use for CM. Though there was a period during which CM could be repurposed for training and other non-battlefield uses, many of the warheads are now too unstable to cheaply and easily appropriate for non-lethal purposes.²⁰ ²¹

Although it has more than six million units of cluster munitions, the US has all but given up

CM use over the past decade and a half. With the exception of a 2009 strike in Yemen, the US military has not deployed cluster munitions since 2003 engagements in Iraq.²² ²³ Given the organic ways in which alternative technology has developed and the US military has weaned itself off CM, now is a good time to weigh the true costs of sacrificing years of technological progress by continuing to rely on yesterday’s munitions.

ORBITAL ATK’S PERSPECTIVE

Orbital ATK has developed an alternate solution for weapons utilizing DPICM type submunitions – it’s called Lethality Enhanced Ordnance (LEO). LEO contains no submunitions to cause unintended harm to civilians or infrastructure, while still providing the required performance the warfighter expects in a munition.

- ❑ **Same size, greater effectiveness.** LEO can be easily configured to meet existing warheads’ overall mass and center of gravity, resulting in a much more effective warhead.
- ❑ **Miniature configuration, extended range.** Orbital ATK’s warheads can be miniaturized while maintaining the same level of performance as existing warhead technology. Miniaturization allows for a larger rocket motor which will extend the range of the weapon system.
- ❑ **Eliminates unexploded ordnance.** LEO unitary type warhead provides a reliable, consistent technology that does not leave behind unexploded ordnance, replacing conventional cluster munitions that leave unexploded ordnance on the battlefield.
- ❑ **Modeling.** Orbital ATK can provide accurate predictions of the LEO warhead performance, correlated by real world results, which can further optimize the overall effects against a given target set.
- ❑ **Demonstrated Results.** LEO’s fragmentation technology has been successfully demonstrated and tested more than a dozen times on warhead sizes as small as 0.5 lbs. and as large as 250 lb in the Small Organic Precision Munition (SOPM), 155mm unitary cannon cluster munition replacement, Guided Multiple Launch Rocket System (GMLRS), and the Small Diameter Bomb.

SPOTLIGHT ON THE FINANCIAL SECTOR

Using the CCM, a number of non-governmental organizations (NGOs), financial institutions, and individual governments have taken further steps aimed at ensuring and accelerating the replacement of CM with munitions better suited to today's technology and warfighting concerns. Pressure from activists, states, and NGOs is leading to divestment from companies with revenue tied to CM production and deployment. Among its peers in the European banking sector, Copenhagen-based Danske Bank includes CM manufacturers alongside companies "screened out" for human rights violations and environmental damage.^{24 25} Because many of the banks identified in public 'naming and shaming' campaigns are American, the US is bound to feel the brunt of the pressure. If similar campaigns in the past serve as any indication, there is reason to believe current efforts will expand to include more than defense contractors – repeated calls for divestment by the Presbyterian Church as well as actions taken as part of the Boycott, Divest, and Sanction (BDS) movement have included Boeing, Babcock International, and other companies who have considerable non-defense business.^{26 27}

Led by the Netherlands-based non-governmental organization PAX, activists are developing and publishing lists of companies working with CM manufacturers.²⁸ And PAX is not operating alone – a number of governments have taken formal action aimed at slowing down and eradicating investments in companies profiting from the sale and use of cluster munitions.²⁹ The list is composed primarily of European states but includes nations from other regions of the world, a display of the Convention's reach and an

illustration of the direct threat being issued by governments with the ability to exercise control over the financial mechanisms underpinning CM production. European financial entities have been especially affected due to the progressive stances of their governments: Switzerland's ratification of the Convention in 2012 serves as an achievement for anti-CM activists due to the role of the Swiss government in shaping the global financial environment.

While some of the sanctions and pressure will land squarely on states and governments that have yet to sign CCM, the financial organizations being targeted in the work of PAX and its colleagues likely have the most to lose. As shown by the recent outcry over the Saudi coalition's deployment of CM in Yemen, many in the world are watching and are quick to cry foul.³⁰

CONCLUSION

The Trump administration has bought the US military some time to fully accommodate the provisions of the Convention on Cluster Munitions (CCM). Still, with mounting pressure from international organizations and the availability of more effective technology, it is unrealistic to interpret the December 2017 DoD policy as anything more than an extension to pivot away from cluster munitions (CM). An exploration of alternatives has been ongoing for years, and a number of non-CM munitions have been proven equally effective or, in some applications, superior. Continuing to rely on cluster weapons exposes the US military to international backlash and hampers America's ability to remain on the cutting edge of defense technology.

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