

The Journal of Conventional Weapons Destruction

Volume 25
Issue 1 *The Journal of Conventional Weapons
Destruction Issue 25.1*

Article 26

September 2021

Managing Risk Through Transparency and Cooperation: Improving Lebanon's PSSM Capacity

Jamie McGhee
MAG, Mines Advisory Group

Follow this and additional works at: <https://commons.lib.jmu.edu/cisr-journal>



Part of the [Other Public Affairs, Public Policy and Public Administration Commons](#), and the [Peace and Conflict Studies Commons](#)

Recommended Citation

McGhee, Jamie (2021) "Managing Risk Through Transparency and Cooperation: Improving Lebanon's PSSM Capacity," *The Journal of Conventional Weapons Destruction*: Vol. 25 : Iss. 1 , Article 26.
Available at: <https://commons.lib.jmu.edu/cisr-journal/vol25/iss1/26>

This Article is brought to you for free and open access by the Center for International Stabilization and Recovery at JMU Scholarly Commons. It has been accepted for inclusion in The Journal of Conventional Weapons Destruction by an authorized editor of JMU Scholarly Commons. For more information, please contact dc_admin@jmu.edu.

MANAGING RISK THROUGH TRANSPARENCY AND COOPERATION: Improving Lebanon's PSSM Capacity

By Jamie McGhee [Mines Advisory Group, MAG]

Weapons and ammunition management (WAM) is a global issue in which nations are responsible for the physical security and stockpile management (PSSM) of weapons and ammunition to help mitigate weapons diversion and proliferation, and to prevent against an unplanned explosions at munitions sites (UEMS). Although in most instances preventable, UEMS incidents have increased, leading to significant loss of life, life-changing injuries to innocent civilians, and damage to property.¹

In ideal circumstances countries would have the money for sufficient equipment and storage facilities; however, this is not always the case. Often the security sector is left to manage its weapons and ammunition stockpiles on an extremely limited budget. This means having to be self-reliant to keep things running as they should, sourcing basic equipment such as wooden pallets to stack ammunition. While this is often seen as a short-term scenario, the reality is that these stop-gaps often turn into a long-term solution or become the “norm” in the absence of sufficient cash or capacity to run technical refresher training for military personnel, replace outdated equipment, and keep existing storage facilities maintained. As a result, ammunition stockpiles can deteriorate rapidly.

The same can be said of the procurement of arms and ammunition. If states do not have a budget to purchase newer ammunition

and phase out older stockpiles, ammunition is inevitably kept past its original shelf life, with insufficient technical capacity to conduct routine surveillance and maintenance of the ammunition throughout its lifecycle. Through no fault of the military, ammunition is often housed in less than adequate storage facilities or buildings not originally designed for its storage.

These are the defining factors in global incidents involving ammunition stockpiles, and it's why the Lebanese Armed Forces (LAF) requested assistance to bolster its national capacity for PSSM, as they fully understood the dangers posed to both the military personnel working at these facilities as well as the civilian population living nearby.

Global Challenges

There are always challenges when discussing WAM with any government, due the sensitive nature of the subject, and general reluctance to allow outside parties to see the true extent of the state's deficiencies regarding PSSM. Every country ultimately has different needs when looking at both technical capacity of existing security sector personnel, weapons/ammunition storage, accounting practices, and management systems that are at different levels of compliance when looking at the risk reduction process levels (RRPLs) in the International Ammunition Technical Guidelines (IATGs).²

International best practices are often associated with costing millions of Lebanese pounds (LBP). However, this is not necessarily the case, particularly at the start of any WAM pilot project. While it does cost money to train and provide adequate equipment for security sector personnel to conduct their duties, first understanding what the

problems are and finding the solutions through dialogue with the national authorities can bring an easy resolution to what initially seemed a difficult problem.

Similarly, governments often claim there are insufficient funds to provide better storage, train more personnel, purchase new weapons and ammunition, and destroy older stockpiled ammunition. However, thorough risk assessments of all ammunition stockpiles and existing storage facilities, and estimated financial implications of a potential UEMS can incentivize more governments to better manage their weapons and ammunition stockpiles. In the case of storing explosive munitions, “risk avoidance” is impossible as the state already has ownership. Therefore, identifying all risks and ensuring they are professionally managed is critical.

The essence of risk management lies in maximizing the areas where we have some control over the outcome while minimizing the areas where we have absolutely no control over the outcome”.

~ Peter L. Bernstein

MAG History in Lebanon

Mines Advisory Group (MAG) currently has operations in twenty-six countries globally, and nineteen of those countries have a WAM program. Operational in Lebanon since 2001, MAG began by conducting mine clearance operations and mine risk education (MRE). Lebanon has endured several decades of both civil and external conflicts that have left the country with an extensive legacy of landmine and cluster munition contamination. In total, MAG Lebanon has cleared more than 18 million sq m of contaminated land and removed or destroyed more than 62,000 landmines, cluster munitions, and other unexploded ordnance (UXO). Since 2017, MAG has deployed teams on the Blue Line (the border demarcation between Lebanon and Israel as defined by the United Nations on 7 June 2000). In this time, MAG has cleared and released an area of more than 400,000 sq m and found and destroyed more than 29,000 items including anti-personnel mines, anti-tank mines, and explosive remnants of war (ERW). In October 2018, MAG expanded operations in the northeast of Lebanon and has since conducted non-technical survey (NTS) and clearance activities; releasing over 786,000 sq m of suspected and contaminated hazardous land.

Weapons and Ammunition Management in Lebanon

In 2017, the LAF approached the U.S. Department of State with a request to support PSSM activities at three of their existing ammunition storage facilities. After an initial assessment (21–22 January 2018) of the LAF's PSSM practices at several locations by a US technical team, MAG was asked to assist LAF improve current WAM practices, and bring them into line with the IATGs. MAG conducted technical site assessments (October and December 2018) at the three locations and made recommendations on how to improve the overall security of the facilities.

With an additional \$1.6 million in continuation funding in February 2019, MAG has since conducted PSSM technical site assessments at thirteen locations (three in 2018 and ten in 2020) identified by the LAF as high priority for possible intervention. At each location, MAG assessed and then prioritized storage facilities utilizing a “low cost-high impact” model when looking at WAM interventions, i.e., MAG provided the correct level of intervention to meet the requirements for that specific location. This process often involves finding a simple, cost-effective solution to resolve an issue and mitigate the risks identified, which is just as effective as a more complex high-cost intervention.

Whereas all locations are prioritized by risk probability and impact, several key factors must be taken into consideration when conducting a site assessment to ensure the correct level of intervention is identified. These can include the following

- accessibility (including visibility) of the site
- adequate fire-fighting equipment and personal protective equipment (PPE)
- adequate lightning protection³
- compatibility groups of the ammunition^{4,5}
- construction design and blueprint of existing facilities⁶
- costs of potential rehabilitation/construction works
- estimated repair costs if UEMS take place (conducted by the state)
- future expansion plans of facility (if applicable)
- hazard class of the ammunition⁷
- hazard division of the ammunition^{8,9}
- location of facility
- net explosive quantity (NEQ) of ammunition being stored on site for calculating quantity distances (QDs)¹⁰
- number of personnel living/working at the base

- number of trained ammunition technical staff
- quantity and types/nature of ammunition stored
- secondary hazards or critical infrastructure near storage facilities (fuel stations, gas pipelines, underground services, hospitals, ministries, schools, power stations, religious buildings, etc.)
- security of area in which ammunition depot is situated
- value of ammunition stocks stored

While this list isn't exhaustive, it highlights the need to gather significant data to ascertain the appropriate intervention level required to ensure the safety and security of both the ammunition stockpiles and the civilian population living near the potential explosion site (PES).¹¹

In December 2020, MAG completed construction work at three of the thirteen locations previously identified as a priority by the LAF. The level of intervention at each of the storage facilities at the locations varied in scale and complexity, and involved MAG providing technical training—an IATG familiarization workshop to introduce the IATGs and international best practices to forty-seven existing LAF ammunition technical personnel from the Ammunition Directorate who will be managing the ammunition at the three locations where these technical interventions were conducted. Additional refresher training for LAF personnel was planned in 2020, but due to COVID-19 restrictions in Lebanon this was not possible.

Due to land constraints and the encroachment of the civilian population to existing ammunition storage facilities in country, the provision of QD training to the LAF was seen as critical. This training familiarized staff with online tools that (1) can help determine what can safely be stored at all ammunition storage facilities in country and (2) assist them with risk mitigation as part of the long-term planning for the Ammunition Directorate.

As a result of the training, a plan is underway to destroy donor-gifted ammunition that cannot be used by the LAF, which will provide much needed space inside the storage facilities, in turn reducing the risk to both military and civilian personnel living nearby. A joint assessment of the LAF central demolition site was also conducted on 17 September 2020 to check the location's suitability for future ammunition destruction operations by LAF explosive ordnance disposal (EOD) teams.

This QD training also allowed the Ammunition Directorate to start planning logistical movements of larger caliber ammunition to more suitable locations outside of populated areas. The QD training showed

the LAF the minimum safety distances needed for each site based on the NEQ of explosives being stored. With this knowledge they were able to identify the amount of ammunition that had to be either moved from the location to somewhere more suitable or marked for destruction if it was (1) surplus to operational requirements or (2) if there was a lack of sufficient storage space to house it securely and safely.

MAG completed the full-scale construction of a new purpose-built ammunition storage area (ASA) in December 2020 that has four explosive storehouses to secure the LAF's more valuable, larger caliber munitions at a strategically important location. The facility meets all requirements within the IATGs.



Image 1 and 2. Storage of projectile propellant before (left) and after (right) intervention by MAG.

All images courtesy of MAG.

Current Challenges in Lebanon

One of the biggest challenges for the LAF is availability of suitable land for construction of military bases and larger ammunition storage facilities. A large proportion of existing military infrastructure was purpose built by France in the 1950s. Although a lot of this infrastructure remains and is still functional, facilities previously isolated with excellent safety distances are now located in highly populated areas.

At the end of the Lebanese Civil War (1975–1990), plots of land were quickly snapped up by civilians and used to build houses, shops, etc. Building developments continue to expand and now encroach close to existing ammunition depots, meaning they are at risk should an UEMS take place. As the minimum safety distance in the IATGs for storing explosives is 400 m, the LAF has thought innovatively about how to

reduce the risk at these sites, while mitigating the threat posed to the civilian population. In light of this, the Ammunition Directorate, who are responsible for all in-country ammunition, has managed significant logistical movements of ammunition stocks throughout the country to reduce the threat to civilians while still maintaining LAF operational effectiveness.

As part of the LAF long-term strategic planning, MAG is in regular contact with the LAF's G3 Director of Planning Department and G4 Logistics regarding available governmental land, and discussions continue to identify suitable areas pending technical field assessments for the construction of large-scale ammunition depots and sub-unit depots.

LAF Response to the Beirut Port Explosion

On 4 August 2020, a warehouse in the Port of Beirut containing 2,750 metric tonnes of ammonium nitrate (confiscated off a cargo ship in 2013 for failure to pay port fees and stored with commercial fireworks and other chemicals) caught fire, causing the ammonium nitrate to detonate.¹² The subsequent explosion caused severe damage to civilian homes, key military and civilian installations, and infrastructure in the vicinity of the port.

The incident itself left at least 218 people dead, 7,000 people injured, 300,000 displaced, and most of the country's grain supplies destroyed; the overall cost of the blast is estimated at \$10–15 billion.¹³ The political fallout from the explosion was almost immediate, resulting in widespread rioting and significant increases in major security incidents across the country. Through increased pressure by the public,

it eventually led to the collapse of the Lebanese government and resulted in several senior members of the port customs and immigration going to jail for their failures leading up to the event.

While this event was not related to either weapons or ammunition, the devastation the blast caused highlighted the need for the LAF higher command to seriously look at existing LAF ammunition storage facilities and start working towards removing all ammunition stockpiles outside of populated areas.

Following the explosion, on 4 August 2020, LAF G4 Logistics requested MAG's assistance to conduct post-blast assessments of several military facilities near the port that suffered heavy blast damage and resulted in LAF personnel being killed and injured. MAG, supported by LAF military engineers, made emergency security repairs at

these military installations and received additional emergency funds from the US government to conduct this work.

The LAF G4 and the Ammunition Directorate were tasked with moving all unserviceable ammunition identified during the site assessments by MAG and ammunition previously earmarked for destruction by the LAF to various holding locations ready for destruction, pending final approval from LAF higher command.

The General Commander of the LAF ordered the Ammunition Directorate to deploy immediately and conduct risk assessments of all military facilities to ensure all known risks were being managed correctly and report back on any new risks identified or non-conformities.

LAF are the de facto entity when it comes to having the trust of the civilian population, who look to the LAF to maintain security, conduct damage assessments of all buildings impacted by the blast, and deliver food aid packs to all households affected by the blast. Not only did they manage the situation, the LAF has accelerated all planned ammunition destruction operations, and discussions are taking place between LAF and MAG regarding upgrading the existing central demolition site assessed in September 2020 to allow for larger ammunition destruction operations to take place.



Image 3 and 4. (Left) One of the external roller shutter access doors to the ammunition depot. (Right) A large ammunition depot in Lebanon constructed by MAG.

Next Steps

MAG Lebanon¹⁴ has secured an additional \$3.5 million from the U.S. Department of State and will assist the LAF with the development of the strategic plan, which is seen as essential for the LAF to ensure its fit for purpose. Moreover, MAG will continue to foster its relationship with the LAF and assist both in the development of its personnel's technical skills and with improving existing standard operating procedures to ensure compliance with the IATGs.

MAG will also provide additional WAM technical training to a further forty-five LAF personnel and provide munition safety planning (MSP) workshops to higher levels of the Lebanese military to ensure everyone is aware of their roles and responsibilities regarding the safety and security of the national ammunition stockpiles and the citizens of Lebanon. In addition to the capacity development of LAF personnel, technical field assessments will also be conducted at thirty locations identified by the LAF. These locations are still being determined as part of the strategic planning discussions.

Technical interventions at six locations previously assessed by MAG have also been agreed by LAF and approved by the donor. These interventions range in complexity from improving basic security measures to the complete construction of a new purpose-built ammunition storage facility. When completed, this will be a significant improvement to both the LAF's existing technical capacity and overall capability to securely store their ammunition stockpiles. All planned activities mentioned will be completed by January 2023.

While there is still a long way to go in achieving the required standards, current progress can be attributed to the LAF's proactive nature and transparency at all levels with MAG. The WAM program in Lebanon has already made significant progress in this regard, and the author would like to personally thank the donor and all members of the LAF with whom MAG is working for, helping these vital PSSM interventions to take place. ©

Jamie McGhee
WAM Technical Manager
Mines Advisory Group (MAG)



Jamie McGhee is a former British Armed Forces EOD Specialist who began working in humanitarian mine action in 2009. He has previously held technical roles for The HALO Trust in Afghanistan, Ivory Coast, South Sudan, Angola, Georgia, and Cambodia; and the Danish Demining Group (DDG), where he was responsible for all SALW activities in the Horn of Africa and Yemen. He started working with MAG in 2015 as Technical Operations Manager and then Country Director in Somalia before moving to the Operations Development Team (ODT) at MAG HQ in 2018. He is responsible for technical oversight of WAM activities in Somalia, Ecuador, Peru, Nigeria, Lebanon, Angola, Sierra Leone, Mexico, Gambia, and Sri Lanka.

BIOGRAPHY

ENDNOTES

Managing Risk Through Transparency and Cooperation: Improving Lebanon's PSSM Capacity By Jamie McGhee [Mines Advisory Group, MAG]

1. "SAS-Fact-Sheet-UEMS.pdf," Small Arms Survey, <https://bit.ly/3zoIU4s>.
2. "Risk Reduction Checklist," UN SaferGuard, <https://bit.ly/3sQm8Qm>.
3. "Safety standards for electrical installations," IATG 05.40, <https://bit.ly/38lcFHj>.
4. The term "compatibility group" refers to a grouping identified by a letter which, when referenced to a compatibility table, shows those explosives which may be stored or transported together without significantly increasing the probability of an accident or, for a given quantity, the magnitude of the effects of such an accident. Codes are used to indicate which natures may be safely stored together.
5. "UN explosive hazard classification system and codes," IATG 01.50, <https://bit.ly/3yqsVBs>.
6. "Types of buildings for explosives facilities," IATG 05.20, <https://bit.ly/38fBswE>.
7. The term "hazard class" refers to the UN recommended system of nine classes for identifying dangerous goods. Class 1 identifies explosives.
8. The term "hazard division" refers to the UN classification system that identifies hazardous substances.
9. "UN explosive hazard classification system and codes," IATG 01.50, <https://bit.ly/3jm9Mwj>.
10. "Quantity Distance Calculator," UNSaferGuard, <https://bit.ly/2WpHys2>.
11. A PES is any stock of explosives, however or wherever stored (building, stack, vehicle, railway wagon, berth, transit shed etc), the explosion of which will affect an exposed site. "Quantity Distances and Licensing Criteria, JSP 482 Edition 4, Chapter 10," <https://bit.ly/3gFueXb>.
12. "The Beirut Port Explosion," Forensic Architecture, <https://bit.ly/3DpXXgL>.
13. Morris, Loveday, "Beirut needs billions of dollars it doesn't have to rebuild after massive blast," *The Washington Post*, 21 August 2020, <https://wapo.st/3mBLaS7>.
14. "MAG's mission to keep explosives safe in Lebanon," MAG International, 29 March 2021, <https://bit.ly/3ymEbig>.