# *Multinational Small Arms and Ammunition Group*


# HANDBOOK

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**Please send your comments to:**

MatthiasBarczak@Bundeswehr.org

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# 1. FOREWORD

In the late 90's, the uncontrolled spread of *Small Arms and Light Weapons* (SALW) and the surplus and precarious stockpiles of *Conventional Ammunition* (CA) and explosives became to be seen as a crucial problem on the international and the regional fora. The OSCE participating States and the General Assembly of the United Nations therefore addressed these problems in several initiatives with the common aim of clearly improving the current situation through international cooperation and assistance. This may include financial and technical assistance, as appropriate, to support and facilitate efforts at local, national, regional and global levels.

The OSCE developed different documents, among them the OSCE Document on SALW (2000), the Handbook of Best Practices on Small Arms and Light Weapons (2003) and the OSCE Document on Stockpiles of Conventional Ammunition (2003). With these tools, cooperation between OSCE members could be established.

When the first *Staff Assessment Visits* (SAV) were undertaken, it became apparent that national experts in this technical field generally lacked the mindset and the behavioral knowledge to operate in foreign countries with different cultural backgrounds. It was then called upon verification agencies to be the core of the assessment teams, supplemented by technical experts.

The next step was to provide arms control inspectors with technical knowledge in the SALW/CA field.

In the meantime, a need for cooperation and mutual information arose. The *Defence Threat Reduction Agency* (DTRA) invited other like minded agencies in Washington in spring 2005. Since then, a meeting among the growing community was held twice a year. In Madrid (2007), the name MSAG was adopted. A crest and Terms of Reference were subsequently adopted the following year in Paris. Also in 2008, the OSCE developed the *Handbook of Best Practices on Conventional Ammunition* (BPG CA).

During its first six years MSAG developed several tools: *Standard Operating Procedures* (SOP) for SAV, SOP for projects, a generic *Memorandum of Understanding* (MOU), courses to prepare subject matter experts for SAV and *Physical Security and Stockpile Management* (PSSM) seminars. The MSAG has its own website (www.msag.es) since 2009.

These tools and the information exchange provided by the symposia have allowed the fruitful completion of some missions (SAV and PSSM-seminars), by multinational teams under the direction of a MSAG lead nation.

This handbook has been produced with input from members of the Multinational Small Arms and Ammunition Group (MSAG).

Welcome to the MSAG community!

# 2. PREFACE

The aim of this handbook is to provide a practical tool for the work of or within MSAG with a specific focus on planning, preparation, execution and evaluation of SALW/CA related missions in support of the MSAG.

This publication is written to provide or reflect the ongoing or generally agreed existing best practices and principles for the conduct of assistance missions, like PSSM assessments, training activities, seminars or PSSM & Destruction Projects.

The handbook is published by the MSAG in order to reach a higher degree of operational understanding and commonality among MSAG nations for the conduct of SALW/CA missions. To this end, the handbook seeks to provide an overview of those related activities and to provide assistance in the planning, preparation, and execution of PSSM activities. This publication does not view MSAG operations in isolation, but works within the national, regional (African Union (AU), European Union (EU), inter alia) and international (e.g. UN, OSCE) frameworks for its broader strategic orientation and focus.

# 3. OBJECTIVES OF MSAG

The existing surpluses of SALW and/or the shelf life exceeded stockpiles of CA pose significant hazards to people, the environment and the security of countries.

The UN and many regional organizations therefore addressed these problems in several initiatives with the common aim of clearly improving the current situation through international cooperation and assistance. This may include financial and technical assistance, as appropriate, to support and facilitate efforts at local, national, regional and global levels.

Two crucial thematic areas of international assistance and cooperation, both are aimed at reducing destabilizing accumulations, combating the uncontrolled spread, and preventing illicit trafficking of SALW/CA:

- **to reduce the global surplus of SALW/CA and**
- **to promote the proper management and security of national stockpiles.**

**The aim of the MSAG is to enhance the development of a capacity on PSSM, exchange best practices with regards to SALW/CA and orchestrate destruction and disposal, in order to reduce accidents and the number of SALW in circulation.**

The MSAG is an apolitical, informal, multinational assembly of like-minded states that undertakes, at the discretion of the member states, the development of any SALW/CA related SOPs and training programs deemed necessary to improve the quality of the efforts made in the field of SALW/CA. For further information and methodology concerning MSAG functionality consult the MSAG Terms of Reference (see Annex 1).

# 4. THE ISSUE OF SALW

Improperly stored and inadequately managed stockpiles of SALW present many security problems and challenges which threaten individuals and societies. The words of the former UN Secretary-General, Kofi Anan, are still true: *'Small arms and light weapons are the weapons of mass destruction of the 21st century'*.
The Archbishop Desmond Tutu has described the small arms trade in Africa as *'the modern-day slave trade which is out of control.'* The fact that - according to figures from Small Arms Survey - armed violence claims at least 740.000 lives per year, of which the vast majority - at least 490.000 - of these occur in non conflict settings, provides sad evidence of these truths.

However, due to the inert characteristics of SALW, large and poorly managed stockpiles do present the catastrophic safety concerns to the public as do large stockpiles of poorly managed ammunition. The potential threat of SALW is only realized when a live ammunition round is chambered in the weapon. Proper physical security can lessen the likelihood of a SALW becoming that weapon of *mass* destruction, however poor stockpile management of SALW can present a fatal safety concern to the individual weapons handler, user or MSAG inspector. Inadequately stored and maintained SALW can present danger to the soldier or policeman eventually issued this item as it may be non-functional or could critically misfire at a time needed most.

Therefore every MSAG member of an assistance team needs to have an understanding of both the global and the practical issues and dangers of improperly stored and inadequately managed stockpiles of SALW. This will ensure the personal safety of the inspectors and goes along with improving the effectiveness of the SAV.

### a. SALW as a global threat for societies

It is an understatement to say that excessively large stockpiles of poorly secured and maintained SALW present a global security concern. The widespread presence and easy availability of these weapons present a significant threat to human security, a hindrance in the fight against crime and corruption and an obstacle to better social policy and economic development. The same SALW that was procured to defend a national populace and promote national stability, left poorly secured and maintained, can be the cause of violence, conflict and instability in that very same nation.

Even with the cessation of hostilities in a country, the effects caused by unsecured weapons can persist in the area, as does the potential circulation of these weapons across borders and regions. In fact, once these weapons leave government stockpiles they may continue to cause civilian injuries and deaths, constrain social and economic development, enhance criminal capabilities, and contribute to social and ethnic tensions for decades to come.

Recognizing, the dangers that excessive and destabilizing stockpiles of SALW and their potential uncontrolled spread present, nations, regional organizations, and multinational organizations have made varying levels of commitments to address this problem and provide several mechanisms to assist in managing and securing stockpiles. At the regional and multinational levels, the international community has developed a host of tools and procedures to assist individual nations in the life-cycle of SALW, to include (but not limited to) guidance on manufacturing, proper marking and tracing, accurate and sustained record keeping, export control criteria, transfer transparency, physical security and storage, and destruction and disablement.

## b. Principles for handling SALW

As military representatives to MSAG, our primary concern with regards to SALW is to provide PSSM assistance to requesting nations. As apolitical members of a multinational organization, the MSAG generally uses approved regional and multinational standards on SALW security and management rather than individual national standards when conducting assistance missions. As a general framework to provide assistance and recommendations, the MSAG has adopted the OSCE "Handbook of Best Practices on Small Arms and Light Weapons" and more specifically, Chapter 3, "Best Practice Guide on National Procedures for Stockpile Management and Security" (19 Sep 2003) as the practical standard when providing assistance.[1]

The guidance provided in this handbook was developed through questionnaires distributed to OSCE member states and additional documents provided by international organizations, national governments and nongovernmental organizations (NGOs). The handbook is intended to contribute to and facilitate the development and application of high common standards regarding the management and storage of SALW. While the best practice standards are not exhaustive, they form a sound basis for most cases and elaborate a methodology for the development of policy and general operational guidelines and procedures on all aspects of SALW stockpile management and security procedures.

The Handbook on Best Practice Guide on SALW contains many of the same "time tested" and "common sense" security measures and management procedures found in the OSCE "Handbook of Best Practices on Conventional Ammunition". Still, it is important that all MSAG inspectors treat all SALW as potentially loaded and therefore unsafe during handling. Furthermore the SALW inspector should anticipate encountering ammunition on a SALW assessment mission, as most nations requesting assistance generally do not correctly segregate SALW and ammunition stockpiles.

The information provided in this short chapter was intended to provide a brief overview on the importance of safely and securely managing SALW stockpiles, as well as present a starting point to providing assistance on SAV. It is critical for the MSAG inspector to further understand the salient issues and develop a greater understanding on the technical, practical and procedural aspects of managing a SALW stockpile before conducting an assessment visit. Lastly, the inspector should research the applicable, agreed upon international, regional, and national norms and regulations of the assisted country before undertaking such a mission.

[1] The UN has developed the *International Small Arms Control Standards* (ISACS), which will also be used as a framework for technical guides.

# 5. THE ISSUE OF CONVENTIONAL AMMUNITION (CA)

Ammunition beyond what a host nation requires for its legitimate defense needs is simply not worth the cost to secure it or worth the risk posed by an accident or its theft. Poor security and accountability of conventional ammunition can lead to its theft and illicit use in crimes or terrorist activities. Improper management of conventional ammunition stockpiles poses grave dangers to the local population and to those who attempt to use said ammunition. Poor storage, transportation, and stockpile surveillance procedures can lead to deadly ammunition accidents caused by the deterioration of the propellant stabilizer in ammunition beyond its serviceable use.

The cost in life, property, and trust in the governments who do not do what is in their power to prevent such catastrophes bears witness to the valuable lessons to be learned by following international best practices for the stockpile management of CA.

### a. Dangers posed by obsolete and surplus CA

What is a gun without any bullets? In contrast, worldwide reporting of *Improvised Explosive Devises* (IED's) has demonstrated that ammunition can be lethal without a corresponding weapon. Poorly secured and unaccounted for ammunition can be easily diverted from national stockpiles and used in crimes, terrorist attacks, civil wars, insurgencies, and contribute to national, and even regional instability. In times of political instability, these stockpiles pose attractive targets for angry civilians and rebel groups that will use the ammunition and the corresponding weapons for their own purposes, threatening the political stability of host governments.

Even though the theft of ammunition is a grave concern, the effects of ammunition depot explosive accidents pose the most salient risk. News of ammunition depot explosions makes headlines in several countries worldwide every year. These deadly incidents almost always involved casualties, including numerous deaths. Often these events result in significant, widespread destruction of property and infrastructure, damage to the environment, temporary deterioration of air quality, and the displacement of individuals who were left homeless or cannot return to their communities due to the threat posed by unexploded ordnance in their neighborhoods. The cost in property damage, reconstruction, lives, and reparations to those who lost their homes and livelihood can run host governments into the millions, not to mention damage their political reputations as their citizens wonder how such incidents could occur.

There is recognition that the United Nations has a key role to play in providing the necessary international support, advisory and coordination mechanisms to improve the quality of conventional ammunition stockpile management. There are also regional organizations such as the Office of Security Cooperation in Europe (OSCE), the North Atlantic Treaty Organization (NATO), the Organization of American States (OAS), and the Regional Center for Small Arms in East Africa (RECSA) which can also provide support, technical advice, and coordinate assistance for host nations who request it. National, regional, and international communities have put together best practice guidelines for 'stockpile management' which incorporate the safe and secure accounting, storage, transportation, handling and disposal of conventional ammunition.

### b. Basic principles for ammunition handling

The MSAG adheres to international best practices, mainly adopted from the OSCE, but incorporates other international as well as national best practices as well. The MSAG shares its expertise among its members so it can better assist the foreign governments who request the assistance of our participating states or the MSAG as a whole. As a general framework, the MSAG has adopted the ”OSCE Handbook of Best Practices on Conventional Ammunition” (2008). The intention of this handbook of best practices is to serve as a guide for OSCE participating states to use when determining their policies and procedures for handling their ammunition stockpiles. The UN is in the process of developing International Ammunition Technical Guidelines (IATG) for the Management of stockpiles of CA, scheduled to be complete sometime in late 2011, which will also be used as a framework for technical guides. Full implementation of international guidelines, however, especially in the case of guidance from NATO, has significant cost implications. MSAG partner nations may be able to assist in providing host nations who request it a graduated improvement recommendations in safety and security within an integrated risk management process that takes into consideration availability of funding and the political landscape for change.

When assessing CA stockpiles it is helpful to first observe how the ammunition is stored, the dunnage, ventilation and aisles width. Factors which can negatively affect the condition of the ammunition, such as holes in the packaging, or in the walls or ceiling, age, moisture, humidity, heat, and rough or extensive handling should also be observed.

While all ammunition should be handled carefully, not all ammunition is treated equal. Ammunition that looks worn and/or is not in its original packaging is to be treated with severe caution. Ammunition handlers should be more vigilant with detonation cords, dynamite, and anti-tank mines than small arms ammunition and all ammunition should be inspected and the deterioration factors considered before use.

# 6. BASIC PRINCIPLES FOR ASSISTANCE MEASURES

### *Assistance options*

The aim of all assistance measures is to enhance the safety of SALW/CA to prevent dangers related to the storage and the handling of SALW/CA. The safety of ammunition is essentially determined by the aspects of material and construction safety of ammunition, physical safety and security protection measures, and personnel and organizational measures for the safe handling of ammunition.

Risk evaluations, analyses and assessments are conducted to identify the dangers and risks inherent to the handling of SALW/CA.

Such risk assessments and the development of appropriate protective measures are based on the detailed knowledge of the chemical and physical effects of ammunition after an intended or also unintended initiation.

The individuals in an assessment team should have the relevant expertise in small arms issues or conventional ammunition, respectively. They should be able to work with national governments and relevant organizations to ensure a comprehensive assessment of the security situation before providing recommendations for action.

### *Evaluation of the situation by staff assessment visits*[2]

Within the scope of technical assistance, it may be necessary to conduct one or more visits of experts to evaluate the situation in order to fulfill the request for assistance. Staff assessment visits are conducted to verify whether the requested assistance is necessary. The teams of experts determine the necessity of assistance in a situation assessment, which covers the following aspects:

- Overview of locations (explosive quantity distance), type of storage, physical security and protection of the storage sites in order to assess the actual hazard situation.
- Composition and condition of stockpiles on SALW/CA.
- Assessment of the risks posed by these stockpiles.
- Establishment of the quantity of SALW/CA to be destroyed.
- Capacities for SALW/CA destruction.
- Identification of the applied record-keeping and surveillance procedures.
- Identification of the governmental responsibilities in stockpile management.
- State of training of the SALW/CA handling personnel.
- Determination of the required assistance measures, listed according to their priority.
- First draft solutions (project proposals).

The findings and assessments of the team of experts should be summarized in a final assessment report, which should contain recommended measures in the following areas:

2 OSCE documents use the terms “assessment visit”, “expert assessment visit”, “technical assessment visit”, “staff assessment visit” and “on-site confidential assessment” synonymously and without providing a definition. Other sources use the term “staff assessment visit”. For the purpose of this document the term “staff assessment visit”, abbreviated as “SAV”, will be used.

- Enhancement of storage and security conditions.
- Applicable procedures and safety requirements.
- Identification of those parts of the stockpiles that should be destroyed.
- Assessment of the costs and other implications.
- Required training of ammunition handling personnel.

In this context, the report should emphasize the most urgent measures to be taken in order to achieve an immediate hazard reduction. Low-cost measures should be given priority.

Assessment visits can be conducted in various phases of a bilateral cooperation process with different objectives and priorities. Often the initial assessment visit provides the situation picture which is necessary to realize the scope of the required assistance and to determine the essential priorities. The first aim is to get an overview of the number and location of ammunition storage sites, the composition of the stockpiles and the main ammunition-technical framework conditions.

These findings then serve as the foundation for subsequent steps to analyze and evaluate the situation, which will include further assessment visits by teams of experts to develop possible measures. The assessment visits of the teams of experts contribute to the situation assessment by gaining findings on

- the composition of stockpiles (nature and type of SALW, conventional ammunition, explosive material or detonating devices, quantities),
- the technical and organizational security measures, including aspects of stockpile management,
- the assessment of the risk posed by these stockpiles,
- the technical and financial feasibility of projects, and
- the further assistance measures.

Additional assessment visits may be conducted in the implementation phase to evaluate and document the progress achieved during the project or to identify further actions.

Assessment visits conducted upon conclusion of projects serve as follow-up and to document projects; at the same time, they may be the starting point of other projects in other fields, or they make help to develop a regional approach.

***Follow-up measures***

Based on the findings gained during the assessment visits, an overall project or individual problem-oriented projects are developed regarding:

- The improvement of infrastructure.
- The enhancement of management.
- The creation of a central ammunition surveillance unit.
- The destruction of surplus stockpiles.
- The training of personnel involved in stockpile management and security and/or the destruction of SALW/CA.

(More detailed procedures can be found in the annexed SOP's)

# 7. MSAG PRODUCTS & TOOLS

**Products and tools**

A main part of the MSAG activities is the development and implementation of any SALW/CA related SOP and Training Programmes in order to reach a degree of operational understanding and to improve the quality of the efforts made in the field of SALW/CA.

For the intended purpose of this handbook, those MSAG products and tools, their intention and scope as well as the status of development are to be introduced in this chapter. Generally the full versions are annexed to this handbook. Any proposals for amendments or updates should be send to the national POC's (Chapter 8).

| Product | Intention and Scope | Annex |
|---|---|---|
| **T**erms **o**f **R**eference | To set the purpose of the MSAG, how decisions shall be taken, the membership and symposia requirements, as well as the responsibilities of the Secretariat and the cooperation with other bodies. | **1** |
| **SOP** for **Project Management** | To provide a tool for the verification personnel in charge of proposing, planning or executing a project for SALW / CA security, safety, management or disposal. It shall be used as a guideline to identify objectives, set the framework, coordinate the actors for proper implementation, assess potential risks and monitor and verify the implementation. (in process) | **2** |
| **SOP** for **Staff Assessment Visits** | To provide a common understanding among verification agencies on some of the crucial core standards for the planning, preparation, execution and analysis of SAV on SALW or stockpiles of conventional ammunition (SCA) facilities abroad, in the context of international cooperation and assistance rendered under the OSCE Document on SALW or OSCE Document on SCA or the UN Programme of Action (PoA) on SALW. | **3** |
| **Master MoU** | Memorandum of Understanding between Host Nation and MSAG Nation in Lead. | **4** |
| **Master Bilateral Agreement** | An agreement between MSAG Nations for the accomplishment of joined projects. To follow | **5** |
| **SALW Guide** | To provide assistance for inspectors to prepare and carry out a mission. It gives an overview about several markings and provides identification of SALW and MANPADS by images, technical data, further remarks and the known geographical extension of the most widespread weapons. | Not an annex. Issued separa tely |
| **CA Guide** | To provide assistance for inspectors to prepare and carry out a mission. It gives an overview about several markings and provides identification of ammunition by images, technical data, further remarks and the known geographical extension of the most widespread CA. | Not an annex. Issued separat ely |

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# 9. GLOSSARY

**Abandoned explosive ordnance (AXO):** Explosive ordnance that has not been used during an armed conflict has been left behind or dumped by a party to an armed conflict, and is no longer under control of the party that left it behind or dumped it. Abandoned explosive ordnance may or may not have been primed, fused, armed, or otherwise prepared for use.

**(ammunition) Accounting:** Information management systems and associated operating procedures that are designed to record, numerically monitor, verify, issue, and receive ammunition in organizations and stockpiles.

**Ammunition:** A complete device (e.g. missile, shell, mine, demolition store, etc.) charged with explosives; propellants; pyrotechnics; initiating composition; or nuclear, biological, or chemical material for use in connection with offence, or defence, or training, or non-operational purposes, including those parts of weapons systems containing explosives (cf. **Munition**).

**Anti-aircraft gun:** Used by the infantry to engage air targets, on occasion with notable success, their effectiveness is generally limited to long-term attrition rather than preventing individual aircraft from completing weapon delivery. The ammunition and shells fired by these weapons are usually fitted with different types of fuses (barometric, time-delay, or proximity) to send exploding metal fragments into the area of the airborne target.

**Anti-tank guns:** Guns designed to destroy armored vehicles. In order to penetrate the armor of tanks and other armored vehicles they generally fire shells of smaller calibre than regular indirect-fire artillery guns, propelling them at higher velocity.

**Anti-tank guided missile** (**ATGM**) or **anti-tank guided weapon** (**ATGW**): A guided missile primarily designed to hit and destroy heavily-armored tanks and other armored fighting vehicles. ATGMs range in size from shoulder-launched weapons which can be transported by a single soldier, to larger tripod mounted weapons which require a squad or team to transport and fire, to vehicle and aircraft mounted missile systems.

**Artillery ammunition:** Medium and large calibre ammunition for weapons, such as mortars, howitzers, missile, and rocket launchers, that are primarily designed to fire indirectly at targets (cf. **Ammunition**).

**Assault rifle:** Loosely defined as a selective fire rifle designed for combat that uses an intermediate cartridge and a detachable magazine. Assault rifles are the standard infantry weapons in most modern armies.

**Blank cartridge:** Used to simulate a live round, primarily used for training, containing propellant and a wad, but no bullet or other projectile. Not designed for offensive military use (cf. **Cartridge**).

**Bolt action rifle:** A weapon, which requires a manual operation to reload a weapon prior to each shot. Term "bolt action" comes from the "bolt" - a part of the weapon that is used to feed cartridges into the chamber and to lock the barrel upon the fire.

**Bomb:** Explosive munition, not subject to centrifugal forces and with a nearly vertical angle of descent, usually delivered from an aircraft or mortar (cf. **Munition**).

**Burning ground:** An area authorized for the destruction of ammunition, mines, and explosives by burning.

**Charge:** A fixed quantity of explosives designed for a specific purpose (cf. **Explosives**; **Charge (bursting)**; **Charge (demolition)**; **Charge (expelling)**; **Charge (propelling)**).

**Charge (bursting):** A small charge, frequently of black powder, used to break the case of a carrier projectile to enable the release of its payload, classically used in shrapnel shells.

**Charge (demolition):** A charge made up from bulk explosive for the express purpose of destruction by blast or brisance.

**Charge (expelling):** A charge of generally low or deflagrating explosive designed to eject the payload from a parent munitions dispenser by gas pressure without damage to the sub-munitions (cf. **Sub-munitions**; **Deflagration**).

**Charge (propelling):** Articles consisting of a propellant charge in any physical form, with or without a casing, for use in artillery, mortars, and rockets, or as a component of rocket motors.

**Cluster munitions:** Containers designed to disperse or release multiple sub-munitions (cf. **Munition**; **Sub-munitions**).

**'Cooking off' (within a weapon):** Unintended firing of a weapon caused by the propellant exceeding its flashpoint and initiating. This happens when a weapon has become very hot due to repeated firing and is left loaded. The heat contained in the weapon is conducted to the charge, causing it to heat up, eventually to the point at which it initiates.

**'Cook-off':** The premature detonation or deflagration of ammunition due to the influence of heat from the surrounding environment.

**Daily ammunition expenditure rate (DAER):** The amount of ammunition that a single weapon uses in one day of combat of a given intensity.

**Danger area:** (cf. **Explosive danger area**)

**Deflagration:** A chemical reaction proceeding at subsonic velocity along the surface of and/or through an explosive, producing hot gases at high pressures.

**Demilitarization:** The complete range of processes that render weapons, ammunition, mines, and explosives unfit for their originally intended purpose.

Demilitarization not only involves the final destruction process, but also includes all of the other transport, storage, accounting, and pre-processing operations that are equally as critical to achieving the final result.

**Destruction:** The process of final conversion of weapons, ammunition, mines, and explosives into an inert state so that they can no longer function as designed.

**Destruction in situ:** The destruction of any item of ordnance by explosives without moving the item from where it was found—normally by placing an explosive charge alongside it.

**Detonation:** The rapid conversion of explosives into gaseous products by means of a supersonic shock wave passing through the explosive. (Typically, the velocity of such a shock wave is more than two orders of magnitude higher than a fast deflagration.) (cf. **Deflagration**)

**Detonator:** A device containing a sensitive explosive intended to produce a detonation wave in some stimulus. It may be constructed to detonate instantaneously, or may contain a delay element.

**Diurnal cycling:** The exposure of ammunition and explosives to the temperature changes induce by day, night, and change of season.

**Disposal (logistic):** The removal of ammunition and explosives from a stockpile by the utilization of a variety of methods (which may not necessarily involve destruction).

Logistic disposal may or may not require the use of render safe procedures. There are five traditional methods of disposal used by armed forces around the world: 1) sale; 2) gift; 3) use for training; 4) deep sea dumping; and 5) destruction or demilitarization.

**Disposal site:** An area authorized for the destruction of ammunition and explosives by detonation and burning.

**Diversion:** The unauthorized transfer of arms and ammunition from the stocks of legal users to the illicit market.

**Drill:** An inert replica of ammunition specifically manufactured for drill, display, or instructional purposes.

**Explosive:** A substance or mixture of substances that, under external influences, is capable of rapidly releasing energy in the form of gases and heat.

**Explosive danger area:** The area surrounding a demolition ground or ammunition storage area determined by the distances any fragments resulting from the detonation of ammunition may be expected to travel.

**Explosively formed penetrator (EFP):** (cf. **Shaped charge**)

**Explosive materials:** Components or ancillary items that contain some explosives, or behave in an explosive manner, such as detonators and primers.

**Explosive ordnance:** All munitions containing explosives, nuclear fission or fusion materials, and biological and chemical agents. This includes bombs and warheads; guided and ballistic missiles; artillery, mortar, rocket, and small arms ammunition; all mines, torpedoes, and depth charges; pyrotechnics; clusters and dispensers; cartridge- and propellant-actuated devices; electro-explosive devices; clandestine and improvised explosive devices; and all similar or related items or components that are explosive in nature.

**Explosive ordnance disposal (EOD):** The detection, identification, evaluation, rendering safe, recovery, and final disposal of unexploded explosive ordnance. EOD may also include the rendering safe and/or disposal of such explosive ordnance, which has become hazardous by damage or deterioration, when the disposal of such explosive ordnance is beyond the capabilities of those personnel normally assigned the responsibility for routine disposal. The level of EOD response is dictated by the condition of the ammunition, its level of deterioration, and the way that the local community handles it.

**Explosive remnants of war (ERW):** Unexploded ordnance (UXO) and abandoned explosive ordnance (AXO) that remain after the end of an armed conflict. (Cf. **Unexploded ordinance; Abandoned** explosive ordinance)

**Fragmentation hazard zone:** For a given explosive item, explosive storage, or mine- or UXO-contaminated area, the area that could be reached by fragmentation in the case of detonation. Several factors should be considered when determining this zone: the amount of explosive, body construction, type of material, ground conditions, etc.

**Fuse:** A device that initiates an explosive train.

**Grenade:** Munitions that are designed to be thrown by hand or to be launched from a rifle. Excludes rocket-propelled grenades (cf. **Rocket**).

**Grenade launcher:** A weapon which fires a grenade – a small shell, filled with high explosive or other agent, such as tear gas for less lethal application, bright burning compound for illumination purposes, incendiary filling etc. Of course, in most cases the grenade also must be fitted with a fuse, and with a safety, to avoid damage to the grenadier or handler.

**Guided missiles:** Guided missiles consist of propellant-type motors fitted with warheads containing high explosives or some other active agent and equipped with electronic guidance devices.

**Hazard divisions (HDs):** The UN classification system that identifies hazardous substances. For example, Class 1 (explosives) is sub-divided into six hazard divisions.

**Hypergolic reaction:** The spontaneous ignition of two components—particularly relevant in the case of liquid bipropellants (cf. **Rocket motor**).

**Illuminating munition:** Ammunition designed to produce a single source of intense light for lighting up an area. The term includes illuminating cartridges, grenades, and projectiles; and illuminating and target identification bombs.

**Improvised explosive device (IED):** A device placed or fabricated in an improvised manner incorporating destructive, lethal, noxious, pyrotechnic, or incendiary chemicals and designed to kill, destroy, incapacitate, harass, or distract. It may incorporate military stores, but is normally devised from non-military components.

Alternatively: An explosive device, constructed using non-commercial methods, usually in a domestic setting; or a device using ammunition that has been modified to allow it to be initiated in a non-standard way and for a purpose not envisaged by the original equipment manufacturer (OEM).

**Incendiary munition:** Ammunition containing an incendiary substance that may be a solid, liquid, or gel, including white phosphorus.

**Inert:** An item of ammunition that contains no explosive, pyrotechnic, lachrymatory, radioactive, chemical, biological, or other toxic components or substances.

An inert munition differs from a drill munition in that it has not necessarily been specifically manufactured for instructional purposes. The inert state of the munition may have resulted from a render safe procedure or other process to remove all dangerous components and substances. It also refers to the state of the munition during manufacture prior to the filling or fitting of explosive or hazardous components and substances. (cf. **Drill; Lachrymatory ammunition; Pyrotechnic**)

**Lachrymatory ammunition:** Ammunition containing chemical compounds that are designed to incapacitate by causing short-term tears or inflammation of the eyes.

**Logistic disposal:** The removal of ammunition and explosives from a stockpile, utilizing a variety of methods (which may not necessarily involve destruction). Logistic disposal may or may not require the use of RSPs (cf. **Render safe procedure (RSP)**).

**Machine gun:** A fully automatic mounted or portable firearm, usually designed to fire rifle bullets in quick succession from an ammunition belt or large-capacity magazine, typically at a rate of several hundred rounds per minute.

**Magazine:** Any building, structure, or container approved for the storage of explosive materials.

Includes detachable magazines fitted to small arms and light weapons.

**Making safe:** (cf. **Render safe procedure (RSP)**)

**Man-portable air-defense systems (MANPADS):** Shoulder-launched surface-to-air missiles (SAMs). They are typically guided weapons and are a threat to low-flying aircraft, especially helicopters.

**Marking:** The application of marks - including colours, descriptive text, and symbols - to weapons, munitions, parts, and their components, and associated packaging, for the purposes of identifying, among other things, their role, operational features, and age; and the potential hazards posed by those munitions.

**Mortar:** A muzzle-loading indirect fire weapon that fires shells at low velocities, short ranges, and high-arcing ballistic trajectories. It typically has a barrel length less than 15 times its caliber.

**Mine:** An explosive munition designed to be placed under, on, or near the ground or other surface area and to be actuated by the presence, proximity, or contact of a person, land vehicle, aircraft, or boat, including landing craft.

**Munition:** Used in this volume—and in common usage—to refer to military weapons, ammunition, and equipment. A number of armed forces and ammunition specialists, however, use the term munitions to refer solely to complete rounds of ammunition (cf. **Ammunition**).

**National stockpile:** The full range of ammunition stockpiles in a country under the control of separate organizations such as the police, military forces (both active and reserve), border guards, ammunition-producing companies, etc.

It includes all ammunition types, irrespective of classification (i.e. operational, training, or awaiting disposal). (cf. **Stockpile**)

**(ammunition)Nature:** Denotes specific types of ammunition. A means of categorizing ammunition or munitions by their function; e.g. anti-tank ammunition or riot control ammunition.

**Neutralize:** The act of replacing safety devices such as pins or rods into an explosive item to prevent the fuse or igniter from functioning. Neutralization does not make an item completely safe, as removal of the safety devices will immediately make the item active again.

**Open burning and open detonation (OBOD):** Ammunition destruction methods using burning, deflagration, and detonation techniques (cf. **Deflagration**; **Destruction**).

**(white) Phosphorous:** A flare or smoke-producing indendiary weapon, or smoke-screening agent, made from a common allotrope of the chemical element phosphorous.

**Pistols (Semi-autos):** Use part of the energy produced by burning cartridge powder to remove the used cartridge from the chamber, cock the hammer (or striker) and load a new cartridge in the chamber, so the pistol will be ready for the next shot. Cartridges are usually fed from a box magazine, located in the pistol's handle. Box magazines may contain up to 15 cartridges (or more) in single or double columns, depending on the pistol model, and are easy (and very quick) to reload.

**Primer:** A self-contained munition that is fitted into a cartridge case or firing mechanism and provides the means of igniting the propellant charge.

**Proof:** The functional testing or firing of ammunition and explosives to ensure safety and stability in storage and intended use.

**Propellant:** A material that is used to move an object by applying a motive force. This may or may not involve some form of chemical reaction. It may be a gas, a liquid, or, before the chemical reaction, a solid. Chemical propellants are most usually used to propel a projectile from its position in the breech, down the barrel, and through its ballistic trajectory to the target. Propellant operates by deflagrating in the breach, producing large volumes of gas at high pressure. Traditionally, propellants were classified as low explosives and, depending on the number of ingredients, were single-, double-, or triple-based. In the pursuit of higher muzzle velocities, however, some propellants now incorporate significant quantities of high explosives, such as RDX. These propellants are constrained from detonating by carefully controlling the means of initiation and the conditions under which the deflagration takes place.

**Pyrotechnic:** A device or material that can be ignited to produce light, smoke, or noise.

**Recoilless gun** or **recoilless rifle:** A lightweight weapon that fires a heavier projectile that would be impractical to fire from a recoiling weapon of comparable size. Technically, only devices that use a rifled barrel are recoilless rifles. Recoilless rifles are capable of firing artillery-type shells at a range and velocity comparable to that of a normal light cannon, although they are typically used to fire larger shells at lower velocities and ranges.

**Render safe procedure (RSP):** The application of special explosive ordnance disposal methods and tools to provide for the interruption of functions or separation of essential components to prevent an unacceptable detonation.

**Revolvers:** Got their name from the rotating (or revolving) cylinder, which contains cartridges. Usually the cylinder holds from 5 to 8 cartridges.

**Risk:** Combination of the probability of occurrence of harm and the severity of that harm.

**Risk analysis:** Systematic use of available information to identify hazards and estimate risk.

**Risk assessment:** The overall process comprising a risk analysis and a risk evaluation.

**Risk evaluation:** The process based on risk analysis to determine whether the tolerable risk has been achieved.

**Rocket:** Munitions consisting of a rocket motor and a payload, which may be an explosive warhead or other device. The term often includes both guided and unguided missiles, although has traditionally referred to unguided missiles.

**Rocket motor:** Article consisting of a solid, liquid, or hypergolic fuel contained in a cylinder fitted with one or more nozzles. It is designed to propel a rocket or a guided missile (cf. **Hypergolic reaction**).

**Safe to move:** A technical assessment by an appropriately qualified technician or technical officer of the physical condition and stability of ammunition and explosives prior to any proposed move. If ammunition and explosives fail a 'safe to move' inspection, then they must be destroyed in situ, or as close as is practically possible, by a qualified EOD team acting under the advice or control of the qualified technician or technical officer who conducted the initial safe to move inspection.

**Safety:** (cf. **Stockpile safety**)

**Security:** (cf. **Stockpile security**)

**Shaped charge:** A type of ammunition designed to focus the energy of a quantity of high explosive, usually to pierce or cut armour. Shaped charges typically consist of a cone-shaped metal liner backed by high explosive, contained within a steel or aluminium casing. Once initiated, a detonation wave collapses the liner, which forms a high velocity metallic jet (or broader diameter projectile), which is intended to penetrate armour.

**Shelf life:** The length of time an item of ammunition may be stored before the performance of that ammunition degrades.

**Small arms ammunition:** Small arms ammunition (less than 20 mm, and usually less than 14.5 mm, in calibre) consists of cartridges used in rifles, carbines, revolvers, pistols, submachine guns, and machine guns, and shells used in shotguns (cf. **Small arms and light weapons (SALW**).

**Small arms and light weapons (SALW):** All lethal conventional arms that can be carried by an individual combatant, team of people, or a light vehicle that also do not require a substantial logistic and maintenance capability.

There is a variety of definitions for small arms and light weapons circulating, and international consensus on a 'correct' definition has yet to be achieved. For the purposes of this document, the above definition will be used.

**Smoke munition:** Ammunition containing a smoke-producing substance.

**Stability:** The physical and chemical characteristics of ammunition that impact on its afety in storage, transport, and use.

**Standard/Standing operating procedures (SOPs):** Instructions that define the preferred or currently established method of conducting an operational task or activity. The purpose of SOPs is to promote recognizable and measurable degrees of discipline, uniformity, consistency, and commonality within an organization, with the aim of improving operational effectiveness and safety. SOPs should reflect local requirements and circumstances.

**Stock:** A given quantity of weapons and explosive ordnance (cf. **Stockpile**).

**Stockpile:** A large, accumulated stock of weapons and explosive ordnance. Often used interchangeably with stock, or to denote the weapons retained in a specific ammunition storage facility or depot (cf. **Stock**; **National stockpile**).

**Stockpile destruction:** The physical activities and destructive procedures leading to a reduction of the national stockpile (cf. **Destruction**; **Demilitarization**; **Disposal (logistic)**; **Stockpile**).

**Stockpile management:** Procedures and activities regarding safe and secure accounting, storage, transportation, and handling of munitions (cf. **Stockpile**).

**Stockpile safety:** The result of measures taken to ensure minimal risk of accidents and hazards deriving from weapons and explosive ordnance to personnel working with arms and ammunition, as well as to adjacent populations.

**Stockpile security:** The result of measures taken to prevent the theft of weapons and explosive ordnance; entry by unauthorized persons into munitions storage areas; and acts of malfeasance, such as sabotage.

**Submachine gun:** An automatic or selective-fired shoulder weapon that fires pistol-caliber ammunition.

**Sub-munitions:** Any munition that, to perform its tasks, separates from a parent munition (cf. **Cluster munitions**).

**Surplus weapons:** Weapons that are labelled unnecessary within the framework of a state's national defence and internal security systems.

**Surveillance (of ammunition):** A systematic method of evaluating the properties, characteristics, and performance capabilities of ammunition throughout its life cycle in order to assess the reliability, safety, and operational effectiveness of stocks and to provide data in support of life reassessment.

**Tracer ammunition:** Ammunition containing pyrotechnic substances designed to reveal the trajectory of a projectile.

**(ammunition) Tracing:** Methods used to identify ammunition, its origins, and patterns of transfer. Shares some similarities with accounting, but usually used to refer to efforts made to identify diversion and the sources of illicit trade in ammunition.

**Transfer:** The import, export, trans-shipment, re-export, intangible transfer, licensed movement during production, brokering, and transport of small arms and light weapons.

**Unexploded ordnance (UXO):** Explosive ordnance that has been primed, fused, armed, or otherwise prepared for action, and which has been dropped, fired, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material, and remains unexploded either by malfunction or design or for any other cause.

**Warhead:** Munition containing detonating explosives. Designed to be fitted to a rocket, missile, or torpedo.

# 10. ABBREVIATIONS

| | |
|---|---|
| AAM | air-to-air missile |
| AAP | Allied Administrative Publication (NATO) |
| AASTP | Allied Ammunition Storage and Transport Publication (NATO) |
| ADF | ammunition demilitarization facility |
| AGM | air-to-ground missile |
| AH | anti-helicopter |
| ALARP | as low as reasonably practicable |
| ANFO | Ammonium Nitrate and Fuel Oil |
| AP | anti-personnel |
| APB | ammunition-process building |
| APE | ammunition-peculiar equipment |
| ASS | ammunition storage site |
| AT | anti-tank/ammunition technician |
| ATGM | anti-tank guided missile |
| ATGW | anti-tank guided weapon |
| ATO | ammunition technical officer |
| AU | African Union |
| AUW | all up weight |
| AV | anti-vehicle |
| CA | Conventional Ammunition |
| CCW | Convention on Certain Conventional Weapons |
| CMD | conventional munition disposal |
| COTS | commercial off-the-shelf |
| CSBM | confidence- and security-building measures |
| CWIED | command wire IED |
| D&D | Destruction and Disposal |
| DAER | daily ammunition expenditure rate |
| DCSR | daily combat supply rate |
| DDR | disarmament, demobilization, and reintegration |
| DTRA | Defence Threat Reduction Agency (United States) |
| ECA | explosion consequence analysis |
| EFP | explosively formed projectile |
| EOD | explosive ordnance disposal |
| ELL | explosive limit license |
| ERW | explosive remnant of war |
| ESA | explosive storage area |
| ESH | explosive storehouse |
| EU | European Union |
| EWI | explosive waste incinerator |
| FFR | free-flight rocket |
| GGE | Group of Governmental Experts |
| HCC | hazard compatibility code |
| HD | hazard division (United Nations) |
| HE | high explosive (noun); high-explosive (adjective) |
| HEAT | high-explosive anti-tank |
| HME | home-made explosives |
| HPLC | high performance liquid chromatography |
| HSEOEL | health and safety executive occupational exposure limits |
| IATG | International Ammunition Technical Guidelines |
| IDDRS | International Disarmament Demobilization and Reintegration Standards |
| IED | improvised explosive device |
| IMAS | International Mine Action Standards |

| | |
|---|---|
| ISACS | International Small Arms Control Standards |
| IQD | inside quantity distances |
| IRFNA | inhibited red fuming nitric acid |
| ISFE | igniter safety fuse electric |
| ISO | International Standardization Organization |
| JACIG | Joint Arms Control Implementation Group (United Kingdom) |
| LVBIED | large vehicle-borne IED |
| MANPADS | man-portable air defence system(s) |
| MHE | mechanical handling equipment |
| MLRS | multiple launch rocket system |
| MMH | monomethyl hydrazine |
| MoD | ministry of defence |
| NATO | North Atlantic Treaty Organization |
| NEC | net explosive content |
| NEQ | net explosive quantity |
| OBOD | open burning and open detonation |
| OEM | original equipment manufacturer |
| OQD | outside quantity distances |
| OSCE | Organization for Security and Co-operation in Europe |
| PBIED | person-borne IED |
| PCIED | projectile-controlled IED |
| PCS | pollution control system |
| PES | potential explosion site |
| PETN | penta-eurythyl tetranitrate |
| PfP | Partnership for Peace (NATO) |
| PoCDB | Point of Contact Database |
| PSSM | Physical Security and Stockpile Management |
| RCIED | radio-controlled IED |
| RDX | Research Department Explosive (Octagen) |
| RFNA | red fuming nitric acid |
| RSP | Render Safe Procedures |
| SAA | small arms ammunition |
| SAADS | small arms ammunition disposal system (commercial) |
| SALW | small arms and light weapons |
| SAM | surface-to-air missile |
| SCA | Stockpiles of Conventional Ammunition |
| SEESAC | South Eastern and Eastern Europe Clearinghouse for the Control of SALW |
| SOP | standing/standard operating procedure |
| SSR | security sector reform |
| TLV | threshold limit value |
| TNT | trinitrotoluene |
| UDMH | unsymmetrical dimethyl hydrazine |
| ULC | unit load container (pallets) |
| UNDP | United Nations Development Programme |
| UNDPKO | United Nations Department of Peacekeeping Operations |
| UXO | unexploded ordnance |
| VBIED | vehicle-borne IED |
| VOC | volatile organic compound |
| VOIED | victim-operated IED |

# ANNEXES

ANNEX 1: Terms of Reference

ANNEX 2: SOP for Project Management

ANNEX 3: SOP for Staff Assessment Visits

ANNEX 4: Master MoU

ANNEX 5: Master Bilateral Agreement

ANNEX 6: Points of contact