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TRAINING AND EDUCATION ON SMALL ARMS



SALW Basics – Recognizing SALW and Ammunition

module SB-R05A02

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**SALW Basics –
Recognizing SALW
and Ammunition**

*written by
the TRESA team*

module SB-R05A02

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List of Icons for TRESA modules

The following icons will be used in the text. These are intended as pointers for actions the trainer or trainee should take while using the text.



Activity

Indicates some sort of group activity, exercise, discussion, division into separate smaller groups, etc.



R

Case study

Two types of case studies are indicated here:

- Case studies which are required (later text refers to the case, and therefore the case study must be used). These are indicated by an "R".
- Case studies that are optional (trainers can use a similar case study they might be more familiar with, as the same lessons are drawn).



Essential point

Main points that the trainees *must* remember from the training.



Formal quote

Written or pictographic material that is a quote from some other source (e.g.: UN declaration, national law) and cannot be changed or modified.



Outside reference

An arrow pointing to some outside source, for example, another module.



Tag

This indicates an element of the module that the trainer must be careful to modify to fit the audience.



- L: *Linguistic usage*. Where the text uses a particular expression that might not translate well from one language to another.



- C: *Cultural usage*. Where the text uses examples from one culture that might be misunderstood in another.

- S: *Social usage*. Where a text is aimed at a particular audience (example, parliament members) and must be modified to fit another audience (example, military people).



Take a break

Breathe some fresh air, relax, have a cup of coffee, ...



Technical device

Trainer must ensure the availability of some technical device: a computer with presentation software, an OHP, a film projector, puppets, ...



Tool

A film, a form or questionnaire, theatrical performance, etc., that accompany the module but are not part of it. Most are downloadable from www.tresa-online.org



Trainer preparation required

The trainer must make some special preparation (prepare notes or labels, assemble material, collate material for distribution).

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Trainer Preface

Along with the other modules that comprise the series SALW Basics, this module is intended to provide a basic fundamental understanding of the issue of SALW for trainees who have had little or no previous exposure to the subject.

We recommend that you insert this module at the beginning of *all* TRESA training courses on SALW and SALW-related topics. However, we leave it up to you, the trainer, whether or not to extend the module by doing exercises with the trainees and by providing them with more information.

These SALW Basics modules are short enough that you may decide *during* a training session, to introduce one or more of them if you discover that the trainees need some better understanding of the fundamentals.

We recommend that you include the SALW Basics-Definitions (SB-D05) module in the training to make trainees familiar with the working definition for SALW used in all other TRESA modules, and to ensure that all trainees are using the same terminology.

Trainees who need a more detailed knowledge of SALW types and their components (e.g. participants in preparation for SALW collection and destruction programs) should read the TRESA Module Recognizing SALW and Ammunition (RSA05), which covers this topic in greater depth.

We strongly recommend that you spend time also familiarizing yourself with the TRESA Module Recognizing SALW and Ammunition (RSA05) before teaching this module, so that you will be able to answer trainees' questions. Although it is not necessary to go into the details of SALW technicalities, we strongly urge you to familiarize *yourself* in greater depth with the issues of recognition and identification presented in the module RSA05 as stated above.

Please note that we have provided you with additional information within a trainer note (see the grey boxes labeled **Trainer Note**) on several occasions during the course of this module. This information is meant to provide you with additional material to answer the trainees' questions.

Please also note that all Module Abbreviations deliberately state only the first three letters (e.g. SB-D), as well the year in which the module was written (05), but not whether it is the A (trainer), or B (Trainee) version, or e.g. 01 (is the first version of this module, 02 the second, etc.). This is to emphasize that all our modules are works in progress, and will be regularly updated and modified (01, 02, 03, 04, etc). We therefore welcome any feedback or comments you might have.



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Acknowledgements

We would like to thank SEESAC for allowing us to base some of the definitions used in this module on their RMDS/G 02.10 "Glossary of SALW terms and abbreviations" (3rd ed., 2005-02-10), as well as www.huachuca.org, www.answers.com and www.osce.org for their permission to make use of their pictures.

We would also like to thank Friederike Foltz, Sylvia Wanjau and Jonas Horner for their valuable input and comments in finalizing this training module.

We would further like to thank Dr. Mark Benbow, Max Popenker, Scotch Macaskill, Colin King, Korhonen Sami, Christine Beeck, Markus Klausnitzer, Tobias Pietz and FSU Connections Ltd for giving us their kind permission to use their photos in the TRESA Modules SALW Basics-Definitions (SB-D05) and SALW Basics-Recognizing SALW and Ammunition (SB-R05).

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Glossary

Ammunition	A warhead and its associated propellant.
Assault rifle	A type of automatic rifle designed to fire bursts of ammunition at intermediate ranges. Mid-sized between a rifle and a sub-machine gun.
Automatic pistol/ rifle	A firearm designed so that the firing of one round of ammunition causes the loading of another one ready to fire in the breech.
Back blast	The hot ejecta from a rocket or recoilless rifle that shoots <i>away</i> from the direction the gun is pointed.
Barrel	The straight tube of a gun, which directs the projectile (= tube).
Bazooka	A weapon of metal tubing, for aiming and launching rockets.
Belt	Strip of fabric or metal, or metal links, into which cartridges are fitted to facilitate the feeding of them into a weapon.
Bipod	Two-legged support fitted to the forward end of a gun, for accurate firing in a prone position.
Bullet and cartridge	A type of ammunition where the warhead is fixed to a casing containing the propellant.
Burst	Rapid firing of several rounds one after the other by an automatic mechanism in the weapon.
Butt	In a shoulder-arm, the rear of the weapon that is pressed into the shoulder of the user.
Caliber	1) The inner diameter of the tube and the outer diameter of its ammunition. Usually measured in millimeters (mm) or fractions of an inch. 2) Designation of the cartridge a weapon is designed for.

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Cartridge	Part of a round of “bullet and cartridge” shape ammunition that is attached to the rear of a warhead and contains the propellant.
Explosives	Substances or mixture of substance which, under external influences, is capable of rapidly releasing energy in the form of gases and heat.
Firearm	Weapon that operates through the expansion of burning gases to propel a warhead.
Fuse	Any of various devices for setting off bombs and explosive charges.
CSO	Civil Society Organizations. An organization that focuses on the participation of civil society in social and political decision-making processes.
Grenade launcher	A device for firing small bombs to a distance beyond throwing by hand. There are many different shapes and types.
Inert	An item of ammunition that contains no explosive, pyrotechnic, lachrymatory, radioactive, chemical, biological or other toxic components or substances.
Light Weapons	A crew operated weapon of less than 100-mm caliber. In practice, weapons of calibers of between 12.7 and 100 mm.
Machine gun	Medium-sized and larger automatic firearm (less than 20mm caliber) that fires in bursts.
Magazine	Container, which holds ammunition ready for loading into a gun.
Missile	A type of warhead consisting of a rocket with some guidance mechanism.
Munitions	Military weapons, ammunition and explosives.
Muzzle	End of the barrel from which the projectile emerges.

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NGO	Non-governmental organization: a voluntary organization that is non-profit oriented, and independent from the state and state institutions.
Ordnance	Explosives and ammunition.
Projectile	Any bullet, shot or shell fired from a gun.
Propellant	The chemical charge in a firearm that causes rapid acceleration of a warhead.
Range (of a weapon)	The distance at which a weapon can cause harm.(NOTE: this differs from the military definition of the 'effective' range of a weapon.)
Rate (of fire)	Frequency with which shots can be fired from an automatic weapon.
Recoilless	A form of firearm in which the energy used to propel the warhead forwards is matched by energy emerging from the back of the weapon in a back blast.
Rifle-grenade	Grenade intended to be fired by a rifle.
Rocket	Type of ammunition that reaches its target through the action of a reaction motor – a chamber containing some combustive material – which shoots hot gases to the rear, thus propelling the rocket forward.
Rocket-propelled Grenade	A small bomb propelled by a rocket motor from a special launcher.
Round	A single piece of ammunition of any particular type.
Semi-automatic weapon	A type of firearm that automatically loads a new round into the breech each time a round is fired, but only discharges the round following a fresh pull of the trigger.
Shell	A projectile containing an explosive or other filling fired from a "cannon-shaped" light (25mm-100mm) or heavy (100mm-240mm) weapon.
Shoulder arm	A medium-sized weapon such as a rifle that must be fired with two hands, butt against shoulder.

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Shrapnel	Shell fragments scattered by any exploding shell.
Sights	Devices used to aim a gun.
Small Arms	Weapons that can be carried and are used by one person.
Sniping	Shooting at a distant target from a hidden position.
Trigger	A small lever in firearms which when pulled fires the gun.
Tripod	Three-legged gun mounting used with light portable weapons.
Tube	The part of a firearm that contains and launches the warhead (= barrel).
Warhead	The part of a firearm's ammunition that does the actual damage.

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1. Introduction

This module is intended to familiarize trainees with the core subject of the TRESA modules: Small Arms and Light Weapons (SALW). It gives an overview of SALW by providing pictures and explanations on some of the most widely used types of weapons and their characteristics. As we consider ammunition to be a crucial component of the SALW problem, – it is ammunition that turns a gun into a deadly instrument – we have also included it in this module. Moreover, we briefly touch upon unexploded ordnance (UXO).

Trainee audience and objective

TRESA Module SALW Basics – Recognizing SALW and Ammunition (SB-R05) is recommended for all participants of training courses on SALW or related issues, unless they are already thoroughly familiar with SALW.

Target audience:

- People working in a country with a SALW problem (e.g. as development or humanitarian aid workers or in other fields, such as medical doctors, etc.), who may need to know what types of weapons they might be confronted with, and about the implications for their work in the field.
- Researchers on SALW-related issues, to help them make precise observations.
- NGOs and CSOs (see glossary for a definition) working on SALW and related issues, to focus their activities precisely.
- Government officials and other people in decision-making positions, to know about SALW types and their impacts.

The objective of this module is to:

- Familiarize trainees with some of those types of SALW, ammunition and UXO they are most likely to be confronted with in their work.
- Make trainees aware of some basic safety rules.

At the end of the module, the trainees should:

- Have a basic understanding of what SALW are.
- Have a basic understanding of the risks of SALW.
- Know some basic SALW safety rules.

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If you feel you need a more detailed knowledge of SALW types and their components – for example, if you are preparing for an SALW collection and destruction program – we recommend you study TRESA Module Recognizing SALW and Ammunition (RSA05) which covers this topic in greater depth.



In order to be able to properly define SALW, we strongly recommend you to also study the TRESA Module SALW Basics – SALW Definitions (SB-D05).

Trainer Note

The subject of fully identifying small arms in detail is a complex one. Humans have spent a great deal of time and ingenuity in devising small arms. There are a large number of countries that manufacture them, and every major model has a large number of variants. This means that it is impossible, and probably undesirable, to provide a detailed description of *all* small arms. It is definitely not necessary for the purpose of this training module.

Please keep in mind the objective of this module. It is not a document for people who love guns (and there are plenty of those), nor do we want to raise the fascination for small arms. The sole intention of this module is to provide someone with limited or no prior experience with guns with information that will allow he or she to:

- Get a better idea of what kinds of weapons are meant when talking about SALW.
- Ascertain what kind of weapons he or she might be confronted with during their work in the field.
- Understand some of the basic safety rules.

As a consequence, we have tightly restricted the weapons description to “families” of small arms. Each of the families might number dozens of types, each with many variants.



If you need to train people who have to be informed in detail about SALW characteristics and recognition, please refer to the TRESA Module Recognizing SALW and Ammunition (RSA05).

Some of the terms and explanations used here are quite technical and may sound complicated. Please prepare yourself sufficiently before teaching the course in order to be able to provide explanations to your trainees.

Trainer Note

Exercise 1: Show the trainees the weapons cards we have provided you with (see Annex I).

Ask them to decide which of the cards show a SALW, and which do not. Keep the cards handy: we recommend you to show them *again* once you have finished training this module, in order to assess whether the lessons have been learned.

You will notice that the same exercise is featured in the SALW Basics-Definitions module (SB-D05). If you teach both modules you will most likely not want to do the same exercise twice. Please then decide whether it makes more sense for your trainee group to include this exercise in this module, or in the SALW Basics-Recognizing SALW and Ammunition module (SB-D05).



2. SALW fundamentals

In this module we will look at some types of SALW. The order of presentation is more or less in the order of the likelihood you will find yourself in the presence of the weapon, and not the way an armorer or weapons specialist would arrange them.

Exercise 1:

Look at the weapons cards the trainer will hand out. Decide which of the cards show a small arms or light weapon and which do not.



Box 1: SALW working definition

So far, there is no uniform internationally agreed on definition for SALW (see also TRESA Module SALW Basics – SALW definitions, SB-D05). For reasons of practicability, *in most SALW control related work and publications* SALW are divided into 3 categories:



- **Small arms** are those arms designed for personal use. They can be maintained, carried and used by one person.
- **Light weapons** are weapons that can be maintained, used and carried by small groups (2-3 persons), or transported by small vehicles or pack animals.
- **Ammunition and explosives** form an integral part of small arms and light weapons, since weapons can be rendered useless without appropriate ammunition.

These categories are not very precise. Medium machine guns are considered 'crew served weapons' but they are designed, and indeed can be used, by a single individual. Nonetheless, these definitional categories can serve as a good guideline for all those doing general work on SALW.

Purely military, technical, economic, and other definitions will be different, once again, from the definitions we are concerned with here. You should be aware that these other definitions exist (for example, the military do *not* use the term "SALW") though they have no direct relevance to our work.

As a solid working definition, we suggest defining SALW as:

All lethal conventional munitions that can be carried, maintained and used by an individual or a small group of individuals, or transported by a small vehicle or pack animal, and that do not require a substantial logistic and maintenance capability.

SALW consist of a tube of some form that propels a warhead (intended to cause damage to people or property), by means of quick-burning expanding gases from a propellant and the various inert and explosive warheads that are shot or thrown at a target, such as *bullets, grenades, or rockets*.

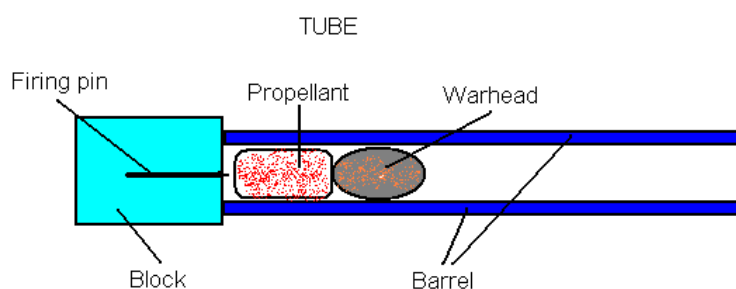
SALW function by the expansion of a chemical *propellant*, which pushes a *warhead* through a *tube*. The tube's *ammunition* (the part that does the damage) can generally be termed a *warhead*. A warhead ready to be fired (and its propellant) of any particular SALW is often generally referred to as a *round*.

Box 2

Excluded from this module is the category of the so called 'cold arms' or 'arms blanches' – lethal weapons like spears, bows and arrows, or swords – and items that were not designed to kill, like sickles, sticks, or machetes, but may be, nonetheless, used to do so. These tools can and have been used notoriously to commit atrocities and genocide. For example 800,000 people were killed in Rwanda within a few weeks in 1994; they were slaughtered largely through the use of cold-arms.

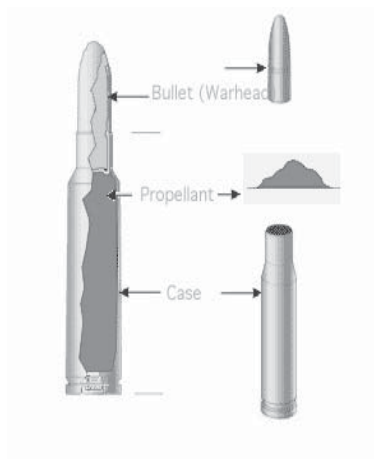
In order to understand the descriptions of SALW discussed in this module, it is useful to have a basic understanding of how they work.

Figure 1: Cutaway schematic of 'typical' firearm



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Figure 2: Cutaway schematic of ‘typical’ cartridge ammunition



SALW are generally identified by their *caliber*, which means the diameter of the tube.

Calibers are measured most often in mm (millimeters) or inches.

The greater the caliber, the more likely it is that the weapon is a crew-operated Light Weapon, rather than a one-person operated Small Arm. The dividing caliber is roughly (because there are exceptions) between 40 and 60 mm.

The greater the caliber, the more likely it is that the ammunition is explosive.

Caliber:
5.56mm
(M16, M4
G36)

7.62mm
(AK-47,
AKM, G3,
FAL)

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3. Small Arms

Here we present a brief description of the various 'families' of Small Arms. Small arms in general are those weapons which:

- Are held and operated by one person.
- Are usually at the lower end of the caliber spectrum of SALW (4.6-40 or 66mm).

3.1 Pistols/Handguns

Pistols (also called handguns) are small arms, which, in theory, can be fired one-handed. This, though, means they are often inaccurate, which results in bystanders being particularly at risk. They are widely available, and can be easily concealed, which makes them one of the weapon types most often used in crime, especially urban crime. Their military use is limited, but police forces often have them.

Revolvers, which tend to be older weapons, and have bullets in a rotating cylinder above the trigger, are seen less frequently.

Automatic pistols store the ammunition in the grip, and prepare a new round for firing until the magazine in the grip is empty.

Figure 3: Revolver and Automatic Pistol



3.2 Shoulder Arms

Shoulder arms are designed to be fired with the back end – the butt – held into the shooter’s shoulder for greater stability. They are the most common SALW, and also the cause of most deaths and injuries, both accidental and deliberate.

A shoulder-arm requires two hands to use effectively. Shoulder-arms can be fired in uncontrolled manner with one hand.

There are several types of shoulder arms:

Assault rifles are capable of automatic fire. Squeezing the trigger once releases a burst of bullets. They are the most common shoulder arm today, and found in almost all areas of civil or military conflict. The most (in-)famous is the Kalashnikov family (AK-47, AKM, AK-74). They tend to be short (up to 70 cm with the butt) and can be identified by the presence of a large semi-curved (banana-shaped) magazine.

Figure 4: Assault rifles



AK-47



M-16

The American-made M-16 family is often longer than the Kalashnikovs (there are newer, shorter versions), and characterized by a fixed carrying handle above the body, and a butt/stock in a straight line with the barrel.

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Bolt rifles are long guns that shoot single bullets to a great distance. After each round is fired, the shooter moves a bolt to load the next round for firing.

Semi-automatic rifles use the energy released during firing to reload another round from a box magazine suspended underneath the weapon. Semi-automatic rifles *can* be configured to full automatic fire.

Shotguns and hunting rifles are intended primarily for sport and hunting. As shotguns fire clusters of pellets instead of bullets, they are very dangerous to bystanders as well as the target and extremely lethal.

Machine-guns are firearms that fire in bursts and are capable of a high rate of sustained fire. Submachine guns and light machine-guns are portable and can be fired by one person.

Submachine guns can be conceived of as a hybrid between pistols and assault rifles, with a longer barrel than a pistol and a larger magazine capacity, but a size that is smaller than an assault rifle. Some are very small, light and quick firing, and they are easy to conceal.

Being relatively easy to operate, but usually inaccurate, they are often used and do much 'collateral damage' as people the shooter was not aiming at get hit as well.

Light and medium machine-guns are usually belt-fed and can fire in rapid bursts to extended ranges. They are sometimes mounted on bipods or tripods for stability. They most often look like large assault rifles.

Under-barrel hand-held grenade launchers are designed to fire grenades to targets outside throwing range. The launchers (tubes) come in three formats: a tube suspended underneath an assault rifle barrel; a hand-held tube that looks like a stubby, thick barreled rifle; or a heavy machine gun (see below, Light Weapons). The first two are usually lightweight, single-shot, shoulder-fired weapons.

Figure 5: Grenade-launcher



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The ammunition for hand-held and under-barrel launchers are grenades that explode upon impact. The radius of destruction is 5-10 m, which is comparable to a hand-thrown grenade.

Remember: always assume that a grenade-launcher is loaded. Don't handle it. Stay away!



Remember: never handle SALW! Always assume that they are loaded and therefore very dangerous! SALW can be very inaccurate. Bystanders can be unintentionally hurt badly or killed. Therefore: do not remain near a person who is about to fire a shot!

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4. Light Weapons

The weapons in the Light Weapons category are *usually* crew served. You are less likely to find them with individual fighters. Light weapons in general are those weapons which:

- Are at the higher end of the caliber spectrum of SALW (25-100mm).
- Often need to be supported by some mechanical support.
- Are usually crew-serviced (2-4 people).

There are three rather distinct visual shapes, which need to be kept in mind for visual identification:

- 'Cannon' shapes have a large rear element, which contains the firing and loading mechanism, and a long barrel sticking out the front.
- 'Bazooka' shapes are long tubes, sometimes with a bulbous thickening at the back, sometimes at both back and front.
- Mortars are long smooth tubes supported for firing at a high angle (above 45 degrees) with a heavy base plate.

4.1 'Cannon'-shaped light weapons

Heavy machine guns share the same characteristics as light and medium machine guns: they are designed to fire at high, sustained rate. They are all belt fed. A tripod at the center of the body supports them, or you find them mounted on vehicles. The main difference between heavy and other machine guns is their size and weight, and the penetrating power of their ammunition.

Light cannon generally tend towards the heavier end of the SALW caliber spectrum (57mm-100mm). They sometimes fire single shots, sometimes may have automatic loaders attached to the rear. Like heavy machine guns, they need mechanical support. They often have two wheels.

Figure 6: Heavy Machine gun

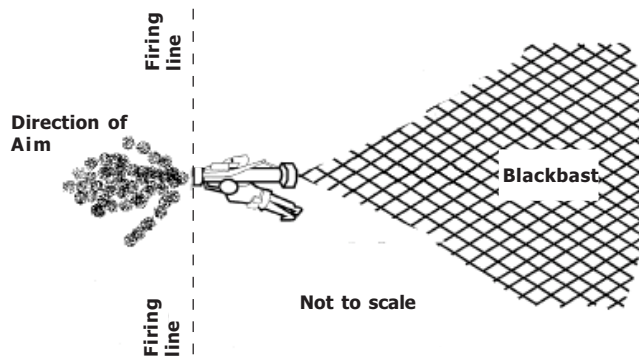


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4.2 ‘Bazooka’-shaped light weapons

All of the light weapons grouped under this category are similar looking and characterized by similar operating principles. They consist of a tube open at both ends. As the rocket or shell exits the muzzle, a back blast is fired backwards.

Figure 7 : Cutaway schematic of Bazooka Backblast



RPG (Rocket-Propelled Grenades) are a form of small rocket-propelled bomb larger than a grenade, designed to be fired at distant targets. The tube of the grenade launcher is a steel pipe with a firing grip and sights attached. Both the warhead and the propellant are explosive and must be treated as highly dangerous.

Because RPGs operate on a rocket principle, there is considerable danger in standing behind one when it is discharged.

Figure 8: RPG



Recoilless rifles are a form of man-portable artillery that must be fired from over the shoulder or placed on a tripod or a vehicle. The warhead is explosive, and can cause considerable damage to buildings and armored vehicles, let alone people, with a dispersal radius of over twenty meters.

Figure 9: Recoilless rifle



Box 3: “What is a back blast and why is it dangerous?”

Some weapons have a tube that is open at both ends: as the ammunition exits the muzzle, hot ejecta shoots away from the direction the gun is pointed at. This back blast might be considerable, and it is very dangerous to stand in the line of this back blast.

- Recoilless rifles have considerable back blast, fanning to 50 meters from back and 5 meters sideways when fired, and the danger zone extends at 120 degrees from the back to more than 50 meters.
- RPG back blast fan out to about 120 degrees back of the tube for 20 meters.
- Missile launchers also have a back blast.

Portable Missile Launchers is a catch-all term for a family of relatively new light weapons used to destroy armor, personnel, and fortifications with a guided missile. They are highly portable and normally look like stubby (1.5 m or more long) thick (20~30 cm) tubes that are fired over the shooter’s shoulder or from a tripod. The round is guided to its target using a control mechanism attached to the tube.

MANPADS (Man-Portable Air Defense Systems) are portable missile launchers used mainly against aircraft.

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Figure 10: Portable missile launcher



4.3 Mortars

Figure 11: Mortar and bomb



Mortars are easily transportable weapons that serve as a mini-artillery. They consist of tubes that fire a *bomb* vertically, and often over a barrier, at an unseen target. Mortars are loaded from the muzzle, and the ammunition is explosive. Unfired mortar bombs may have colored disks around the shaft, which is part of the very dangerous propellant.

Remember: if you see one of those disks, stay away from it and contact an expert to deal with it (e.g. a de-mining organization working in the area).

Sometimes bombs remain stuck in the barrel. **Remember: even a supposedly "empty" mortar tube *might* have a bomb still in it and could go off. STAY AWAY!**



Trainer Note

The issue of ammunition is often ignored by those interested in SALW control for various complex reasons. The decision as to whether you wish to use this section in your training is up to you. It depends largely on the trainee audience and the objectives of the training.

You, or the trainees, may feel that this information is too technical and unpleasant to deal with. Nonetheless, you should emphasize that without ammunition, SALW are little more than clubs.

Before starting this section, you should make sure that the trainees have second look at Section 2 "SALW Fundamentals". You should reiterate the following main points:

- Ammunition is what does the actual damage from SALW.
- The ammunition can be divided schematically into a *warhead* that does the actual damage, and a *propellant* that provides the energy to bring the warhead to its target.
- Larger caliber warheads – over 25 mm – are generally *explosive*.
- Smaller caliber warheads – below 20 mm – are generally *inert*.
- Warheads are propelled by one of three means:
 - ▶ By being thrown by an operator.
 - ▶ By the action of a propellant in a cartridge case.
 - ▶ By rocket action (the propellant is contained in the rear of the warhead).

Trainer Note

Warheads under 12.7 mm caliber tend to be inert. The larger the caliber over 12.7 mm, the more likely it is that the warhead is explosive. Large warheads – anything over 60 mm – are to be considered *always* explosive.

5. Ammunition and explosives



The next section provides you with an overview of the most important and frequently found types of ammunition. Please be aware of the fact that ammunition and explosives are those parts of SALW that kill. They are also very dangerous even when they are not inside the weapon.

Inert warheads cause damage by the kinetic energy inherent in the initial charge in the cartridge. Once that has been expended – because the warhead has hit something, or because it has reached its maximum range – the warhead is harmless. Inert warheads tend to be ammunition for smaller calibers.

Explosive warheads cause damage largely by the *chemical energy* retained in the explosive they carry. The chemistry of explosives can be shaped in many ways to produce different kinds of effects. Explosive warheads are almost exclusively found in larger caliber SALW of 20 mm and above.

Box 4

If you are going to work in an area where there has been fighting – or still is – and where there is a lot of unexploded ordnance (UXO) lying around, consider having a look at TRESA Module Recognizing SALW and Ammunition (RSA05). It may enable you to identify whether some items you see on the ground while going for a walk are explosive or not.



Remember: assume that any suspect object in a conflict zone is explosive. Do not touch!



5.1 ‘Bullet and Cartridge’ shapes

A cartridge is a unit or round of ammunition, normally comprising the *cartridge case*, which contains the propellant, and attached projectile. Bullet and Cartridge ammunition comes in every caliber from the smallest of 4.5 mm to large tank shells of 120 mm caliber, but only calibers up to and including 66 mm are considered to be small arms ammunition. The warheads of small arms 12.7 mm caliber and below are inert.

Remember: any warhead that has a band of color near its tip, or that has any device attached to its base or tip IS HIGHLY LIKELY TO BE EXPLOSIVE.



A large grid of small dots for taking notes.

5.2 Grenades

A grenade is a generic name for several different varieties of small bombs. The effect of grenades is based upon a rapid explosion within some form of casing, or the ejection of gas/smoke. Grenades can be thrown by hand, or launched using a special launcher. There are three major 'families':

- Hand grenades that are thrown at a target by a person.
- Rifle-mounted grenades fired from the end of a rifle barrel.
- Grenade launchers.

The different types of grenades could look very different. However, they are all highly dangerous. Their destructive range to all sides is 5-10 m, and they have devastating effects if they are set off within any small structure, like a room or a cave.

Remember: without exception, all grenades are to be considered live and dangerous, and not to be handled except by an expert!



Figure 12: Grenades



Hand grenades are small, hand-thrown bombs in various configurations. They are sized from slightly larger than a hen's egg, to the size and shape of a soft-drink can.

Many grenades have a time fuse in them, to allow the user time to throw the weapon at a target and get out of the way.

A large grid of small dots for taking notes.

Almost all hand grenades are characterized by the presence of a pin-ring. Once that is pulled out, the grenade is armed and may go off. This is true EVEN if nothing happened when the grenade pin was pulled.

Remember: a grenade without its pin, no matter how old, can go off at any time, so STAY AWAY!



Rifle-mounted grenades have a “rocket-ship” shape with bulbous head, long barrel, and fins. They are fired by sliding them over the barrel of some rifles then firing the rifle. They do not have a firing pin. In all other aspects they are like hand-thrown grenades. The radius of destruction is comparable to that of a hand grenade (5-10m).

Figure 13: Rifle grenade



Grenades for grenade launchers look like fat, stubby bullets when they are unfired. The warhead is usually 35-40 mm caliber (about the thickness of the tips of your fingers bunched together). A fired grenade of this type looks like a smooth hand grenade without a protruding firing mechanism. The radius of destruction is comparable to that of a hand grenade (5-10 m).

Figure 14: Grenades for grenade-launchers



Remember: all launched grenade warheads are explosive. Avoid handling at any time!



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Trainer Note

Additional information on explosive ordnance and UXO (based on the definitions used by SEESAC, RMDS 05.40)

Explosive ordnance is defined as 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; electroexplosive devices; clandestine and improvised explosive devices; and all similar or related items or components explosive in nature.

According to a NATO definition, **Unexploded Ordnance (UXO)** is explosive ordnance which 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.

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5.3 Rockets, missiles and shells

Rockets are mainly larger caliber ammunition. They usually have a cylindrical “rocket-ship” form: a bulbous head at one end, tail fins and a nozzle at the other. A rocket reaches its target through the action of a reaction motor – a chamber containing some combustive material – which shoots hot gases to the rear, thus propelling the rocket forward.

Missiles are a special form of rocket ammunition that contain a guidance system.

Rocket warheads are all explosive.

Remember: all rocket-propelled ammunition you are likely to come across is explosive and extremely dangerous! Even if a rocket warhead has not exploded after having hit the target, it might do so at any time. STAY AWAY!



A **shell** is a projectile containing an explosive or other filling, fired from a “cannon-shaped” light (25mm-100mm) or heavy (100mm-240mm) weapon.

Remember: shells are all explosive and extremely dangerous. Even if a shell has not exploded after having hit the target, it might do so at any time. STAY AWAY!



5.4 Explosives/Unexploded Ordnance (UXO)

Post-conflict areas are often heavily saturated with unused ammunition, or ammunition that has been fired but did not go off. This is usually referred to as Unexploded Ordnance (UXO). They are highly explosive, and as time goes by they are likely to become more and more unstable, and more likely to go off at any time. Much of this ammunition is *intended* to be explosive. In addition to the explosive results, shards (shrapnel) will scatter in all directions, often for hundreds of meters.

Box 5: UXO in southern Laos

For the past dozen years, local farmer and father of five, Impone Vongkiochan, 38, has been plowing around the problem. The top of a 2 meter long 500lb bomb which dropped from a US jet fighter plane in 1972, pokes out of the mud of his paddy field near Ban Sok in Attapeu province.

The primed fuse sits above the surface like a small flowerpot. Every rainy season, he has guided an ungainly water buffalo delicately around it, aware



You may find other terms for UXO, like ERW (Explosive Remnants of War), URW (Unexploded Remnants of War) or UXB (Unexploded Bombs). Whatever the title, these materials are highly dangerous.

A large grid of small dots for taking notes.

that a misplaced hoof might detonate enough of the bomb to obliterate him, blast a crater 8m high across and fire hot shrapnel in every direction.

Impone knows the risks. He lost one brother who kicked a cluster bomb on a forest path when taking livestock to graze in 1977. It exploded, killing him instantly. "I was afraid to extend my land after that," he said, "but I decided to take my chances here." The risks are now decidedly reduced as the UXO LAO team, assisted by their NPA technical advisor, removed the bomb from Impone's field.

Interview by Matthew Pennington, Attapeu, July 1999

<http://www.uxolao.org/casestudies.htm>

Box 6

Every year, thousands of people are killed or mutilated by anti-personnel or other mines. More than 80 countries are affected by mines, and nobody knows how many mines are still in the ground. Thus mines are one of the greatest threats in conflict and post-conflict environments. Nonetheless, landmines were excluded from the list of SALW proposed by the UN Panel of Experts, and are usually not dealt with in the SALW control process framework. This has been done deliberately, because landmines are already addressed in other fora. For example, their use, manufacture and proliferation are dealt with in the Ottawa Convention of 1999, also called the Mine Ban Treaty. Therefore, we do not deal specifically with landmines in TRESA modules. However, if you want to find out more about this very important topic, please have a look at the ICRC website on anti-personnel mines (<http://www.icrc.org>), at the website of the "International Campaign to ban Landmines" (<http://www.icbl.org/>), and at the website of "Handicap International" (<http://www.handicap-international.org>). Other organisations too have websites devoted to the subject.

If you are working in a country that is contaminated with landmines, find out which areas are cleared of mines, where you should be cautious, and which areas you should avoid.

Remember: the single most important rule about UXO is to stay away, and to keep other people, and indeed animals, away from them as well.



Sometimes people who live on former battlefields will try to disassemble these remnants, either because they think they may be useful, or to sell parts (copper and aluminum both have scrap value. Explosives are often used illegally and dangerously, for fishing or hunting).

A large grid of small dots for taking notes, consisting of 20 rows and 40 columns of dots.

If you cannot discourage people from leaving UXO alone, your responsibility is for your safety, and you should remove yourself immediately from the vicinity of the UXO.

Old ammunition is completely unreliable: 99 times of 100 it may not go off, only to surprise someone – a human disassembling it, a goat walking over it, even a bird landing on it – and explode.

- **Always keep in mind: You are the only you you've got. Don't waste it! Safety is paramount.**
- **Safety depends on being alert, and on trying to foresee the potential for damage from old munitions, which ranges from high to terribly high.**
- **The best cure is to keep away, and to have a professional handle UXO or anything that *might* be UXO.**

Remember: do not, under any circumstances, try to disable ammunition or UXO. Avoid handling!



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Trainer Note

Exercise 2: show the trainees flash cards with firearm rules. Encourage them to chant/repeat them in various orders. Cards can break the sentences apart and have the trainees reassemble them aloud.

Having taught this section, you might consider keeping the flashcards close and flashing them every once in a while to refresh the message that firearms are *always* dangerous.

For the following text, emphasize that they should be discouraged from handling firearms at all. However, real events demonstrate that sometimes one is forced to handle a firearm. This has happened:

- When a member of the public simply walked into an NGO office and handed over a gun for disposal “ since it is too dangerous to keep at home.”
- When walking in the bush and finding a firearm that *had* to be removed.
- Being shown a weapons cache in a forest by a local civilian.

As a consequence, and given the safety implications, this section is intended for a scenario in which the trainee *must* handle a firearm in cases such as the examples above.

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6. Basic safety rules

All types of SALW, ammunition and UXO are dangerous. They were designed to kill, and that's what they do. As you only have one life and don't want to risk it, or the life of people surrounding you, you should observe some basic, but crucial safety rules.

When approaching the issue of firearm safety, keep to the following rules:

- 1. ALL FIREARMS CAN GO OFF.**
- 2. AVOID HANDLING FIREARMS.**
- 3. NEVER POINT A FIREARM AT ANYONE, EVEN IN PLAY, DEMONSTRATION, OR IN FUN.**



Exercise 2

The trainer will show you flash cards with firearms rules. Chant/repeat them.



6.1 Handling rules

- Try not to handle firearms at all!
- If for a specific reason you must handle a firearm (for instance, to take it to a safe place, like a police station or a de-mining organization):
- Hold pistols by the back of the barrel, muzzle pointing down, butt/grip towards you, fingers outside the trigger guard!
- Hold long arms by the narrow part of the stock, muzzle down, trigger assembly towards you, fingers outside the trigger guard!
- Never put your finger inside the trigger guard!
- Do not handle grenades or explosive rounds at all. If handed one, put it down slowly and carefully, mark its location as clearly as possible, and walk away. Post a guard to keep people away from it and find someone competent to deal with it!

If you are working in an area that is saturated with SALW, ammunition and/or explosives, try to find out whom to contact in case you find those items, or they are handed out to you. Experts that might be able to help you are: local and international organizations working on SALW and related issues, a (national) disarmament program, the police, de-mining organizations, etc.

Annex I:

Cards exercise. “What is an SALW?”

Trainer Note to the cards.

This activity is intended to serve as a recognition exercise by distinguishing between items classified as ‘Small Arms and Light Weapons’ and those that are not. There are three categories of image shown on these cards:

- **Non-weapons.** These are simply items that cannot be classified in any way as weapons as they are, in their intended state, not manufactured for causing the harm that ‘weapons’ are designed to do.
- **Non-SALW Weapons.** These can include “*armes blanches*” such as knives, spears, clubs and other items that, while intended to cause harm and injury, do not fall within the categories of SALW (see TRESA Module SALW Basics-Definitions (SB-D05) for further information on these often cloudy definitions).
- **Small Arms or Light Weapons and Munitions/Explosives.** These cards show items classified as ‘Small Arms’, ‘Light Weapons’, ‘Munitions’ or ‘Explosives’ under the TRESA project’s standardized definition (see TRESA Module SALW Basics-Definitions (SB-D05)).

Some items may either *seem* to represent visually a SALW (but in fact will not be defined as such), and some may hold potential through modification of being classified as an SALW. The brief comments on each card below should aid you in clarifying each classification to trainees.

We recommend you to cut the weapons cards below along the indicated line. Once you have cut the cards, fold the descriptions on the right hand side back, so that they are only visible for you. Thus, the trainees are only able to see the photos.



1) Browning 9mm Handgun (Small Arm):

As a semi-automatic pistol, the Browning 9mm is certainly considered a small arm. It can be used of course by a single person and is 7.75 inches or 197mm long.



2) Tin Cans (Non-Weapon):

Two main points should be stressed during the display of this card.

First, tin cans hold great potential as homemade bombs, which *are* generally considered SALW.

Suspicious wiring or weight can be evidence of this, though with such a massive prevalence of can/tin-contained drinks around the world, the idea of this card is merely to raise the issue that ordinary objects can be occasionally modified to cause harm. Second, there is a later card depicting grenades of various types. Comparison of the two pictures is helpful as a guide to grenades as they are often representatives of tin cans.



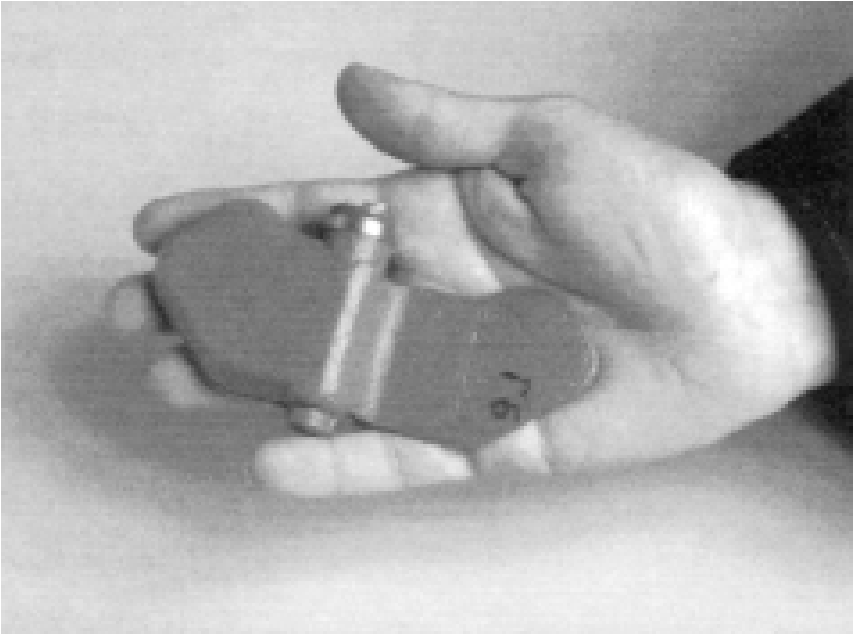
3) PMN Mine (Explosive):
 There may be an initial reaction among trainees that this looks rather more like a kitchen implement such as a pan or covered pot, but the PMN mine contains a large amount of explosive, and the injuries it inflicts are often fatal. It is designed in such a way that it is practically impossible to neutralize. As a safety precaution for those laying this mine, a 15- to 20- minute delay mechanism is activated when the mine is armed¹.

¹ <http://www.fourmilab.ch/minerats/figures/mines.html>



4) Gardening shears (Non-weapon):

such tools can potentially be offered as incentives in disarmament schemes. They are certainly dangerous, looking like a large pair of scissors, but are intended for use in trimming hedges or grass).



5) Butterfly Mine (Explosive): Known as a 'butterfly mine' because of its shape, this mine is often attractive to children who believe that it is a toy due to its shape. Some versions of butterfly mines contain self-destruct mechanisms whereby the mine explodes after 24 hours. It is generally produced in shades of brown, green and white.



6) Heavy Machine Gun (Light weapon).

The Russian DShK (or Dushka as it is more commonly known) has been used as an anti-aircraft or infantry-support weapon and is sometimes mounted in tanks or trucks. It weighs 34kg and is 1625mm long. Any Dushka you might come across are likely to be older as they have been used throughout World War II, and production was stopped in 1980.



7) AK-47 or 'Kalashnikov' Assault Rifle (Small Arm):

The most widely dispersed, available, copied and prolific small arm of the second half of the 20th century, AK-47's or just 'AK's' are easily recognizable from their curved magazine. There are many, many copies of this weapon manufactured worldwide. There are various calibrations with folding buttstocks and circular drum magazines, but this picture depicts the usual 870mm version of the weapon, with most weighing approximately 4kg. It's longevity and reliability is legendary and with just 16 moving parts, it is very simple to operate effectively.



8) Hoe (non-weapon).

Also a good potential incentive for disarmament, a hoe is highly recognizable in many regions as an essential farming tool.)



9) Molotov Cocktail (Explosive):

While made of a set of very ordinary household items such as kerosene, spirits and tar, the Molotov cocktail is highly explosive. It was initially an anti-tank weapon but can be seen in many violent protests and insurgencies.



10) Farm tools (non-weapon).

These tools are quite useless in any other capacity other than farming or gardening. Ideally, they are used simply for turning or tilling the soil in preparation for planting.



11) Lion (Non-Weapon):

While both fierce and dangerous and armed with large teeth, lions (and all other animals) are *not* small arms or light weapons. The lethality of a given object has nothing to do with its classification as a small arm or light weapon.



12) FN FAL Light Automatic Rifle (SALW):

The FN FAL is clearly a SALW. It is both famous and widespread in several varying configurations and can weigh 4-4.5kg and a length of anywhere from 750mm-1100mm.



13) Wooden toy train (non-weapon).

This train is nothing more than a toy.



14) Hammer (Non-Weapon):

While hammers and other general tools can have use as weapons, they are not intended as such. One is more likely to find them being part of an exchange for weapons as has been seen in Mozambique in tools-for-weapons collection programs.



15) Grenades (Explosives):
 This card depicts various types of grenade. The two at bottom left of the picture can be compared with the tin cans shown earlier. Note the similarities in appearance.



16) Radio (Non-Weapon):
 This picture is simply of a radio. Useful in conflict and post-conflict areas for broadcasts of weapons collection and destruction programs and for other aid and reintegration events, but otherwise, rather harmless.



17) Rocket Propelled Grenade (RPG) (Light Weapon):

RPGs are reloadable, shoulder-fired, anti-tank or anti-personnel weapons that launch oversized rocket-assisted grenades. It is classified as a light weapon as operators of RPGs are often deployed with an assistant grenadier who provides covering fire and reloads the RPG².

² <http://www.defense-update.com/products/r/rpg.htm>



18) Clusterbomb (Explosive):

as anti armor/anti personnel mines, cluster weapons are munitions containers that break open in mid-air and disperse smaller munitions or submunitions. These munitions are usually designed to explode on impact, just before impact or a short time after impact. Cluster weapons are carried by a variety of delivery systems, including bombs dropped from aircraft, rocket launchers and artillery projectiles. Cluster weapon delivery systems often carry hundreds of submunitions, saturating an area with flying shards of steel. These submunitions are small, often the size of a baseball or small lawn dart. Depending on the delivery system, the submunitions from one munitions container may cover an area the size of several football fields³.

³ http://www.mcc.org/clusterbomb/drop_today/index.html



19) Bulletpen (non-weapon):
This souvenir pen was made out of two spent bullets left over from the Bosnian war. These are now sold as souvenirs in Bosnia.



20) Spent bullets and shells converted to art (non-weapon):
For sale at the Turkish market in Sarajevo, Summer 2005.

Figure & photo credits

Figure 1	Mike Ashkenazi
Figure 2	Mike Ashkenazi
Figure 3	Revolver: http://www.huachuca.org/huachuca/246.htm Automatic Pistol: http://www.rt66.com/~korteng/SmallArms/brgp35.htm
Figure 4	Assault rifle AK 47: http://world.guns.ru/assault/as01-e.htm Assault rifle M16: http://world.guns.ru/assault/as18-e.htm
Figure 5	http://www.rusmilitary.com/html/c-deact_gp30.htm
Figure 6	http://www.rusmilitary.com/html/dshk_hmg.htm
Figure 7	US Army. Modified by M. Ashkenazi
Figure 8	http://www.modelguns.co.uk/images/rpg7a.jpg
Figure 9	http://www.answers.com/main/ntquery?method=4&dsid=2222&dekey=M67+recoilless+rifle&gwp=8&curtab=2222_1&linktext=M67%20recoilless%20rifle
Figure 10	http://www.osce.org/activities/13044.html
Figure 11	http://www.rt66.com/~korteng/SmallArms/60mm.htm
Figure 12	http://www.rt66.com/~korteng/SmallArms/grenades.htm
Figure 13	http://world.guns.ru/grenade/gl00-e.htm
Figure 14	http://world.guns.ru/grenade/gl00-e.htm

Annex I

1) Browning 9mm	http://www.rt66.com/~korteng/SmallArms/brgp35.htm
2) Cans	Dr. Mark Benbow, www.rustycans.com
3) PMN Mine	http://www.fourmilab.ch/minerats/figures/mine6.gif
4) Gardening shears	Markus Klausnitzer
5) Butterfly mine	http://www.fourmilab.ch/minerats/figures/mine3.gif
6) Heavy Machine-Gun	http://rusmilitary.com/html/dshk_hmg.htm
7) Assault rifle AK 47	http://world.guns.ru/assault/as01-e.htm

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|---|---|
| 8) Hoe | Markus Klausnitzer |
| 9) Molotov cocktails | Korhonen Sami
http://www.winterwar.com/Weapons/FinAT/Finantitank2.htm |
| 10) Farm tools | Markus Klausnitzer |
| 11) Lion | http://www.wildlife-pictures-online.com/image-files/xlionmale5.jpg |
| 12) Canadian C2 Squad Automatic Weapon | http://world.guns.ru/assault/as24f-e.htm |
| 13) Wooden Toy Train | Christine Beeck |
| 14) Hammer | Markus Klausnitzer |
| 15) Grenades | http://www.rt66.com/~korteng/SmallArms/grenades.htm |
| 16) Radio | Christine Beeck |
| 17) Rocket Propelled Grenade (RPG) | http://www.modelguns.co.uk/images/rpg7a.jpg |
| 18) Clusterbomb | Colin King, EOD consultant
http://www.mcc.org/clusterbomb/graphix/photos/clusterbomb/pages/afghanistan_1_JPG.htm |
| 19) Bulletpen | Markus Klausnitzer |
| 20) Spent bullets and shells converted to art | Tobias Pietz |



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