UnitedNations

Reinforcement Training Package

for United Nations

Explosive Hazard Awareness Training (EHAT) Course

for United Nations Peace Operations

The Specialized Training Materials (STM) and Reinforcement Training Packages (RTP) for United Nations Peacekeeping Operations has been developed by the Integrated Training Service (ITS) of the UN Department of Peace Operations and Department of Operational Support.

This version has been released for use by Member States in their pre-deployment training for United Nations Peacekeeping Operations. The suite of STM / RTP products

will be regularly updated so that it is fully responsive to the needs on the ground. Therefore, we strongly suggest that you check for updated versions before a training program is conducted.

The latest RTP versions can be found online at the Peacekeeping Resource Hub: http://research.un.org/en/peacekeeping-community. A link to receive your comments and suggestions for improvement can be located in the resource hub at the same location.

Integrated Training Service

Department of Peace Operations

United Nations

New York, NY, 10017, USA

Background

The UN Department of Peace Operations developed a suite of training packages to prepare peacekeepers for their deployment to UN missions. Amongst these packages are the Specialized / Reinforcement Training Materials for specific military duties and military units.

In the peacekeeping environment, United Nations personnel may operate in remote areas with fragile security conditions that are often affected by the explosive ordnance and improvised explosive devices (IEDs). Peace Operations are evolving and adapting in this complex operational environment. United Nations Staff Peacekeepers, specifically commanders and planners, are required to undergo a robust pre-deployment training program in accordance with DPO's Operational Readiness Assurance and Performance Standards.

This Reinforcement Training Material (RTP) packet will provide member states with the UN pre-deployment requirements, lessons, and materials specifically designed for operation in ERW and IED affected missions. The intent and content of this RTP are not to duplicate guidelines and training materials that are already outlined in United Nations Military Core Pre-Deployment Training Materials (CPTM) or United Nations Staff Officers Course (UNSO); instead, these training materials focus on the mitigation measures and will supplement existing planning and command skills.

Aim

These training materials aim to provide troop-contributing countries with a comprehensive awareness training package to enable anyone deployed on operations in an ERW or IED affected environment to operate and move safely. This training package combines both theory and practical. This RTP includes exercises, as well as comprehensive scenario-based exercises, which can be run at the end of a course to strengthen participants' understanding of how better to operate in a UN Peacekeeping environment. The training packages are designed for application in both pre-deployment and in-mission training.

Target audience

The intended recipient of this RTP are all persons deploying in peace operations where there is a risk of ERW and IEDs.

Structure of the training materials

The package is constructed in three modules:

Module 1: Understanding Explosive Hazards

Module 2: Mitigation Measures

Module 3: Practical Application

Annexes:

- Annex A: Powerpoint lessons.
- Annex B: Supplementary Guidance on Practical Activities

Acronyms:

5Cs	Confirm, Clear, Cordon, Control and Call
AAR	After Action Review
AO	Area of Operation
AU	Africa Union
AXO	Abandoned Explosive Ordnance
CAGE	Channelling, Aiming Markers, Ground, Environment
C-IED	Counter-Improvised Explosive Devices
CMSA	Colours, Markers, Shapes, and Atmospherics
CW	Command Wire
DS	Directing Staff
EHAT	Explosive Hazard Awareness Threat
ECM	Electronic Counter-Measures
EO	Explosive Ordnance
EOD	Explosive Ordnance Disposal
ERW	Explosive Remnants of War
FPE	Force Protection Engineering
FOB	Forward Operating Base
GSA	Ground Sign Awareness
HME	Home-made Explosive
I/NGOs	International/Non-Governmental Organizations
IED	Improvised Explosive Device
IEDD	Improvised Explosive Device Disposal
IED-TM	IED Threat Mitigation
LP	Learning Plan
LSA	Land Service Ammunition
MT	Mobile Team
MTT	Mobile Training Teams
NGO	Non-Governmental Organization
PSO	Peace Support Operations
Q&A	Questions and Answers

RC	Radio Control
SBE	Syndicate Based Exercise
SMEs	Subject Matter Experts
STAP	Surveillance Target Acquisition Plan
TM	Threat Mitigation
TTPs	Tactics, Techniques, and Procedures
UAV	Unmanned Aerial Vehicle
UNMAS	United Nations Mine Action Service
UXO	Unexploded Ordnance
WTI	Weapon Technical Intelligence
VA/VP	Vulnerable Areas/ Vulnerable Point
VOIED	Victim Operated Improvised Explosive Device

Acknowledgements

ITS would like to thank the subject matter experts from across the UN organization, Member States and other regional and international organizations who provided input and feedback during the drafting process, and the numerous training personnel from national peacekeeping training institutions and field missions who participated in the development workshops. The following organizations, Member States and their Permanent Missions to the UN for their contribution in the RTP development;

UNMAS Threat Mitigation Advisory Team

UNMAS Field Missions in Somalia and Central African Republic

British Peace Support Team (Africa) (UK)

Humanitarian Peace Support School (Kenya)

Republic of Ireland

Kingdom of Belgium

United States of America

Contact person

For any proposal of update or improvement of this package, or any questions about these training materials, please contact or write to peacekeeping-training@un.org. Any relevant update will be posted and explained on the Peacekeeping Resource Hub website (http://research.un.org/en/peacekeeping-community). Instructors are encouraged to check the site regularly.

Table of Contents

Instructor

Guidance

General Considerations for Instructors

This package is a compendium of critical training content for specific units operating in UN peacekeeping. No training material can cover the entire spectrum of complexity in a peacekeeping environment, with all its challenges and complexity. The RTP should, therefore, be viewed as the baseline to underpin related training efforts for military and police peacekeepers. However, when designing a course, trainers should be prepared to adapt these materials to the needs of their audience and structures. As a result, the duration of training courses delivered based on the materials may vary.

Concerning necessary competencies for participants to benefit from this training package, it is recommended that personnel receiving this training be proficient in basic military tasks (individually and collectively) at the tactical level. As such, it is expected that all military and police deploying missions with IED threat should undertake EHAT as part of Pre-Deployment Training. It is also critical for all participants to have received the Core Pre-Deployment Training Materials (CPTM) as a pre-requisite to this training. The CPTM contains fundamental principles, concepts and ideas to UN Peacekeeping Operations (UNPKO), which should be grasped by trainees before participating in the specific unit STM course. Instructors should develop and implement an initial written test and final test to reinforce learning objectives and evaluate the knowledge of participants.

The RTP can be downloaded from United Nations Resource Hub.

Instructor Profile

This training package is best presented by instructors who master this RTP, have knowledge of EOD skills and IEDD and have previous experience working in a UN peacekeeping mission. Experience with the specific unit at the tactical level is preferred. Knowledge of the mission environment where trainees are to be deployed is advisable, to be able to deliver a targeted course based on real experience. Finally, instructors should be familiar and comfortable with facilitator-based instruction and conduct Scenario-Based Exercises (SBE). Facilitators must satisfy successfully passing one of the following options below to be eligible to instruct on this course:

- EHAT ToT
- All Arms Search Courses – Search Advisor (inclusive of a ToT element)
- Improvised Explosive Device Disposal (IEDD) (inclusive of a ToT element)
- National equivalent of the above courses.

Student Profile

There are no pre-requisites for attending this course as it is designed for all persons deploying on Peace Support Operations.

Scenario Based Exercise (SBE) Considerations

Contained in the RTPs are SBEs. These exercises are scenario / situational-driven learning activities to help consolidate learning outcomes and help reinforce the lessons "Take Away". SBEs provide a learning environment tailored to facilitate discussions. They are set in an informal learning environment where the target audience can discuss the principles and concepts when operating in a United Nations Peacekeeping operation. The instructors use the environment within the training area to set up the SBEs. The exercises help participants to understand better the manifestation of integrating units in a peacekeeping environment.

Methodology: Using the modules in EHAT, several practical are set up to augment the theory lessons. The effectiveness of a SBE is derived from the involvement of participants under the guidance of experienced instructors and mentors. Instructors should highlight the adequacy of the core elements and principles when operating in support of peacekeeping operations. Instructors should assist participants in bridging gaps in the transition from standard military operations to peacekeeping operations.

Training Characteristics

Training will vary for different units in different troop-contributing countries, based on priorities and resources. However, some fundamental training characteristics should be respected when delivering the course:

1. Training should be interactive and encourage the participation of trainees,

2. Trainers should bring examples and antidotes from actual UNPKOs,

3. Training should be evaluated.

General Preparations

Facilities:

- 1x Classroom with enough space for syndicate work or breakdown rooms

- Appropriate outside space to conduct practical exercises, including sandpit (see lesson 2.6)

Administration:

- 1 x Flip charts per syndicate
- Central projection facility with speakers and video capability
- 1 x Printing facility NB. Significant amount of high-quality colour printing is required for syndicate exercise packs.
- Access to a photocopier

Equipment

- Model kit (see lesson 2.6)
- Selection of Land Service Ammunition for demonstration – Desirable not essential.
- Inert IEDs for demonstrations – Desirable not essential.
- C-IED Pocketbook for each participant

Module

1

UNDERSTANDING EXPLOSIVE HAZARDS

Module 1 at a Glance

Training Objective. To Enhance participants' knowledge of explosive hazards and their impact on Homeland Security and Peace Support Operations (PSO).

Lesson 1.1 – Introduction to Explosive Hazards. At the end of this lesson, the participants will be able to describe the different types of explosive hazards and identify the indicators of their presence in an operational environment.

Lesson 1.2 – Service Munitions and Explosive Remnants of War. At the end of this lesson, the participants will be able to recognize different LSA types and areas that may contain Explosive Remnants of War (ERW).

Lesson 1.3 – IED Fundamentals. At the end of this lesson, the participants will be able to outline the types of IEDs and their components and demonstrate a thorough understanding of the initiation systems.

Lesson 1.4 – IED Impact and Mission Specific Threats. At the end of this lesson, participants will be able to explain the IED threats in relation to specific missions and homeland security.

Lesson

1.1

INTRODUCTION TO EXPLOSIVE HAZARDS

The Lesson

Time. This module requires approximately 90 minutes to teach.

Performance Statement. At the end of this lesson, the participants will be able to describe the different types of explosive hazards and identify the indicators of their presence in an operational environment.

Key Learning Points. The following main teaching points are contained in the delivery of this module:

(1) Characteristics of Explosives

(2) Introduction to Explosive Hazards
   a. ERW (UXO and AXO)
   b. Mines
   c. IEDs

(3) Explosive Hazard Environmental Indicators

Methodology. This lesson will be introduced through the lecture method, participatory approaches and discussions.

Infrastructure. Classroom with projection facilities.

Equipment. Inert munitions, inert IEDs. (desirable, not essential)

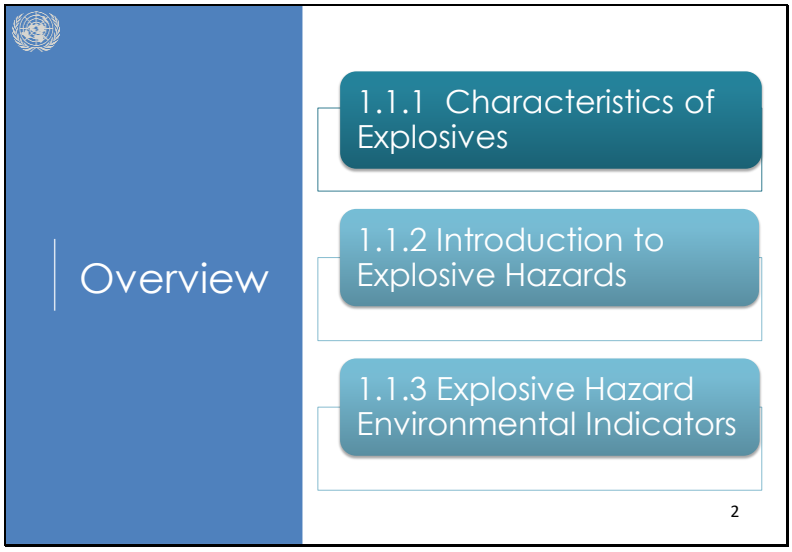
Slide 1

EHAT Lesson 1.1: Introduction to Explosive Hazards

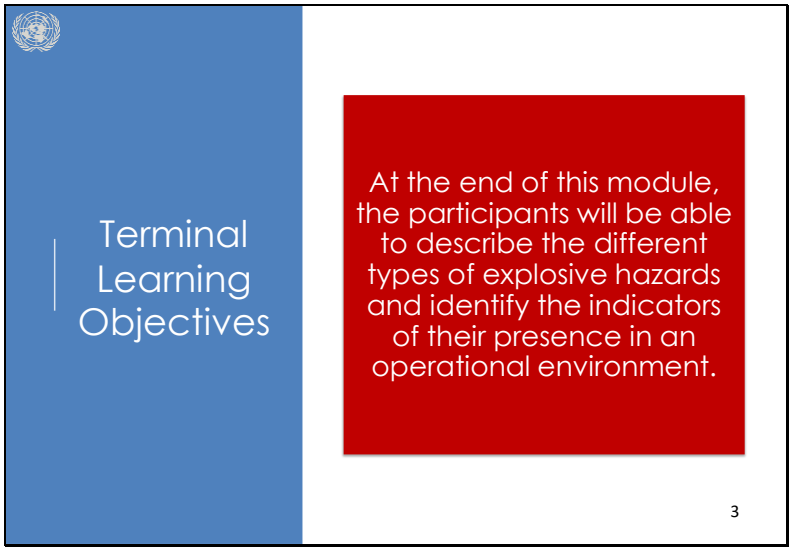
1

Find guidance inserted in the note section of each slide.

Slide 2

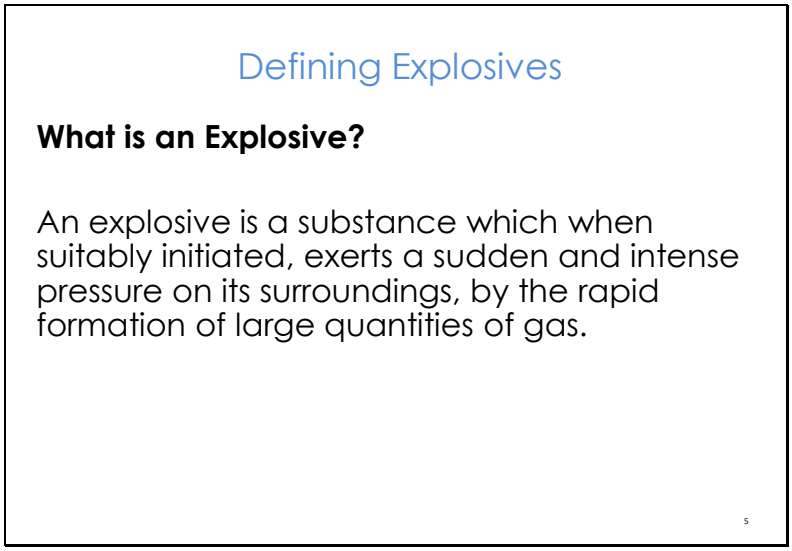

Overview
1.1.1 Characteristics of Explosives
1.1.2 Introduction to Explosive Hazards
1.1.3 Explosive Hazard Environmental Indicators
2

Slide 3


Terminal Learning Objectives
At the end of this module, the participants will be able to describe the different types of explosive hazards and identify the indicators of their presence in an operational environment.
3

Slide 4

Slide 5



The instructor will ask the students to explain in their own words what an explosive is before revealing its definition.

Slide 6

Physical states of explosives

Explosives exist in the following physical states:

Solid

Liquid

Gaseous

Slurry/gelled - a mixture of two (solid/liquid mix)

Foamed - a mixture of all three which is not explosive until shaken & mixed. (Solid/liquid/gas)

Solid & liquid explosives are collectively known as 'condensed' explosives

For practical purposes, gaseous explosives are considered too bulky.

Courtesy

Solid/C4 – US DoD

Liquid - Ensign-Bickford Aerospace & Defence

Slurry –Nelson Brothers Inc

Slide 7

Criteria of an explosive
The three primary standards for an explosive, in other words the standards on which the explosive is based, are:

Safety:
Some chemical substances can be so unsafe that they may explode with little external stimulus.
An explosive must be sufficiently stable to be helpful, and it must only explode when required.

Reliability:
Although explosives must not explode of their own accord as a safety requirement, some explosives may be so insensitive that so they would not explode when required, or they would require a bulky initiation system to ensure their reliability.

Performance:
The third criterion for a practical explosive is effective performance (work) in its designed role.
This work requires the presence of gas to be effective.
This gas could be taken from the air, but as the presence of air cannot be guaranteed, it must be produced by the explosive.
The explosive's mass is required to be converted into gas during this explosive process.

Slide 8

Products of an Explosion

Heat (Flash/Light)

Smoke

Fragmentation/Missiles

Blast/Shockwave

Sound

3

The instructor will ask the students to explain in their own words what an explosive is before revealing its definition.

High explosives

Remember, we said earlier that a high explosive is one which detonates, so what is meant by detonation?

Detonation

Explosives are capable of detonation if sufficient stimulus is applied. It is a much faster event than the deflagration (burning) of low explosives.

Detonation of explosives:

A detonation is a **supersonic shockwave.**

This shockwave **passes through the explosive**.

When this shockwave passes through the explosive it **creates gases from the explosive material** which it passes through.

It is virtually **independent of pressure;** therefore, confinement would not normally affect the velocity of this shockwave.

Detonation can be induced either by burning (deflagration) or by shock and is susceptible to failure.

Nb: detonation is a supersonic shockwave, that passes through the explosive, creating gases and is independent of pressure

Slide 9

Chemical Composition of Explosives

The two main constituents of an explosive are:

- Fuel: something to burn
- Oxidant: something to sustain burning

This decomposition characteristic takes place in one of two ways:

- Deflagration: rapid burning
- Detonation: explosion

1

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Classes of Explosives

Low Explosives – generally have a normal design mode to deflagrate

High Explosives – have a normal design mode to detonate

2

Slide 11

Deflagration

Deflagration is a series of chemical reactions in the form of a rapid, sub-sonic, surface burning, which takes place when the explosive is ignited in a dry unconfined or confined state.

Factors affecting deflagration:

- Surface area
- Density
- Surrounding Pressure

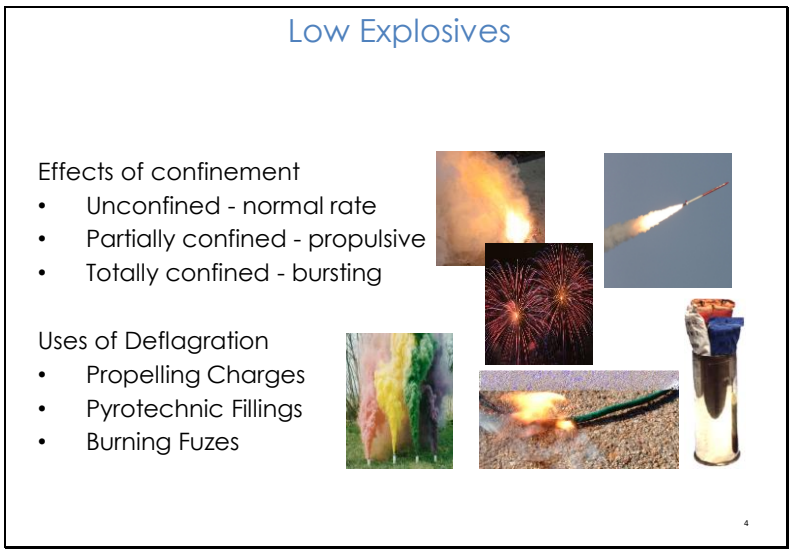
3

In simple terms, deflagration is a series of chemical reactions, in the form of **furious burning.** This burning take **place on the surface** of the explosive. In other words, a deflagration is **'a rapid surface burning.'**

Deflagration **takes place (burns)** when the explosives are **ignited in a dry, unconfined state.** Deflagration can also occur in a **confined** state since explosives do not require an external supply of oxygen, because as we have already mentioned they contain an oxidant. The deflagration rate is always sub-sonic. Deflagration can be affected by:

Surface Area – As burning occurs on the surface, the larger the surface area the more area there is to deflagrate. Increasing surface area is normally achieved through smaller particle size, see images.
Density – The density of a low explosive can affect deflagration as higher densities tend to imply higher energy.
Surrounding pressure – this forces particle closer together increasing the speed of deflagration

Slide 12



Confining or partial confinement on low explosives can have a number of different effects. These are:

- When **unconfined** i.e., burned in an open space, the burning rate follows the normal behaviour of that particular explosive. Although it appears to be a speedy event, the **burning rate** of a low explosive is slow compared to the detonation of a high explosive.

- When it is **partially confined,** the burning rate increases to become propulsive i.e., the gases that are produced are forced through the unconfined space, propelling the object.
- When it is **totally confined**, the burning rate increases and produces enough pressure to burst its container.
-

It is useful to know that low explosives are always sub-sonic.

This characteristic of low explosives means they can have a number of uses both civilian and military.

- Propelling charges – a partially confined low explosive can be used to propel an object. For example, to propel fireworks into the air or as fuel for rockets.
- Pyrotechnic fillings
- Dispersing charges – to disperse smaller objects.
- Fuzes – the low-burning rate can allow low explosives to be used as a fuze. The rate of burn can be altered by the degree to which the explosive is confined.

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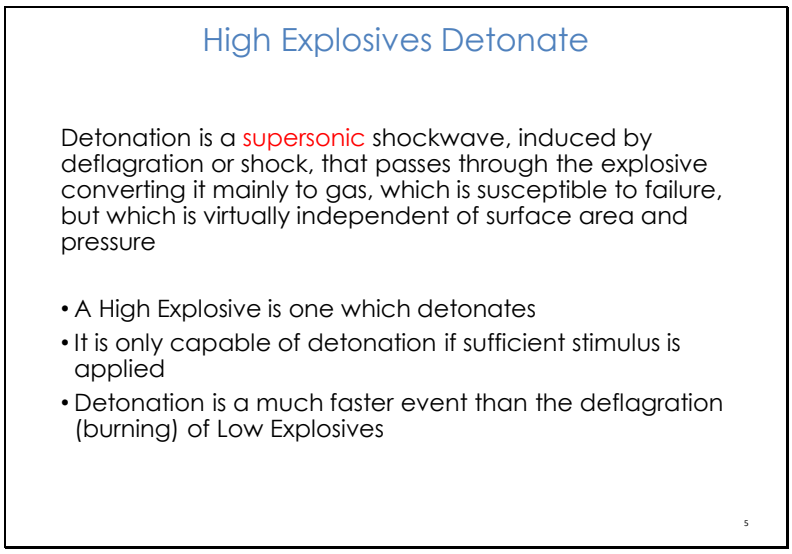

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Slide 14

Uses of High Explosives

Main Fillings - for landmines, artillery shells, mortar bombs, hand grenades, mines, torpedoes, depth charges.

Civil Engineering & Demolition Stores - for quarrying, mining and Explosive Ordnance Disposal (EOD).

Bursting Charges - for carrier bombs, shells and missiles.

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Primary and Secondary Explosives

Primary Explosives. Those explosives easily ignited by flame or electrical spark and are highly sensitive to mechanical shock, friction and heat. They are too sensitive to be used except in small amounts to initiate less sensitive explosives and therefore their use is restricted to initiating roles in detonators or explosive trains.

Secondary explosives. Those explosives which can be made to detonate when initiated by a detonation wave or other shock front but which do not normally detonate when heated or ignited

1

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Summary of Low and High Explosives

Low Explosives

- Rapid burning
- Burning on surface area only
- Pushes
- Confinement increases rate of burnin

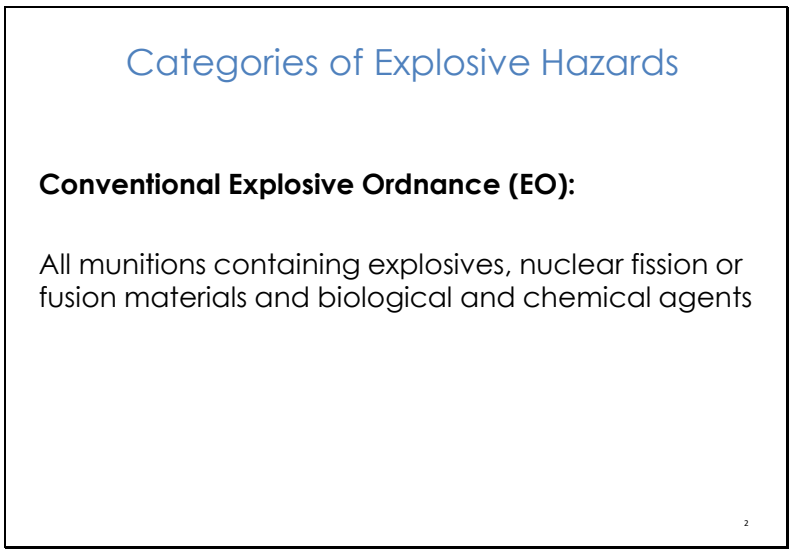
High Explosives

- Detonation
- Shockwave travels through explosive
- Shatters
- VoD is not affected by confinement

1

Slide 17

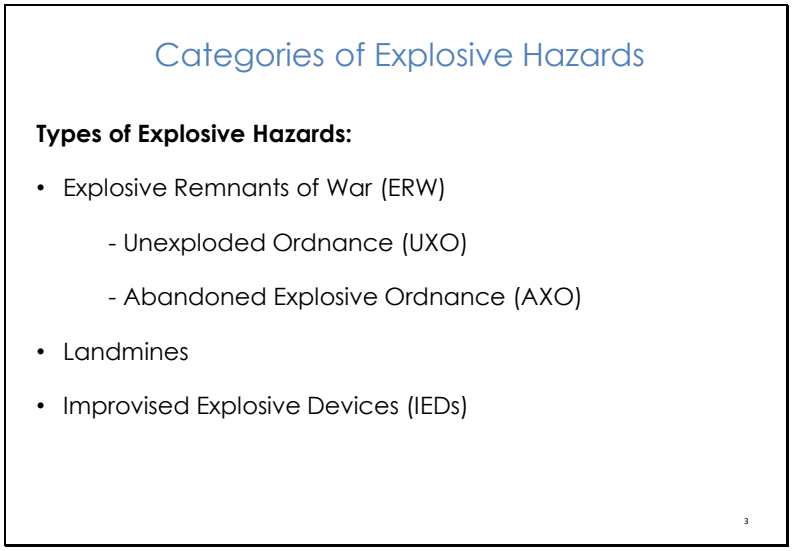
Slide 18



Instructor guidance: This slide should define Explosive Ordnance and explain how Explosive Ordnance becomes Explosive Hazards.
An Explosive Ordnance becomes a hazard when it is left behind during and after armed conflict has ended. This includes:

- Bombs.
- Missiles.
- Mortar Bombs.
- Projectiles.
- Rockets.
- Small Arms Ammunition.
- Mines.
- Pyrotechnics.
- Propellant actuated devices.

Slide 19



These definitions of explosive hazards are taken from the UNMAS Landmines, ERW and IED safety handbook. These categories of hazards constitute the greatest threat to UN peacekeepers. Whilst there are other definitions of Explosive Ordnance under the International Mine Action Standards (IMAS) definition, for the purpose of simplicity we will focus on these three main groups: Explosive Remnants of Wars, Landmines and IEDs.

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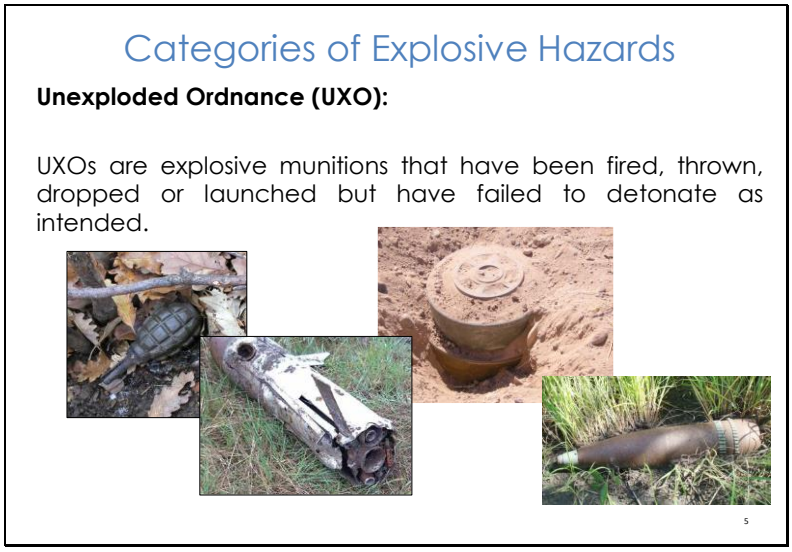
Explosive remnants of war are explosive ordnance that are left by a party to an armed conflict following the cessation of warfare. Generally speaking, ERW is broken down into two groups – Unexploded Ordnance or UXO and Abandoned Explosive Ordnance (AXO).

Landmines are generally not categorized as ERW, even though they fit the definition, as they are dealt with under two distinct international conventions.

Image Left: An unexploded ordnance lying in Pulukere Village, Amuru District, Northern Uganda. Courtesy of Charles Akena, IRIN
Image Right: AXO found in Iraq. Courtesy UK MOD.

Slide 21



Explosive ordnance which has been primed, fused, armed, or otherwise prepared for action, and which has been fired, dropped, 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.

UXO includes artillery and tank rounds, mortar rounds, fuses, grenades, and large and small bombs including cluster-munitions, sub-munitions, rockets and missiles.

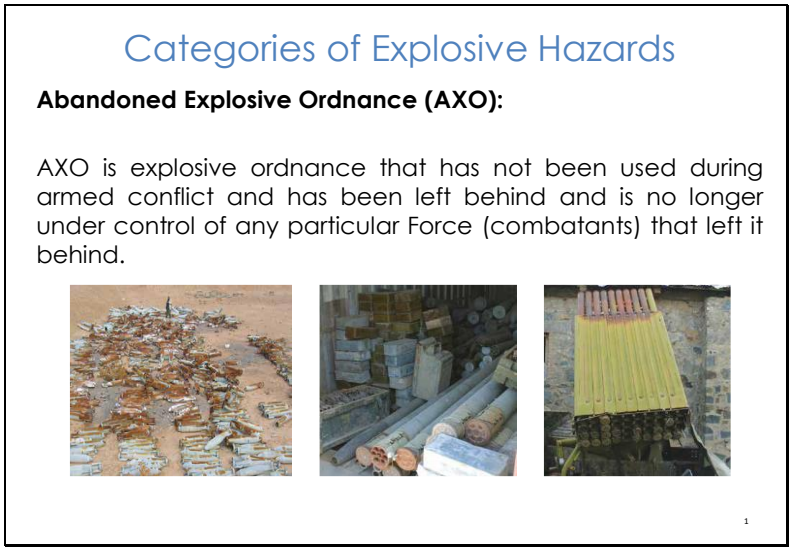
UXOs come in various "military colours"– khaki, green, brown, tan, and grey – or can be unpainted. They are usually made of metal but can also be made of plastic. If they have been in the open terrain for a long time, UXOs may be rusted and discoloured, partially hidden, obscured by dirt and mud and difficult to recognize. Despite looking like harmless scrap, they remain extremely dangerous.

UXOs are usually found in areas where fighting has taken place or at military firing ranges. UXOs can be discovered inside and outside of buildings. They can be buried beneath the ground or hidden beneath rubble or collapsed walls. UXOs can even be found lodged in trees or hanging from branches, hedges and fences as well as souvenirs inside homes.

Pictures (Left to Right)
A grenade, which does not have a safety pin or fly-off lever, suggests it has been thrown but is not initiated.
An air-dropped munition which has been dropped but not initiated.
Land mines in Laos

An artillery munition that has been fired and not initiated. You can see from the rifled scratches and imprints on the driving band that it has been fired.

Slide 22



Definition.
AXO refers to unused munitions left behind when a conflict ends, no longer under the control of combatants when left there. These abandoned munitions pose a serious problem in post–conflict countries as they are frequently not stored properly and are often not under the control of an official security force. This increases the risk of unplanned explosions and proliferation of non-state armed groups.

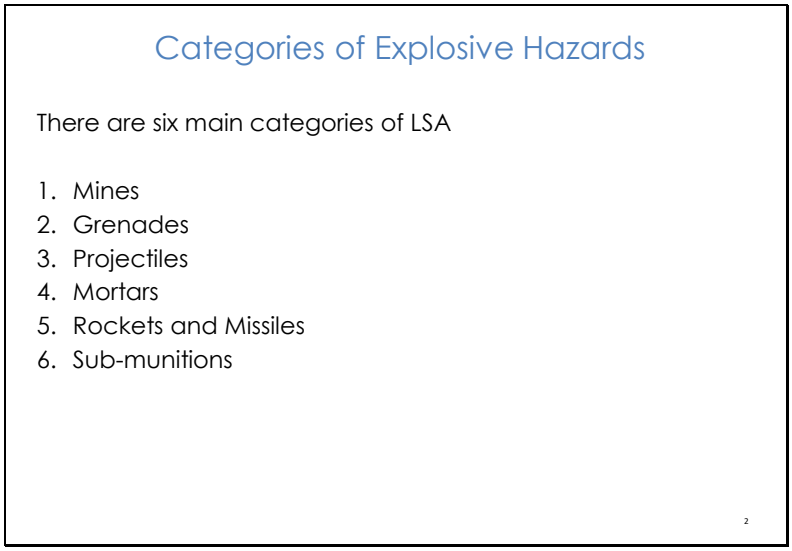
Introduction
Post-conflict settings can be the site of arms caches and weapons depots or dumps full of Abandoned Ordnance (AO). AO is an ordnance that has not been used but is no longer in the control of any particular force. AO includes every kind of ammunition such as mortar rounds, grenades, bombs, rockets, artillery rounds and others.

Caches of abandoned ordnance and poorly secured or maintained stockpiled munitions, sometimes located in or near communities, in military buildings, public buildings, schools, houses and so on, can produce catastrophic explosions. Poorly stored or maintained munitions may become more sensitive and suddenly explode. Absence of lightning rods or safety regulations, high temperatures and humidity can all increase the risk of explosions. Intense heat from fires can also cause abandoned ordnance to detonate. Small caches of abandoned ordnance may continue to be discovered years after a conflict has ended. In Cambodia for example, small caches of ordnance that have been abandoned, forgotten or lost continue to be discovered for more than 30 years.

Getting authorities to secure these sites is essential but may be difficult to achieve in the short term. Disposing of or securing large quantities of abandoned ordnance is also complex and is

usually the responsibility of security forces. This may be outside the responsibility of a standard mine action programme.

Slide 23



Land Service Ammunition or LSA will account for most, if not all, of the UXO and AXO that will be encountered on Peace Support Operations. Understanding what the main groups and distinguishing features will help in identifying them. These will be covered in more detail in the next lesson 1.2.

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Picture: Various unexploded submunitions. Extremely unstable: BLU-97, DM1385. Images: UNMAS landmines, explosive remnants of war and ied safety handbook 2015

According to the Diplomatic Conference for the Adoption of a Convention on Cluster Munitions, Cluster munition means a conventional munition that is designed to disperse or release explosive submunitions each weighing less than 20 kilograms and includes those explosive submunitions.

Submunitions and bomblets are carried to the target area in cluster bombs, warheads of artillery rockets, or artillery rounds. These canisters burst open in mid-air over the target area, and scatter the submunitions over a wide area. A submunition can be an AP mine, a HEAT bomblet or a small bomb with several different fillers. The submunitions come in a variety of shapes and colours, such as the shape and size of tennis balls, butterflies or drink cans. They are also often brightly coloured.

Among UXO, submunitions represent a particularly dangerous threat due to their high volatility and dispersal over wide areas. Submunitions often fail and may remain hazardous for many years. Estimated rates of failure between five and 30 per cent have been reported on several battlefields. This rate depends on various factors, but generally the softer the ground, the higher the failure rate. Unexploded submunition is highly sensitive and can detonate with very little contact. This ammunition is extremely dangerous and should never be approached. It can be found above or below the ground, and in and around buildings. Submunition may sometimes be found hanging or caught up in trees, fences or on the roof of buildings.

When an area has been targeted with submunitions, there will sometimes be signs and indicators of this, such as packaging, small parachutes or very definite "splash marks" on the ground or buildings. In addition, any trees in the vicinity will show characteristic signs, such as treetops stripped of branches and foliage. In open areas there will usually be numerous small holes and a considerable amount of debris left behind, such as metal and plastic casing or small parachutes, as well as debris from the targets.

Slide 25

Categories of Explosive Hazards: Grenades

Function

Removal of safety pin and thrown.
Typically employ a time-delay mechanism.
Can be Blast, Chemical, Gas, Smoke, Noise.

Appearance

Hand grenades have a pineapple shape, cylindrical or round bodies about the size of an adult fist.

UXO Threat

Possibly prevented from initiation on landing after thrown. Disturbance leads to initiation.
IED Threat: Grenades can be used as IEDs

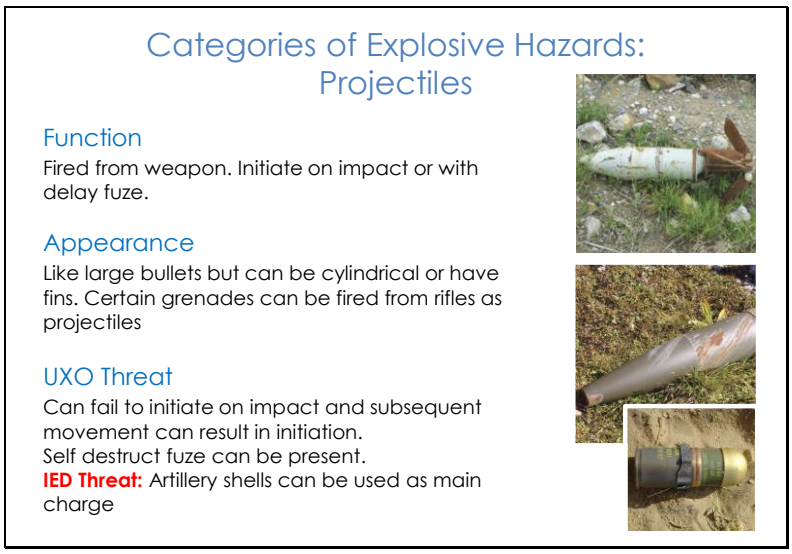
4

Grenades are explosive devices usually thrown by hand or projected from rifles or grenade launchers. Grenades detonate either on impact or through a time-delay mechanism; both mechanisms may fail. "Defensive" fragmentation grenades are the most common, but there are also "offensive" blast grenades, incendiary grenades, chemical or gas grenades, and smoke grenades. A typical fragmentation hand or rifle grenade is likely to be lethal within 10 metres, with a danger area extending to 50 metres or more.

Hand grenades have a pineapple shape, cylindrical or round bodies about the size of an adult fist and up to 10 cm long. Grenades come in various colours. Stick grenades are hand grenades placed on a short stick, which increases the throwing distance. Metal is the most common material used for making grenades, but gas and chemical (smoke) grenades may be made from plastic as well.

Picture: Russian F1 Grenade and 40mm grenade Images: UNMAS Landmines, Explosive Remnants of War and IED Safety Handbook 2015

Slide 26



Picture: Various unexploded projectiles. 90mm AT Projectile, Artillery Round: UNMAS Landmines, Explosive Remnants of War and IED Safety Handbook 2015

Artillery rounds are explosive devices, designed to be fired at a great distance (more than 100 km) and to explode either in the air above the target, or on impact. Artillery rounds can be fired from the ground, sea, as well as air-based guns/howitzers. The artillery can fire directly or indirectly but, due to the large distance to the target, users of the weapons may not be able to see their target. The destructive capability of conventional artillery rounds largely depends on their size.
Projectiles of tank ammunition are mostly explosive devices designed to destroy tanks, bunkers or troops in the open. Tank rounds are normally used as direct fire weapons but may be used as an indirect weapon that is fired from a great distance from the intended target.

Artillery and Tank rounds, like very large bullets, are aerodynamically shaped with a tapered nose, cylindrical body and flat base. Most are made of metal. Tank rounds may also have fins at the rear of the projectile and/or a straight, protruding fuse at the nose.
Due to the construction and the purpose of the gun, the rounds and the propellant can be loaded separately or as a cartridge. Unexploded rounds can be found above or below ground or in rubble, and like other UXOs, may be rusted or discoloured with age and difficult to identify. Most rounds contain high explosives but some may contain white phosphorous, or even chemical and biological weapons. Artillery rounds can contain also submunitions like bomblets. Tank rounds could be made from depleted uranium.

Be aware that due to spin, UXOs will lose large parts of their colouring when impacting on the ground. Rust and dirt give a UXO the look more of a stone than of ammunition. Never touch suspicious objects.

Unexploded or abandoned artillery rounds can be used as a main charge of an IED.

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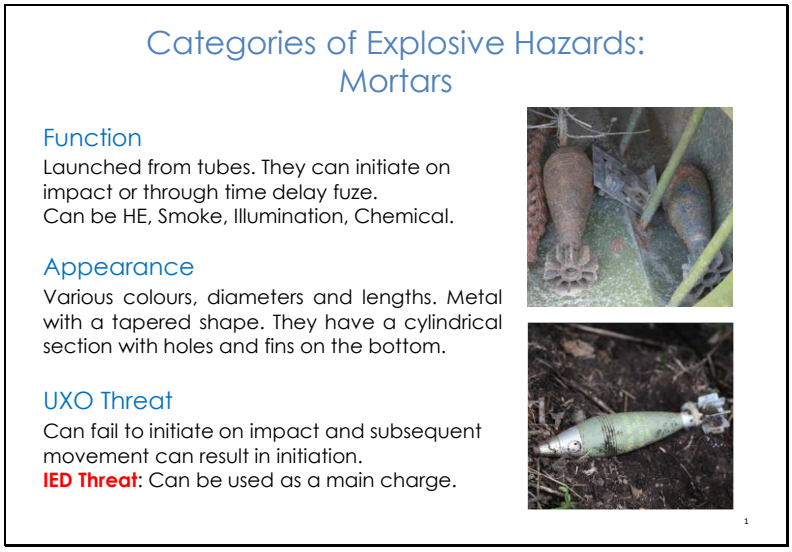

Picture: Two 82mm HE O-832D Mortars Images: UNMAS Landmines, Explosive Remnants of War and IED Safety Handbook 2015
And
60mm Mortar UNMAS Flickr (UNMAS - North Kivu - DR Congo | Flickr)

Mortar rounds are projectiles that are launched mostly from tubes of metal about 90 cm to 170 cm in length, known as mortars. In the last years complex mortar-systems were developed so that the difference between a howitzer and a mortar cannot be easily decided. Modern mortars are able to fire directly and indirectly and can be loaded like normal guns.

Mortar rounds are loaded into the tube from the front or the rear (depending on the system) and launched by their own propellant charge. Mortar rounds often have a tapered nose at the front and fins at the rear. The metal bodies can range from 45 mm to current 240 mm diameter in width and from around 30 cm to over one metre in length. Due to their ease of use, relatively low cost and portability, mortars are an extremely widespread weapon of war.
Mortar bombs are usually made of metal and when found may be rusted and discoloured with age. On impact they make craters, and the site of a detonation is usually obvious. On paved roads they create what looks like "splash marks" in the concrete or tarmac road surface.

The lethal and hazardous ranges of mortar bombs vary widely depending upon the calibre of the weapon. A small mortar bomb with a high explosive charge can destroy a car, while larger mortar bombs can destroy small to medium-sized buildings. Other

fillers like smoke screening and illumination are possible, as well as leaflets or bomblets. Modern Mortar rounds can be fitted with electronic proximity or very quick mechanical fuses. Also, Anti-Tank-Guided Mortar-Rounds are in use.

Unexploded mortar rounds may still contain propellant charge as well as the content described above. Mortar rounds must never be approached. Mortars are mostly indirect fire weapons, in that the people firing the weapon often cannot see their target, and it is fired at a high trajectory. As a result, firing patterns can be indiscriminate and unexploded mortar rounds are found strewn across many battle areas. Unexploded or abandoned mortar rounds can also be used as the main charge of IEDs.

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Categories of Explosive Hazards: Rockets and Missiles

Function

RPGs fired from shoulder launchers. Larger rockets fired from vehicle or ground based launcher.

Appearance

Rockets and missiles come in many shapes and sizes, from the relatively small air-to-ground, to very large artillery missiles.

UXO Threat

Can fail to initiate on impact and subsequent movement can result in initiation.

Picture: Two 122 mm HE rockets 9M22U laying in an Afghan village. UNMAS Photo/Thomas Enke: UNMAS Landmines, Explosive Remnants of War and IED Safety Handbook 2015
And
Various RPG7 UXO (https://eodofcshd.org/three-3-uxo-found-on-05-february-2023-by-team-02/)

Because of their slender shape, unexploded rockets and missiles (often broken into sections) can easily be mistaken for broken pipes. (See PICTURE Top Bottom of Two 122 mm HE rockets 9M22U lying in an Afghan Village. UNMAS Photo/Thomas Enke)
PICTURE Top Left
This is a S-75 Dwina/SA-2 missile, Iraq

A rocket or a missile is an explosive device containing its own means of propulsion (the rocket motor) as well as explosives or other fillers (the warhead). Missiles are similar to rockets, although they are guided in their trajectory. Rockets and missiles can be fired from vehicles, ground-based launchers, or from the shoulder. They can also be launched from aircraft, ships and submarines. Rockets and missiles are used to deliver high explosives or other payloads like submunition, leaflets, and chemical or biological materials at greater distances and with greater accuracy than just about any other type of weapon. The lethal range of explosion HE warhead of a rocket or missile varies enormously depending on the size and nature of the warhead, but rockets and missiles

typically have considerable destructive power, able to damage and destroy vehicles, buildings and even entire neighbourhoods.

Rockets and missiles come in many shapes and sizes, from the relatively small air-to-ground rocket S-5, around 80 cm long, to very large artillery missiles of more than 15 metres in length, like the 16,5 metres long RSD-10/SS-20 missile. Rockets and missiles are made of metal and are normally distinguishable by their long thin cylindrical shape. A rocket/missile is referred to according to its diameter. For example, a 122 mm BM-21 rocket has a diameter of 122 mm but has depending on the type a length of 2.87 metres or longer.

Unexploded rockets and missiles can be extremely dangerous, as disturbance may initiate any unspent rocket fuel, and propel the rocket in an unguided fashion. If the warhead is still intact, the explosive potential is equal to when the rocket or missile is initially launched, and even greater if the rocket or missile does not launch but explodes with a full load of fuel.

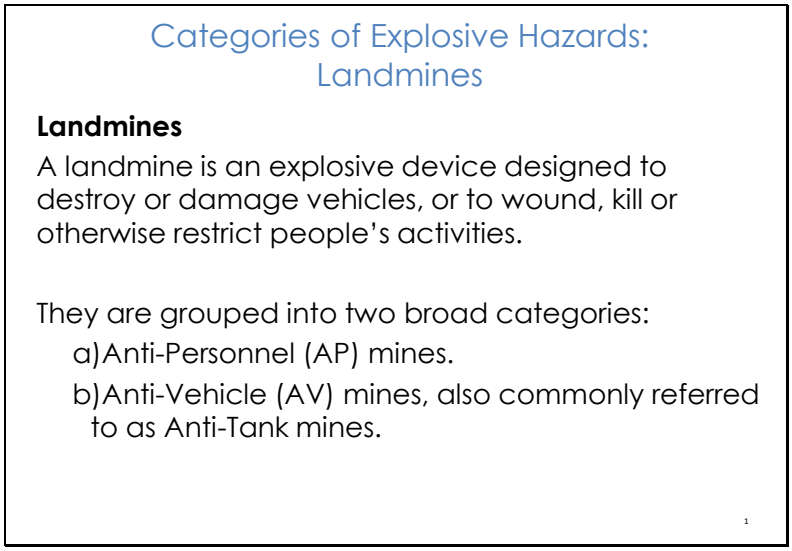
Rocket fuel is also extremely corrosive, volatile and will burn exposed skin and can kill a person if the fumes are inhaled. Rocket fuel is also liable to explode if ignited. Some types of fuel will self-ignite on contact with air. For all these reasons, rockets and missiles should not be approached.

The remains of exploded rockets and missiles can contain gas-bottles with compressed gases which are needed for guidance or cooling the IR-seeker. See PICTURE Top Right Remains of an exploded Anti-Tank Missile BGM-71A/TOW-1B. Also, this scrap contains dangerous parts like filled gas bottles. UNMAS Photo/Thomas Enke)

Also, hazardous pyrotechnic devices for guidance and arming can be found.

In certain conflicts involving heavily armed and technologically advanced powers, unexploded rockets and missiles can be massive in size, though such cases are relatively few in number.

Slide 29



A landmine is an explosive device designed to destroy or damage vehicles, or to wound, kill or otherwise restrict people's activities.

Mines are used as defensive weapons: they provide protection for important military positions or hinder the movement of troops by causing casualties to a threat and destroying equipment. They are also used offensively: in particular during conflicts, they are used to destroy or damage infrastructure and cause terror by denying civilian populations access to their homes, agricultural land, water, roads, schools, health care facilities and other resources.

Landmines are almost always hidden and camouflaged to match their surroundings, making them seldom seen and difficult to locate. They are usually buried or hidden in grass or buildings, fixed on stakes or to trees. During conventional warfare, landmines are usually laid in patterns to create consistent barriers, or along roads and around strategic points.

Landmines can be broadly broken down into two categories. Anti-Personnel (AP) and Anti-Vehicle (AV).

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An Anti-personnel (AP) landmine is designed to be detonated by the presence, proximity or contact of a person, and is intended to incapacitate, injure or kill one or more people. AP mines are usually detonated when they are stepped on or when a tripwire is touched, but they can also be set off by the passage of time or by controlled means.

AP mines can be found on the ground, buried or fixed above ground and are generally small devices that come in many different shapes. Often, they are camouflaged to help them blend into the surroundings and can be fabricated of wood, plastic or metal. Areas suspected of containing AP mines should be avoided.

Images (Left to Right). AP mines can be broken down into four further categories. Image 1 and 2 – Blast. Image 3- Fragmentation. In this case omni-directional fragmentation. Image 4 – Directional Fragmentation. Image 5 – Bounding Fragmentation.

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Anti-Vehicle (AV) mines, often referred to as Anti-Tank mines, are designed to disable or destroy vehicles. Like Anti-Personnel mines, Anti-Vehicle mines can be detonated by pressure, though normally much greater weight is needed, by remote control, by magnetic influence or through the disturbance of a tilt rod.

AV mines are much larger than AP mines and have a far heavier explosive charge. They are generally round or square in shape, and range in size from 40 cm in diameter and 16 cm in height to 23 cm in diameter and 10 cm in height. (see image 1 – courtesy of HALO trust)

AV Mines can often be used as the Main Charge for IEDs. (see image 2 – courtesy of US DoD)

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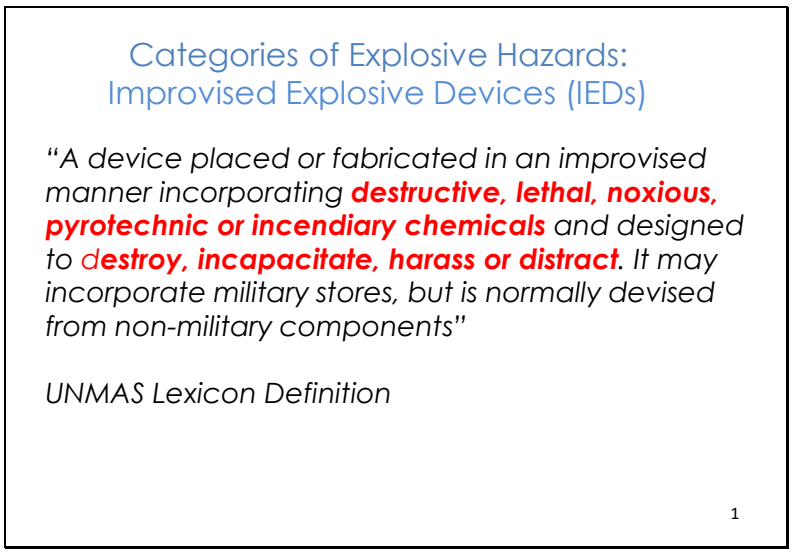

Noxious- Harmful, poisonous or very unpleasant.
Pyrotechnic- fuel/oxidizer mixtures with ingredients to produce a. Heat b. Illumination c. Sound d. Smoke e. Gas
Incendiary- designed to cause fire.

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An IED is a manually placed explosive device, normally home-made and adapted in some way to kill, injure, damage property or create terror. Often UXO or abandoned munitions are modified to construct IEDs, which can then be detonated by the victim, by remote means (radio controlled, command wire, etc.) or as a suicide attack.

Certain types of mines and also some types of IEDs and booby traps require the use of tripwires or electrical wires. If you see pieces of wire lying about in an area known to have experienced fighting, it indicates that landmines, IEDs or booby traps may have been used. Tripwires are usually strung across paths, trails, roadways, fields and other areas in which foot traffic could be expected. Remember that tripwires are extremely difficult to see and just because they are not visible, does not mean they are not around.

Image Left – An IED recovered in Afghanistan. Image courtesy of UK MOD
Image Bottom Centre – Various IED making equipment. Image Courtesy of UK MOD
Image Right – Found in Somalia. Image courtesy of ATMIS.

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Categories of Explosive Hazards

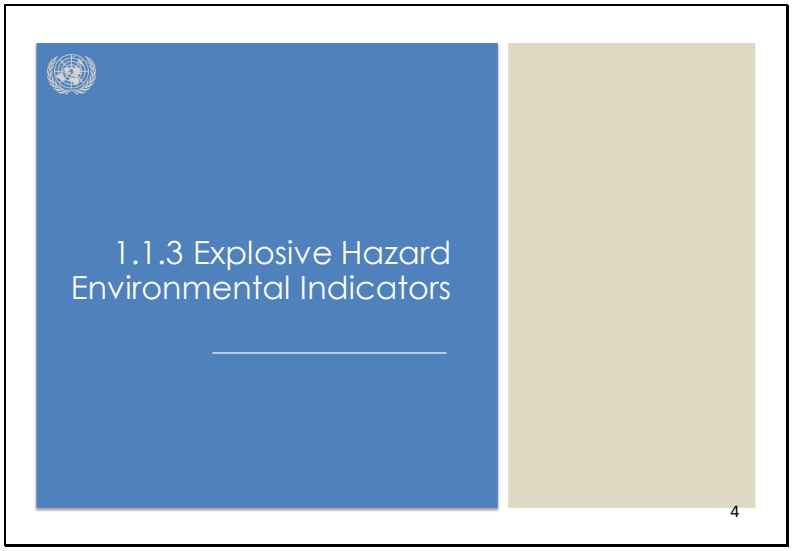
Improvised Explosive Devices

- Cheap
- Easy to make
- Specific to the attack
- Easy to hide
- Complex attack
- IED used as a precursor

3

The IEDs remain a persistent threat across most theatres of conflict including in DRC, Mozambique, Somalia, Mali and CAR just to name a few on the African continent.
Why are IEDs so prevalent?
Cheap – Easily procured from in expensive sources. Image Left – IEDs in Somalia manufactured using locally available materials. Courtesy ATMIS
Easy to make – all the information you need to manufacture IED's can be found on from open source information. Eg. Internet.
Specific to the attack. They can be adapted to suit specific targets.
Easy to hide. Image Right – Image courtesy of UK MOD.
IEDs are used alone or as part of co-ordinated complex attack that can include direct or indirect fire.

Slide 35



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OFFICIAL WARNING SIGNS

Sometimes you will come across official signs, erected by a government, a non-governmental organization (NGO), a United Nations agency or by some other organization, to warn you that mines or other explosive hazards are in the area. These warning signs may differ from one country to another, but are normally bright red, square or triangular in shape, and made of metal, concrete, wood or plastic. The most common ways of marking a mined- or ERW-affected area with official signs are:

- Skull and crossbones sign in red and white, rarely yellow and black, often with the words "DANGER MINES" in English and/or the local language;
- The word "MINE" or "EXPLOSIVES" in English and/or the local language;
- Rope or tape, usually coloured either yellow, red or blue;
- A red triangle, sometimes with a black dot or the word "mine" in the centre and
- A concrete or wooden post, painted red on one side and white on the other. The red side indicates the side that is dangerous.

A conventional army sometimes uses barbed wire or high fences to section off an area of important military interest, especially around permanently strategic points like airports or ammunition depots. Additionally these fences can be protected with mines.

In absence of suitable material official warning signs could look more improvised. Red or blue painted stones could also be a serious warning.

All warning signs are subject to deterioration over time, meaning you must be observant. Signs may have fallen down, rusted away or become covered in vegetation or (seasonally) by snow. Poor construction materials along with low quality

paint often result in signs becoming dislodged, broken or badly faded. Signs are also often stolen or not properly maintained or replaced.
Mine action programmes should use barbed wire or fences to warn and keep the local population from entering dangerous areas.

UNOFFICIAL (IMPROVISED)
WARNING SIGNS

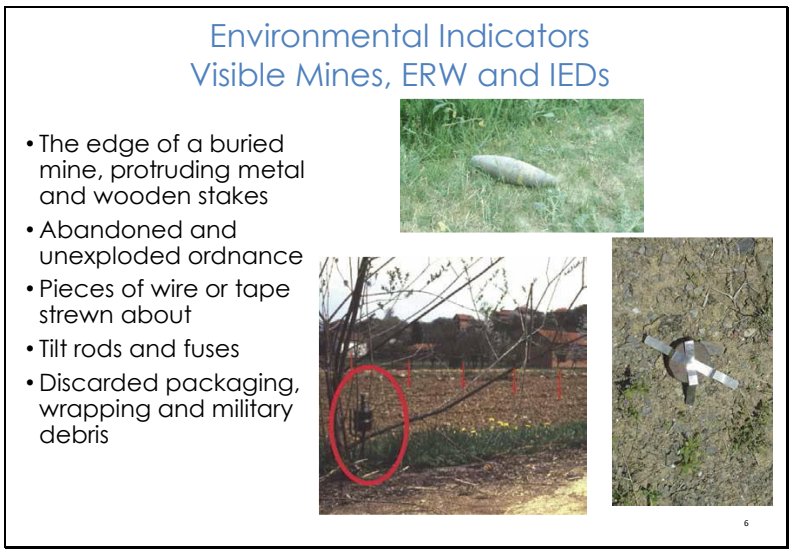
In addition to official signs designed to warn people, conventional army and other official responsible persons may use signs to indicate areas they have surveyed as dangerous and which they plan to clear or are in the process of clearing. In Afghanistan, such areas are marked with rocks painted red to indicate uncleared areas and painted white to show areas that are clear. Also, buildings, roads and trees may be painted red or white with map coordinates and minefield numbers, indicating that the area may be dangerous and has been surveyed.

In the absence of official signs, local people often develop their own techniques and signs for marking dangerous areas. Such techniques vary from one country to the next and even vary in different parts of the same country. With local signs there are no hard and fast rules, and they are often only obvious to local people. Such signs nonetheless have some common characteristics to represent danger ahead, and may include:

- A piece of cloth or plastic bag tied to a fence or tree;
- A can on a post;
- Small piles or circles of rocks;
- Rocks laid across a path;
- A clump of grass that has been tied in the middle;
- Sticks which have been tied to form a cross, then placed across a path or placed in the ground next to a path;
- Signs which have been cut into the bark of a tree and
- A shorn-off branch.

Because of their improvised nature, local signs often do not give a clue as to the precise location or particular nature of the threat. Imagine coming along a road or a path where you encounter a barrier. How will you know whether you are in front of the threat or already inside the hazardous area? Look for other indicators and consult with local people. Often these signs can also be used to represent other types of danger, like a damaged bridge, a pothole in the road and so on. Whatever the meaning, these local signs represent danger, and caution should always be exercised.

Slide 37



The edge of a buried mine, protruding metal and **wooden stakes**
In addition to being extremely difficult (if not impossible) to see, mines are almost always purposely camouflaged and, to compound the problem, their location is often buried, obscured by long grass or thick brush. However, certain landmines that are laid above ground may be visible after careful scrutiny of the area. Erosion or natural forces can also uncover or partially uncover landmines. Snow, which hides even surface-laid mines, has obvious implications, as does the subsequent snowmelt. But be aware, erosion and natural forces can also have the effect to bury a landmine. If you are in an area you suspect could be contaminated, and you can see any portion of an object that appears to be made of plastic or metal, and cannot be identified as safe, you should assume the area is mine or UXO-contaminated. Wooden and metal stakes about 30 cm in length would also indicate the potential presence of certain types of above ground mines. Landmines are seldom planted in isolation, so evidence of one mine would indicate the potential presence of others in the area.

Abandoned and unexploded ordnance
Areas contaminated with abandoned and unexploded ordnance may be more obvious than those affected by mines, but the presence of such devices will often indicate the presence of mines as well. You may see ammunition casings on the ground, unexploded mortar or artillery rounds and grenades, boxes containing unused ammunition and weapons. These are signs that fighting has taken place and are an indication that mines and ERW may be in the area.

Pieces of wire or tape strewn about

Certain types of mines and also some types of IEDs and booby traps require the use of tripwires or electrical wires. If you see pieces of wire lying about in an area known to have experienced fighting, it indicates that mines, IEDs or booby traps may have been used. Tripwires are usually strung across paths, trails, roadways, fields and other areas in which foot traffic could be expected. Remember that tripwires are extremely difficult to see and just because they are not visible, does not mean they are not around.

Tilt rods and fuses

Sometimes you may see tilt rods or fuses above ground. This usually indicates the presence of anti-vehicle mines but may also indicate anti-personnel mines in the area. Fuses can become detached from an explosive device or munition or may simply be left lying on the ground without being fitted. A fuse can be very small but is nonetheless potentially dangerous and can even be deadly. They indicate fighting, the presence of mines and ERW.

Discarded packaging, wrapping and military debris

Occasionally forces lay mines in a hurry, and leave the packaging, tripwire spools and safety pins from the mines. If you see wooden, plastic or metal containers that have military markings lying around, always be suspicious of mines in the area. Also, any small metal rings with a metal pin attached should be viewed as a sign of possible mine activity in the area. Empty cluster bomb containers found in a conflict area also indicate danger.

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TRENCHES, DYKES, BUNKERS OR BATTLE POSITIONS
Any areas occupied by combatants, especially trenches, bunkers or battle positions, would likely have been mined as a protection from attack. Abandoned military facilities could be booby-trapped to deny their use. Also, there would be a strong possibility of the presence of UXO and abandoned munitions.

DAMAGED, ABANDONED OR DESTROYED CIVILIAN AND MILITARY VEHICLES.

A damaged, abandoned or destroyed civilian or military vehicle could indicate the presence of UXO, anti-vehicle or even anti-personnel mines. Where there is one mine, there are usually several others. You might also encounter pieces of metal or debris that look like they are the results of an explosion. Abandoned vehicles may also be booby-trapped. Vehicles could contain abandoned ordnance, toxic fuels or chemical residues. Damages by fire could be an indication of ammunition containing depleted uranium. Remains of explosives are not excluded. These are clear indications of danger and should be avoided.

DISCARDED AND ABANDONED WEAPONS
Discarded weapons indicate recent fighting in the area and contain hazards like abandoned or destroyed vehicles. Sometimes the weapons are loaded and ready to fire, and the ammunition can be damaged. Do not approach such weapons.

MILITARY CHECKPOINTS AND
BORDER AREAS

The longer combatants occupy any area, the more likely they have protected themselves by laying mines in the immediate surrounding areas. In many countries, minefields are placed along international, and sometimes internal administrative, borders (such as provinces and district borders) to prevent infiltration. These areas are often the last to be cleared of landmines, especially if the tensions between neighbouring countries or internal conflicts are not completely resolved.

AROUND MILITARY BUILDINGS
AND INSTALLATIONS

Mines are most often used as defensive weapons. Therefore, any military installation or building, or any area occupied by combatants, may have been mined or booby trapped as a protective measure against attack, or mined after occupation so as to prevent use of the facility by the opposing side. Fences, entries and important infrastructure inside a camp, like power stations, could be strengthened with a minefield. Such facilities may also contain large stockpiles of abandoned munitions.

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BRIDGES, DAMS AND SURROUNDING AREAS

Mines are also used to stop or alter the movement of opposing forces. Mining bridges, dams and surrounding areas can block the travel route of opposing soldiers and deny them valuable resources. It is important not to walk around or under the entrance of bridges in heavily mined areas. IEDs are often placed at so called "Vulnerable Points". These points are also named as "Slowdown Points". Bridges are slowdown points that have a lot of space for a huge mass of explosives, as well as culverts and other items, which can be used for markers. In connection with good lines of sight and safe firing points, bridges are excellent locations for an ambush.

ROADS AND PATHS

Strategic roads and tracks are often mined to stop movement of troops or commercial traffic. Roads that are damaged or blocked often force vehicles off the roadway and onto the shoulders. The edges and shoulders of roads are sometimes mined as a choke point. Sometimes the tarmac of the road is soaked with diesel fuel to dig a hole and insert a mine or an IED into the road. Their round patches (and maybe a line for the command wire) can be seen on the pavement. Similarly small pathways that traverse conflict areas may be mined. Bottlenecks are slowdown points, such as blind corners, narrow roads and paths with dense vegetation or rocks. In connection with a good line of sight and safe firing points bottlenecks are excellent locations for an ambush.

AIRPORTS AND RAILWAY TRACKS

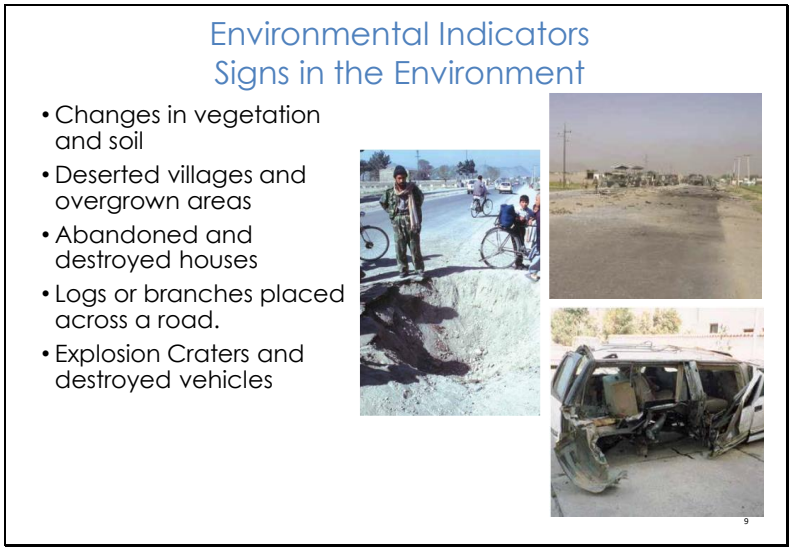
As is the case with bridges, airports and railway tracks are very important means of transportation and key strategic areas for the military. As such, they are often mined. Fences and signs could be broken or removed; gates and official entries abandoned but secured with mines or booby traps.

ELECTRICAL POWER AND WATER SUPPLY
Electrical power plants, power lines and substations are of great strategic importance during wartime. Cutting off a threat's power supply can seriously affect the ability to move and communicate. Also dams and waterworks can be used for supply of the population or for flooding an area to deny this from the threat. Therefore, these areas are often protected using mines.

SHADED AREAS, FRUIT TREES, WATER SOURCES, WELLS AND RIVERBANKS, CAVE ENTRANCES
Soldiers, members of opposite militant forces, as well as civilians in battle, will often seek areas that offer shade or shelter from the elements as well as to reduce their visibility. They will also try to secure their access to water and food sources and often defend such areas with mines. Larger gatherings of people, well known meeting points and areas with a high volume of traffic could be very suitable for an IED target

BUILT-UP AREAS
Building materials like lintels are often raw materials. Sometimes the population uses large ERW or UXOs, like artillery rockets or cartridge cases, as raw materials to maintain and improve their buildings. Lintels, stairways and walls could all contain hazardous ammunition.

Slide 40



CHANGES OF VEGETATION AND SOIL

Ground signs could indicate the present of mines. The colour of the vegetation shows patches of dried plants. In sandy areas the soil can show patches of not typical soil formation. If a minefield has
been in existence for some time, there might be a visible pattern of slight depressions over the mine where the once loosened soil has settled after a rainfall. In some cases, small mounds of earth may be present that could indicate recent digging activity, though such evidence will disappear quickly. If a mine has been laid recently, there might be patches of dead grass where the roots have been cut when the mines were buried. If a mine was laid very recently, the moist soil used to cover the landmine when it was buried may show up darker than the surrounding area.

DESERTED VILLAGES AND OVERGROWN AREAS

Villages and towns that have been abandoned, or fields that are no longer used, indicate the strong likelihood of mines or ERW in the area. After a cluster bomb strike, or an artillery attack with bomblet ammunition, the area would be hazardously contaminated in the same way as a minefield.

ABANDONED AND DESTROYED BUILDINGS AND HOUSES

Often soldiers or combatants of opposite militant forces will mine houses for defence or leave behind mines or booby traps in abandoned houses, to trick other soldiers or combatants who are
seeking shelter. If a house has clearly been damaged or destroyed through fighting, and is uninhabited, there is every possibility that UXOs may also remain. Abandoned and solitary buildings

and houses can be used as weapon and ammunition caches, and potentially secured with mines or booby traps.

LOG OR BRANCHES PLACED ACROSS A ROAD OR PATH (AN AMBUSH BARRICADE)
Sometimes combatants will lay a barricade across a road to stop vehicles at an illegal checkpoint, or even force them off the road into the surrounding area, which may have been mined or contaminated with UXO.

EXPLOSION CRATERS
Craters from explosions or regular signs of repair on tarmac roads may be visible indicators, usually for anti-vehicle mines or signs of a battle. Be careful in surrounding areas as other mines may not have been cleared or may have been overlooked. In particular, never stray off pavements onto the soft shoulder or adjacent ground.
Shelling with mortar rounds, grenades or the use of cluster bombs also leaves particular signs of damage on buildings, on road tarmac, or "decapitated" trees. Sometimes the impression looks like a splash mark carved into the tarmac.
Maintenance on tarmac or road could also be a hint of buried Command Wire (CW) IEDs. If there is an additional small groove leading from the "repaired" patch to the shoulder of the road it will be a real indicator for a CW IED.

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PATCHES OF GROWTH

In drier areas, some places where mines are buried become greener or have grass and plants growing over them. This is because metal cased mines form condensation on them during the night, which then gives the plants more water than the surrounding soil.

UNUSED OR OVERGROWN PATHS, ROADS OR FIELDS

If an area is clearly unused and overgrown or no one has travelled over an area in some time, the reason could be because of mines or UXO. If an area is not cultivated, in contrast to other plots around it that are being farmed, assume the area is mined or contaminated with UXO. Also abandoned weapons and ammunition caches could be found buried in overgrown fields, sometimes secured with booby traps and mines. When in doubt, use only tracks or roads that appear well travelled.

ANIMAL CARCASSES OR SKELETONS

The skeleton or body of an animal or person which has been left to lie could indicate a minefield. Be aware that an injured animal or person can move over a long distance after the accident occurred. Look for additional clues. Be aware that corpses could be wearing ammunition like hand grenades, which could be in an unsafe condition after an explosion. Also, corpses can be booby-trapped to secure against recovery of the body.

ANY OBJECT THAT APPEARS "OUT OF PLACE"

In an area of on-going conflict, if you see something unusual, of interest or of value by the side of the road, always remember that it may be booby-trapped. Booby traps are intended to lure and trick someone into moving an object and detonating the trap. If you don't know to whom an object belongs and you're travelling through a suspicious area, the smart approach is to not approach it at all.

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FORBIDDEN AREAS AND VILLAGE DEMINERS

Never go anywhere where the local population refuses to go, whether along a road or path, or to villages or fields. Such areas will usually appear abandoned, unused or uninhabited. Local populations often (though not always) know what areas are dangerous because they have witnessed fighting, suffered casualties, observed mines being laid and/or because they may have even laid mines themselves. Returning refugees or displaced people may not have the necessary information, as opposed to the local populations who have resided in the risk area during the conflict. It is better to seek advice from people who have been in the area for a longer perioe.

In certain cases, you may even come across villagers who are undertaking mine clearance without the assistance of mine clearance organizations. It is important to get information from these people about possibly affected areas, but it is also important to keep away from their demining work.

UNTYPICAL BEHAVIOUR

The local population reacts to changes in their surroundings. If there is danger, they will avoid it. Empty streets with less than usual or no pedestrians and low traffic on a normally well-used road are untypical in all areas of the world. Shopping areas and gas stations without customers at popular shopping times should lead to some questions about the local behaviour and the reason why. An IED attack or an ambush cannot be excluded, at any time.

SCRAP METAL YARDS AND FISHING

UXOs and ERW are a very expensive raw material. For example, an artillery round contains steel, brass and explosives. In countries of extreme poverty, and where large quantities of UXOs/ERW exist, people will often collect and recycle the metal casings of the ammunition and try to extract the explosive. As a result, some scrap metal yards may contain UXO or ERW, after the treatment by the population, which will be in an unsafe condition.

You may even hear stories about people fishing with landmines, ERW and UXO. Such stories are a strong indication of mined land and abandoned ammunition caches in the area.

Slide 43

Questions?

UNMAS

12

Lesson

1.2

LAND SERVICE AMMUNITION

The Lesson

Time. This module is requires approximately 45 minutes to teach and should be supplemented with 90 minutes of demonstration (see Annex B)

Performance Statement. At the end of this lesson, the participants will be able to recognize and describe different LSA types based on their key features.

Key Learning Points. The following main teaching points are contained in the delivery of this lesson:

a Introduction to Service Munitions:
  i. Categories of LSA:
    1. Mines
    2. Grenades
    3. Projectiles
    4. Mortars
    5. Rockets and Missiles
    6. Sub-Munitions

Methodology. This Lesson will be introduced through the lecture method combined with the participatory approaches and exercises/demonstrations.

Infrastructure. Classroom with projection facilities.

Equipment. Inert munitions.

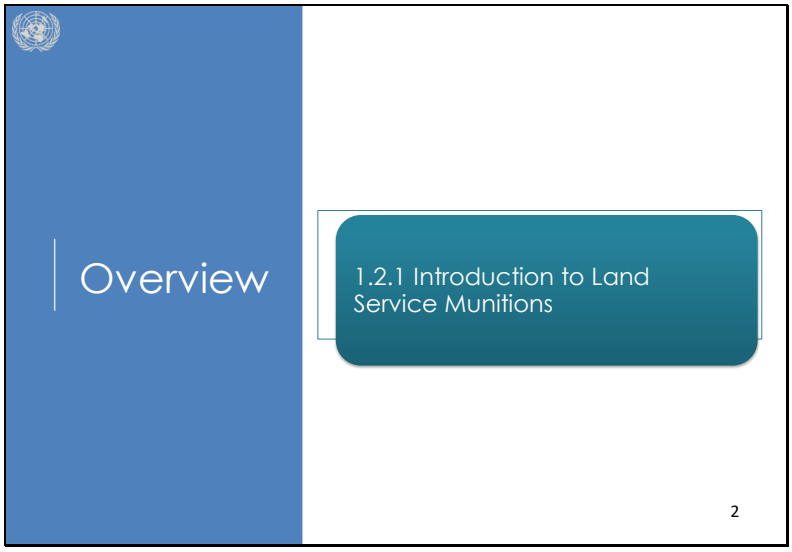
Slide 1

EHAT Lesson 1.2: Land Service Munitions

1

Find guidance inserted in the note section of each slide.

Slide 2



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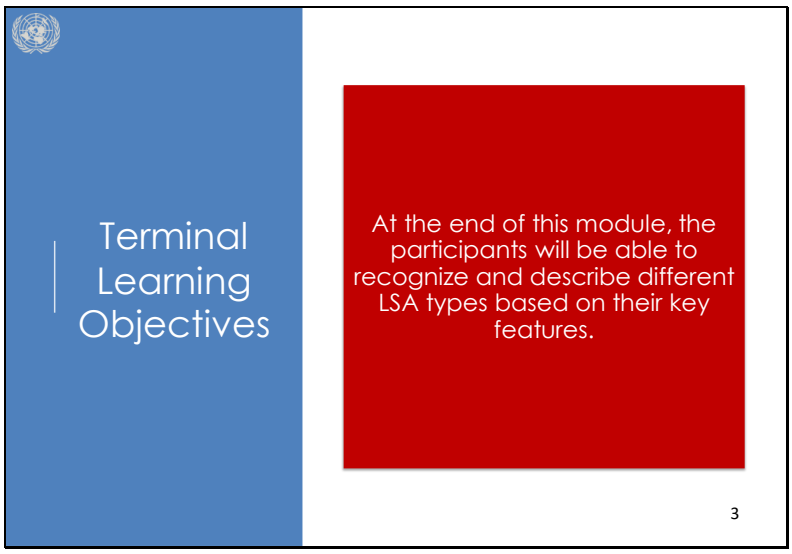


The training objective of this module is to enable participants to be able to recognize different service ammunition types and areas that may contain Explosive Remnants of War (ERW).

Slide 4

Slide 5

Land Service Ammunition

Items containing explosive or pyrotechnic compounds which are placed, thrown, launched, projected or fired so as to cause damage to men or equipment during land warfare.

5

While operating in theatres that have experienced armed conflict, peacekeepers may be confronted with the threat posed by landmines and explosive hazards, which include unexploded or abandoned ordnance, abandoned military vehicles and equipment, as well as IEDs.

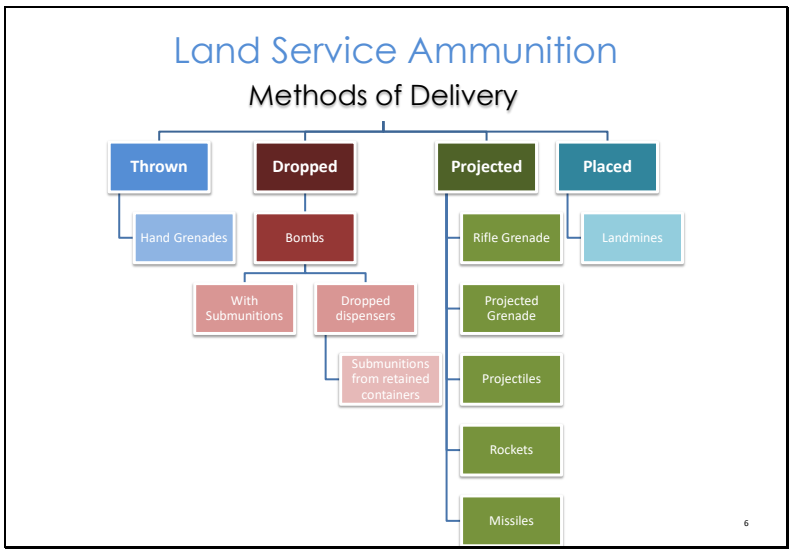
(Note that the term ERW includes unexploded ordnance (UXO) and abandoned ordnance but excludes landmines).

When working in such areas, peacekeepers must be aware of the physical threats posed by a huge variety of armaments left during and after armed conflict.

To protect yourself, you need to be aware of the threat and take appropriate preventive action.

This module aims to help identify different services munitions such as mines, grenades, projectiles and mortars, and explains how they work and their effects. It is impossible to describe all types of mines, grenades, projectiles and mortars. As a general rule, always regard unusual objects with suspicion.

Slide 6



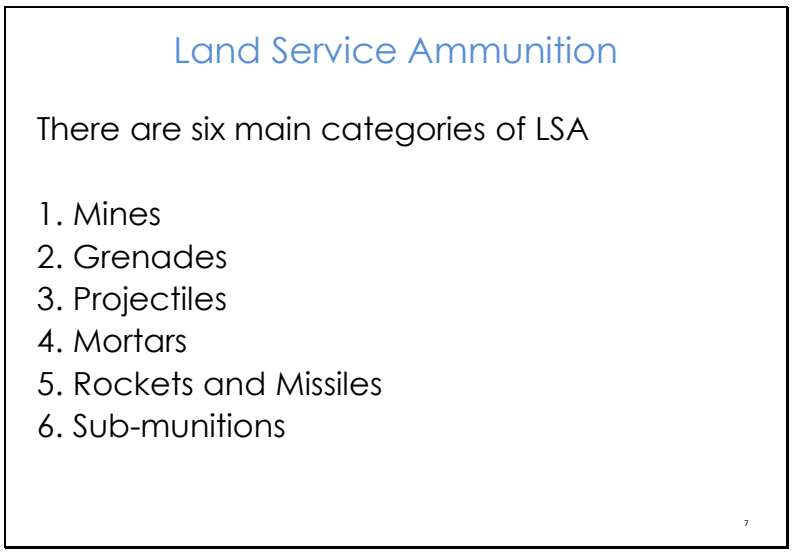
There are several methods of deployment that are used to deliver land service ammunition. Generally, these are Thrown, Dropped, Projected and Placed.

Dropped Submunitions by aircraft can be delivered from a retained container such as the JP233, where the dispensing container remains on the aircraft.

Note that submunitions can also be projected by rockets and mortars.

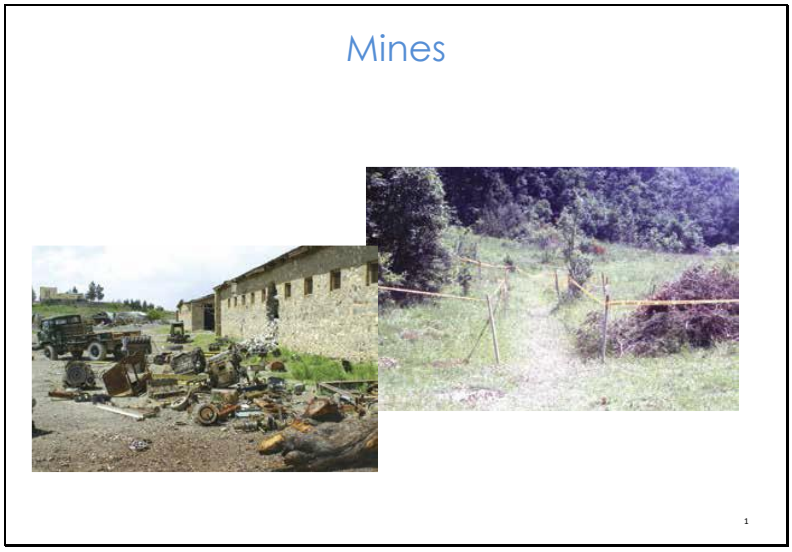
IEDs are not listed as a placed munition as they are not a form of LSA. However, LSA, and any resulting UXO or ERW, can be used to create IEDs.

Slide 7



Land service ammunition will generally fall into 1 of 6 categories. This is not to say that there are no other explosive munitions that can be found on land, but generally understanding these categories will help in identifying different weapons.

Slide 8



A landmine is an explosive device designed to destroy or damage vehicles, or to wound, kill or otherwise restrict people's activities.

Mines can be victim activated, that is, detonated by the action of their target by being stepped on or struck or can be triggered by direct pressure, tripwires, tilt rods, command detonation, or by some combination of these methods.

They can also be booby trapped by using, for example, anti-handling devices, to make their removal more difficult. They may also detonate with the passage of time.

Mines are used as defensive weapons: they provide protection for important military positions or hinder the movement of troops by causing casualties to an threat and destroying equipment.

They are also used offensively: in particular during conflicts they are used to destroy or damage infrastructure and cause terror by denying civilian populations access to their homes, agricultural land, water, roads, schools, health care facilities and other resources. Landmines are often used as parts of an IED.

The explosives of a landmine could be used for the main charge or the landmine itself as a trigger for a Victim Operated IED (VOIED).

Landmines are almost always hidden and camouflaged to match their surroundings, making them seldom seen and difficult to locate. They are usually buried or hidden in grass or buildings, fixed on stakes or to trees.

During conventional warfare, landmines are usually laid in patterns to create consistent barriers, or along roads and around strategic points. In the case of new minefields, locations must be recorded on maps, but this is not always reliable. Often, they are laid indiscriminately by armed parties that are constantly on the move; some landmines are even scattered by aircraft or artillery over a wide area with no obvious or discernible pattern.

There are currently more than 600 different types of landmines, as well as many improvised mines made by military (opposite) forces engaged in fighting. They are grouped into two broad categories: Anti-Personnel (AP) mines and Anti-Vehicle (AV) mines, also commonly referred to as Anti-Tank mines.

Slide 9

Mines

Anti-Personnel Landmines

Blast

Fragmentation

Directional Fragmentation

Bounding Fragmentation

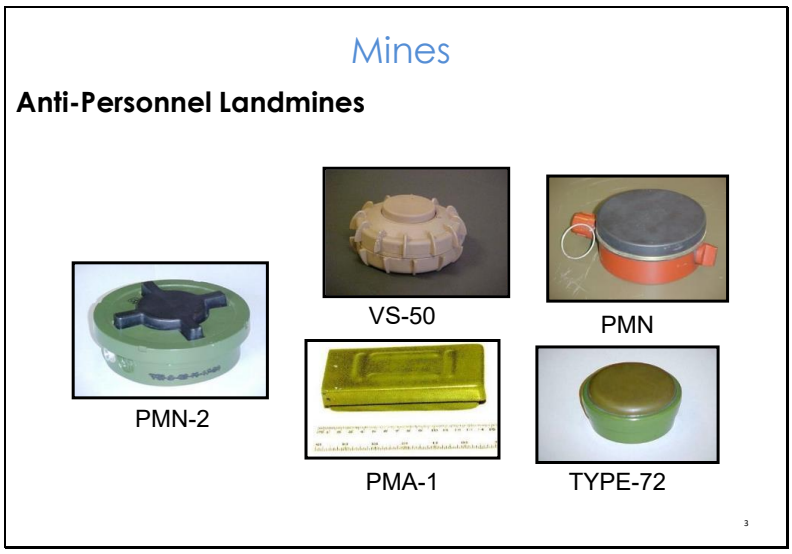
2

An Anti-personnel (AP) landmine is designed to be detonated by the presence, proximity or contact of a person, and is intended to incapacitate, injure or kill one or more people. AP mines are usually detonated when they are stepped on or when a tripwire is touched, but they can also be set off by the passage of time or by controlled means.

AP mines can be found on the ground, buried or fixed above ground and are generally small devices that come in many different shapes. Often, they are camouflaged to help them blend into the surroundings and can be fabricated of wood, plastic or metal. Areas suspected of containing AP mines should be avoided.

Once triggered, AP mines cause death or serious injury by an explosive blast and/or flying fragments. They are grouped according to the manner in which they inflict injury: blast, fragmentation or a small shape charge.

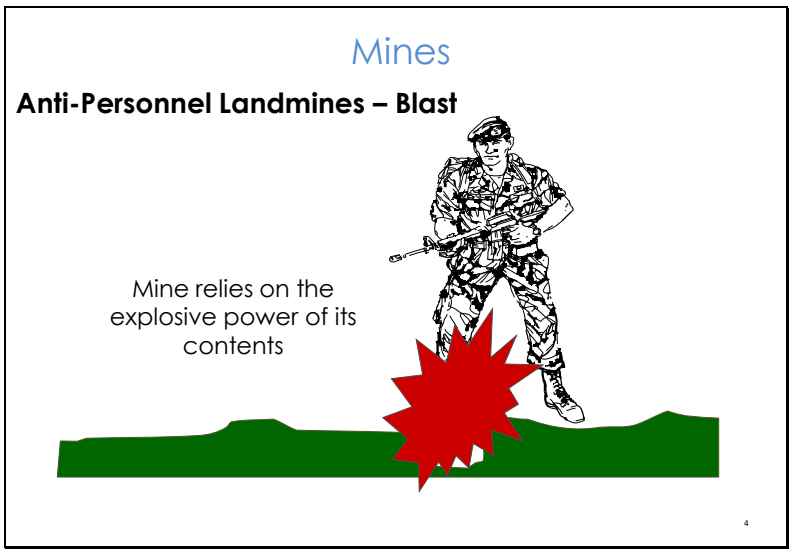
Slide 10



Blast AP mines are often very cheap and are among the most found in the world. They are designed to be triggered by the pressure caused by physical contact with mine, mostly by stepping on them. Most mines of this type are designed to cause serious injury, usually the amputation of one or more limbs, rather than death.
Blast AP mines are generally cylindrical in shape, and range in size from 7 to 16 cm in diameter and 5 to 10 cm in height. However, some blast AP mines are rectangular or "shoe box"–shaped. They then range in size from 10 cm x 18 cm to 15 cm x 30 cm. Most AP mines have a relatively small explosive charge, often less than 100 grams. The concentrated blast of the charge is what causes death or injury.

While some blast AP mines are still made of metal or wood, most are manufactured of plastic. This makes them water resistant or waterproof, and dangerous even when submerged. Following heavy rains, it is not uncommon for some mines to wash out of minefields into previously mine-free areas, or into waterways where they can be swept kilometers downstream before washing ashore. Blast AP mines are usually tan, olive, green, black, brown, grey, or a combination of colours.
In addition to buried Blast AP mines, a common type of mine is the "butterfly" mine (or similar variants), which are scattered over the ground by aircraft or artillery fire (see also the chapter about cluster bombs). If recently delivered, these mines are usually found lying around in large numbers. Even after months or years, single mines may still be found in clear areas. Butterfly mines have a combination of odd shapes and often bright colours that can make them unique and attractive to curious children and adults.

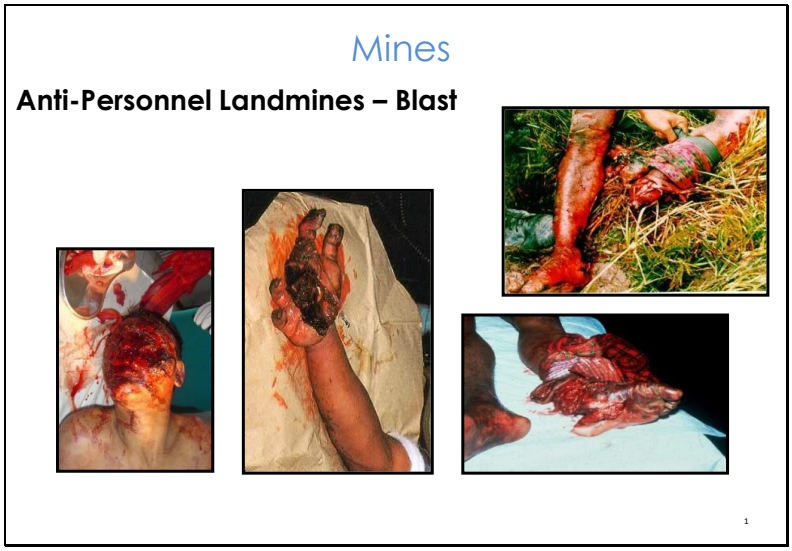
Slide 11



BLAST

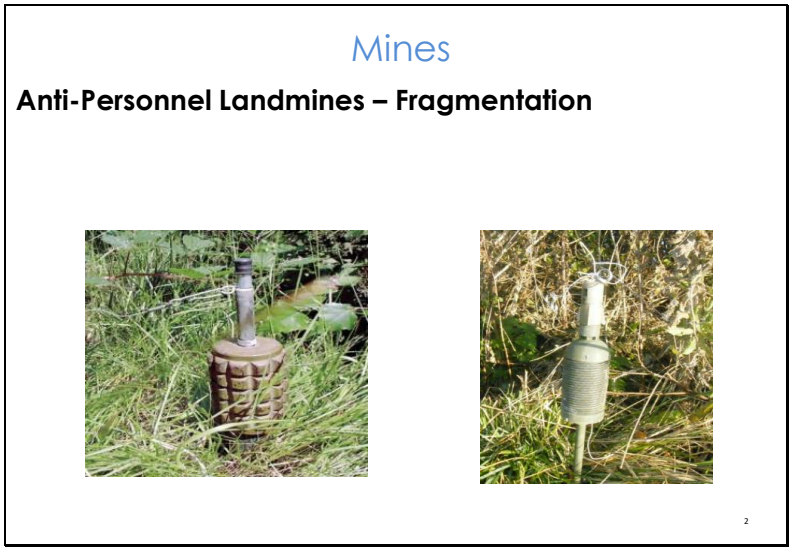
Function:
a. The mine is initiated when sufficient force is applied to the top surface. Actuation of the fuse results in the immediate detonation of the main charge. Not a delayed effect as portrayed in the movies.

Slide 12



This slide shows the impact of anti-personnel mines. Many of these victims are civilians.

Slide 13



Fragmentation Anti-personnel mines are typically designed to cause death, often to many people, from fragments propelled by the mine's explosive charge. Most of these mines have metal casings or contain ball bearings or metal fragments that are turned into lethal projectiles by the detonation of the mine.

There are three basic types of fragmentation AP mines: stake mines, directional fragmentation mines and bounding fragmentation mines.

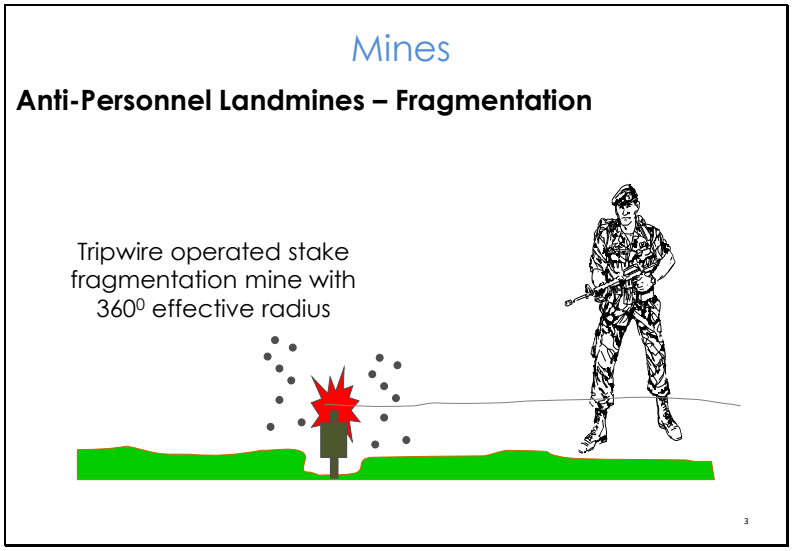
The most found fragmentation AP mines are stake mines, which are designed to fit on wooden or metal stakes hammered into the ground until the mine is resting about 20 cm above the surface. They are also fixed to trees. Most look like a small club: a wooden stake, topped by a small metal cylinder and detonator projecting out of the top. They are often painted green, or they may be unpainted wood and metal. Rusty metal surfaces make it easy to overlook the mines, especially in areas with old vegetation.
Stake mines are fitted with one or more tripwires that set the mine off when pulled or cut. Tripwires are very hard to see, and may be strung across paths or doorways, and attached to a solid object such as a tree or to another mine.
Once set off, metal fragments are projected in a 360-degree radius, causing lethal injury to anyone within an unobstructed 4 metre radius and causing death and serious injury to people at much greater distances.

One common mine – the Russian POMZ-2M – detonates and shatters to create fragments that are likely to be lethal within a 10 metre radius. Beyond this, the uneven

size and distribution of the fragments makes the effect unpredictable; large fragments may injure or kill at a range of 100 metres or more.

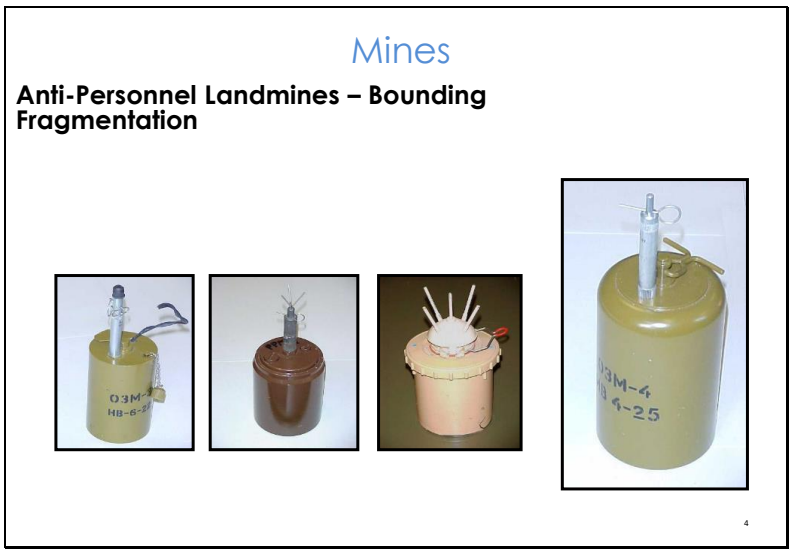
Over time, the stake mines may fall over, or the stake on which they rest may disintegrate. This does not make them less dangerous, and in some cases, when the tripwire is less visible, it makes them more dangerous.

Slide 14



This slide shows an example of an omnidirectional fragmentation AP mine.

Slide 15



Bounding mines are normally buried and often linked to tripwires. Most bounding mines are cylindrical in shape, with a single tubular fuse or a few prongs sticking out from the top. They are typically around 10 cm in diameter and 28 cm in height. Bounding mines are usually tan, olive green, black, brown, and green, or are left unpainted. After a couple of years, the metal surface looks rusty so that the mines are hard to see.

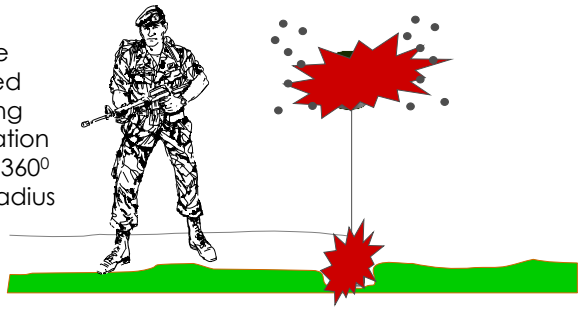
Bounding AP mines are generally triggered by tripwires or direct pressure. Once triggered, an initial explosion lifts the mine out of the ground to about waist height before the main charge detonates. Upon detonation, the explosion shoots out metal fragments in a 360-degree horizontal radius. Design variations mean that the number, size and distribution of fragments vary widely, but a typical bounding mine is likely to be lethal within 25 metres and capable of inflicting serious injury at ranges up to 100 metres.

Slide 16

Mines

Anti-Personnel Landmines – Bounding Fragmentation

Tripwire operated bounding fragmentation mine with 360^0 effective radius



5

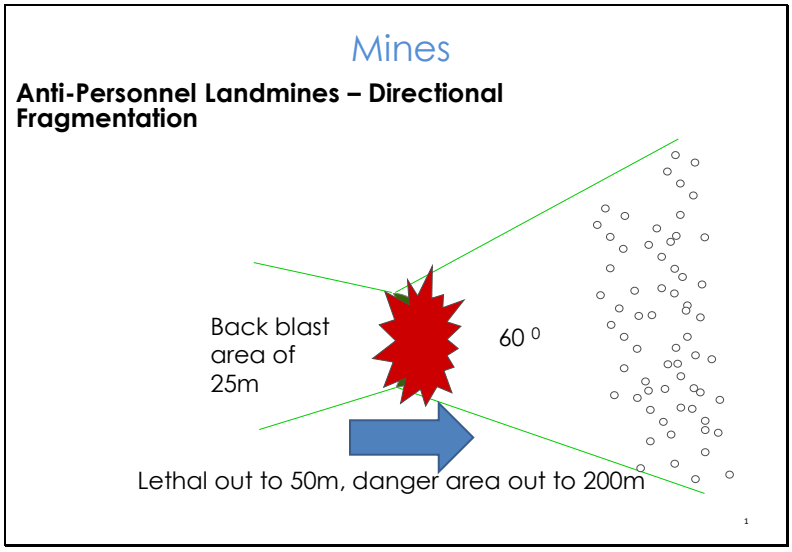
Slide 17

Mines

Anti-Personnel Landmines – Directional Fragmentation

6

Slide 18


Mines
Anti-Personnel Landmines – Directional Fragmentation
Back blast area of 25m
60 0
Lethal out to 50m, danger area out to 200m
1

Slide 19

Mines

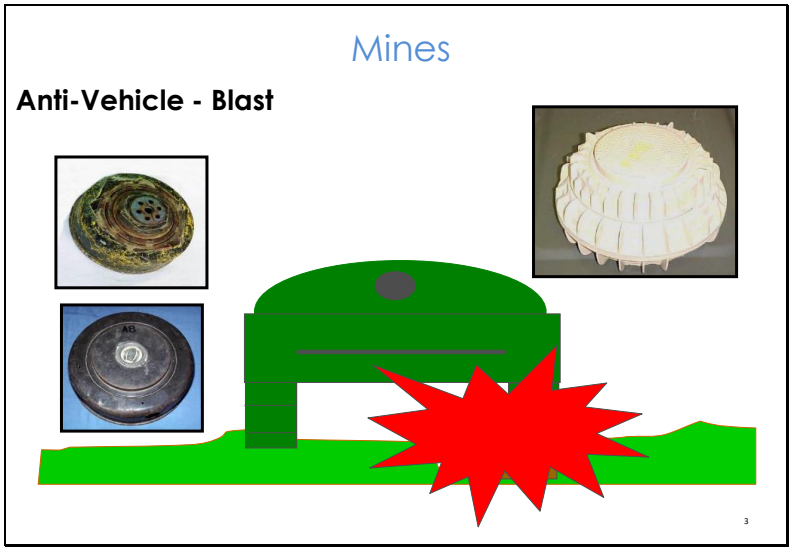
Anti-Vehicle

2

Anti-Vehicle (AV) mines, often referred to as Anti-Tank mines, are designed to disable or destroy vehicles.

Like Anti-Personnel mines, Anti-Vehicle mines can be detonated by pressure, though normally much greater weight is needed, by remote control, by magnetic influence or through the disturbance of a tilt rod (a sort of vertical tripwire).

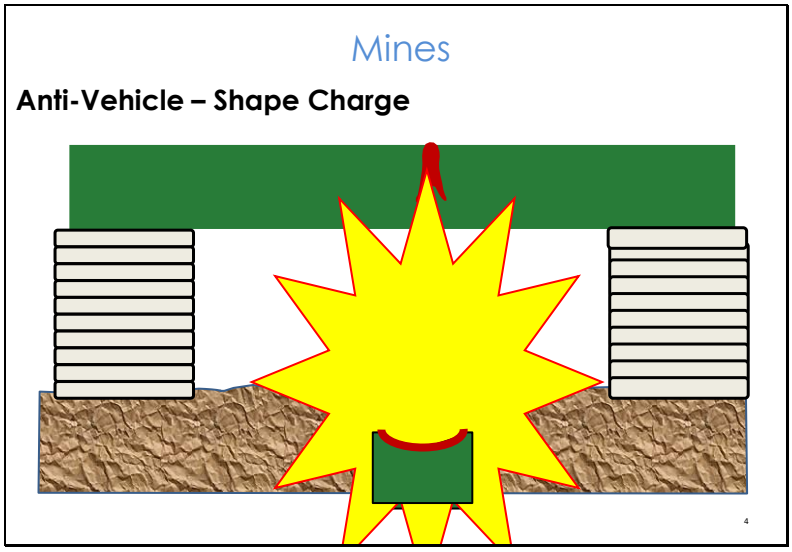
Slide 20



Because AV mines are made to destroy vehicles, they are generally found on roads, roadsides, paths, tracks and the verge of the road. Even roads that have been driven on for some time can contain AV mines.

AV mines are much larger than AP mines and have a far heavier explosive charge. They are generally round or square in shape, and range in size from 40 cm in diameter and 16 cm in height to 23 cm in diameter and 10 cm in height. They can be made of wood, plastic, or metal and come in a range of colours. AV mines charges are about 6 kg HE, but they can also have a shaped charge.

Slide 21



More modern anti-tank mines are usually more advanced than simple containers full of explosives that are detonated remotely or by the vehicles pressure. Some of the biggest advances were the power of the explosives (such as the use of explosives such as RDX) and the use of shaped charges to increase the armour piercing effect. (As seen in the animation)

Slide 22

Mines

Anti-Vehicle – Shape Charge

5

Directional Anti Vehicle Mine can project a shape charge either vertically up through the Tank or horizontally in the off route or off road type directional AV mines.

Off-route mines are designed to be effective when detonated next to a vehicle instead of underneath the vehicle. They are useful in cases where the ground or surface is not suitable for burying or concealing a mine.

A Glass-Fibre-Cable, laid on the road, can be used to trigger directed AV-off road mines, firing small fin-stabilized Anti-Tank-Rockets. They can be positioned between 2 and 40 metres on either side of the road, mounted on a small tripod or attached to a tree. If there is contact with the cable, such as a vehicle driving over it, the directional mine is triggered. These mines can also be remote detonated.

Image courtesy of UK MOD

Slide 23

Grenades are explosive devices usually thrown by hand or projected from rifles or grenade launchers. Grenades detonate either on impact or through a time-delay mechanism; both mechanisms may fail. "Defensive" fragmentation grenades are the most common, but there are also "offensive" blast grenades, incendiary grenades, chemical or gas grenades, and smoke grenades. A typical fragmentation hand or rifle grenade is likely to be lethal within 10 metres, with a danger area extending to 50 metres or more.

Hand grenades have a pineapple shape, cylindrical or round bodies about the size of an adult fist and up to 10 cm long. Grenades come in various colours. Stick grenades are hand grenades placed on a short stick, which increases the throwing distance. Metal was the most common material used for making grenades but gas and chemical (smoke) grenades may be made from plastic as well.

Slide 24

Artillery rounds are explosive devices, designed to be fired at a great distance (more than 100 km) and to explode either in the air above the target, or on impact. Artillery rounds can be fired from ground, sea, as well as air-based guns/howitzers. The artillery can fire directly or indirectly but, due to the large distance to the target, users of the weapons may not be able to see their target. The destructive capability of conventional artillery rounds largely depends on their size.
Projectiles of tank ammunition are mostly explosive devices designed to destroy tanks, bunkers or troops in the open. Tank rounds are normally used as direct fire weapons but may be used as an indirect weapon that is fired from a great distance from the intended target.

Artillery and Tank rounds, like very large bullets, are aerodynamically shaped with a tapered nose, cylindrical body and flat base. Most are made of metal. Tank rounds may also have fins at the rear of the projectile and/or a straight, protruding fuse at the nose.

Due to the construction and the purpose of the gun, the rounds and the propellant can be loaded separately or as a cartridge. Unexploded rounds can be found above or below ground or in rubble, and like other UXOs, may be rusted or discoloured with age and difficult to identify. Most rounds contain high explosives, but some may contain white phosphorous, or even chemical and biological weapons. Artillery rounds can contain also submunitions like bomblets. Tank rounds could be made from depleted uranium.

Be aware that due to spin, UXOs will lose large parts of their colouring when impacting on the ground. Rust and dirt give a UXO the look more of a stone than of ammunition. Never touch suspicious objects.

The picture on the bottom left is a 40 mm x 46 M430A1 HEDP grenade, found on a training range in Afghanistan. Although this is referred to as an underslung grenade it is classified as a projectile.

Unexploded or abandoned artillery rounds can be used as a main charge of an IED.

Slide 25

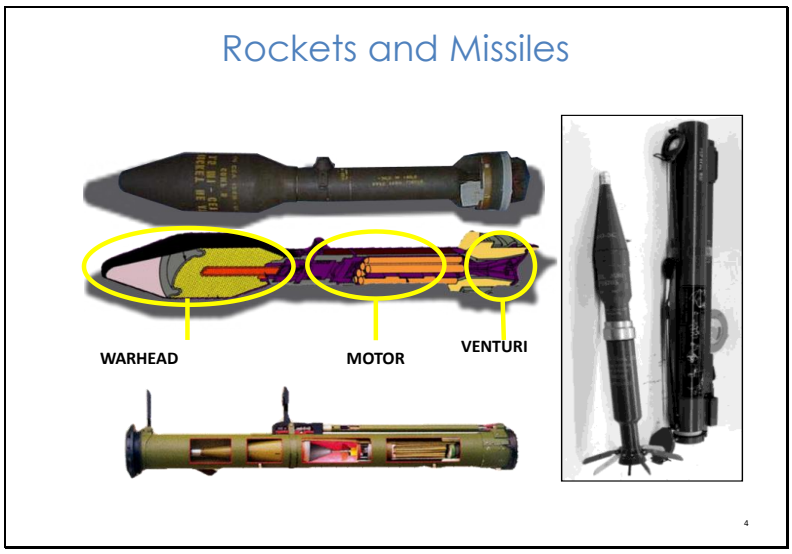
Mortar rounds are projectiles that are launched mostly from tubes of metal about 90 cm to 170 cm in length, known as mortars. In recent years complex mortar systems were developed so that the difference between a howitzer and a mortar cannot be easily decided. Modern mortars can fire directly and indirectly and can be loaded like normal guns.

Mortar rounds are loaded into the tube from the front or the rear (depending on the system) and launched by their own propellant charge. Mortar rounds often have a tapered nose at the front and fins at the rear. The metal bodies can range from 45 mm to the current 240 mm diameter in width and from around 30 cm to over one metre in length. Due to their ease of use, relatively low cost and portability, mortars are an extremely widespread weapon of war.
Mortar bombs are usually made of metal and when found may be rusted and discoloured with age. On impact they make craters, and the site of a detonation is usually obvious. On paved roads they create what looks like “splash marks” in the concrete or tarmac road surface.

The lethal and hazardous ranges of mortar bombs vary widely depending upon the calibre of the weapon. A small mortar bomb with a high explosive charge can destroy a car, while larger mortar bombs can destroy small to medium-sized buildings. Other fillers like smoke screening and illumination are possible, as well as leaflets or bomblets. Modern Mortar rounds can be fitted with electronic proximity or very quick mechanical fuses. Also, Anti-Tank-Guided Mortar-Rounds are in use.

Unexploded mortar rounds may still contain propellant charge as well as the content described above. Mortar rounds must never be approached. Mortars are mostly indirect fire weapons, in that the people firing the weapon often cannot see their target, and it is fired at a high trajectory. As a result, firing patterns can be indiscriminate and unexploded mortar rounds are found strewn across many battle areas. Unexploded or abandoned mortar rounds can also be used as the main charge of IEDs.

Slide 26



A rocket or a missile is an explosive device containing its own means of propulsion (the rocket motor) as well as explosives or other fillers (the warhead). Missiles are similar to rockets, although they are guided in their trajectory. Rockets and missiles can be fired from vehicles, ground-based launchers, or from the shoulder. They can also be launched from aircrafts, ships and submarines. Rockets and missiles are used to deliver high explosives or other payloads like submunitions, leaflets, chemical or biological materials at greater distances and with greater accuracy than just about any other type of weapon. The lethal range of explosion HE warhead of a rocket or missile varies enormously depending on the size and nature of the warhead, but rockets and missiles typically have considerable destructive power, able to damage and destroy vehicles, buildings and even entire neighborhoods.

Rockets and missiles come in many shapes and sizes, from the relatively small air-to-ground rocket S-5, around 80 cm long, to very large artillery missiles of more than 15 metres in length, like the 16,5 metres long RSD-10/SS-20 missile. Rockets and missiles are made of metal and are normally distinguishable by their long thin cylindrical shape. A rocket/missile is referred to according to its diameter. For example, a 122 mm BM-21 rocket has a diameter of 122 mm but has depending on the type a length of 2.87 metres or longer.

Slide 27

Unexploded rockets and missiles can be extremely dangerous, as disturbance may initiate any unspent rocket fuel, and propel the rocket in an unguided fashion. If the warhead is still intact, the explosive potential is equal to when the rocket or missile is initially launched, and even greater if the rocket or missile does not launch but explodes with a full load of fuel.

PICTURE Top Left
This is a S-75 Dwina/SA-2 missile, Iraq

Rocket fuel is also extremely corrosive, volatile and will burn exposed skin and can kill a person if the fumes are inhaled. Rocket fuel is also liable to explode if ignited. Some types of fuel will self-ignite on contact with air. For all these reasons, rockets and missiles should not be approached.

The remains of exploded rockets and missiles can contain gas-bottles with compressed gases which are needed for guidance or cooling the IR-seeker. See PICTURE Top Right Remains of an exploded Anti-Tank Missile BGM-71A/TOW-1B. Also, this scrap contains dangerous parts like filled gas bottles. UNMAS Photo/Thomas Enke)

Also, hazardous pyrotechnic devices for guidance and arming can be found.

Because of their slender shape, unexploded rockets and missiles (often broken into sections) can easily be mistaken for broken pipes. (See PICTURE Top Bottom of Two 122 mm HE rockets 9M22U laying in an Afghan village. UNMAS Photo/Thomas Enke)

In certain conflicts involving heavily armed and technologically advanced powers, unexploded rockets and missiles can be massive in size, though such cases are relatively few in number.

Slide 28

Rocket assisted grenades like the PG-7 anti-tank grenades have an additional rocket motor to enhance the range. This type of ammunition is multipurpose and widespread, found in large numbers and comes in several types. The grenade can be built with High Explosives (HE)-, Fragmentation (FRAG)-, High Explosive Anti-Tank (HEAT- or Fuel Air Explosives (FAE)- functions. The light AT-ammunition has a very sensitive fuse. A fast change of temperature can trigger the fuse. Also abandoned or dud ammunition can contain propellants from the rocket motor.

Slide 29

Rifle grenades have a cylindrical body, mostly with a round nose and are fin stabilized. They contain no propellant in the tail, but if it hasn't been fired, the tail could be clipped inside with a special cartridge (which is loaded into the rifle for firing). All fillers are possible, e.g. screening smoke, illuminating, tear gas and high explosives. Due to the slow velocity of the rifle grenade, the fuses are very sensitive and the approach to a rifle grenade should be avoided.

M31 Rifle Grenade

Watch your steps: A large rifle grenade that failed to detonate. A Yugoslavian M-60P1 HEAT-Rifle Grenade is sticking out the ground.

Slide 30

Whilst an air-dropped bomb may not technically fit the categorization of land service ammunition, when they fail to function, they have real implications on land. A bomb is an explosive device, usually dropped from aircraft, but conversions to warheads of artillery rockets are known. Bombs come in many different shapes and sizes. More importantly, many air-dopped munitions also serve as carriers for sub munitions. We will discuss this in the next slide.

Bombs are usually made of metal and have a smooth curve, normally aerodynamic shape. Air-delivered bombs can range in size from 25 kg to 5,000 kg and can be as long as three-and-a-half metres (around 12 feet). They are typically grey, green or brown in colour. Mostly the bombs contain HE, but other payloads like sets with flashlights, chemical agents, nuclear, submunition carrier or white phosphorus will be possible.
Like other UXOs, bombs wear with age and exposure to the elements. They may be rusted, discoloured, and partially hidden by dirt or debris.
Typical signs of bombing activity include large craters in the ground. Unexploded bombs may be found above or below the ground. They can penetrate up to 35 metres deep into the ground without exploding.
Image Top – courtesy Associated Press

Slide 31

Picture: Various unexploded submunitions. Extremely unstable: BLU-97, DM1385, PTAB-2.5KO.

According to the Diplomatic Conference for the Adoption of a Convention on Cluster Munitions, Cluster munition means a conventional munition that is designed to disperse or release explosive submunitions each weighing less than 20 kilograms and includes those explosive submunitions.

Submunitions and bomblets are carried to the target area in cluster bombs, warheads of artillery rockets, or artillery rounds. These canisters burst open in mid-air over the target area and scatter the submunitions over a wide area. A submunition can be an AP mine, a HEAT bomblet or a small bomb with several different fillers. The submunitions come in a variety of shapes and colours, such as the shape and size of tennis balls, butterflies or drink cans. They are also often brightly coloured.

Among UXO, submunitions represent a particularly dangerous threat due to their high volatility and dispersal over wide areas. Submunitions often fail and may remain hazardous for many years. Estimated rates of failure between five and 30 per cent have been reported on several battlefields. This rate depends on various factors, but generally the softer the ground, the higher the failure rate. Unexploded submunition is highly sensitive and can detonate with very little contact. This ammunition is extremely dangerous and should never be approached. It can be found above or below the ground, and in and around buildings. Submunition may sometimes be found hung or caught up in trees, fences or on the roof of buildings.

When an area has been targeted with submunitions, there will sometimes be signs and indicators of this, such as packaging, small parachutes or very definite "splash marks" on the ground or buildings. In addition, any trees in the vicinity will show characteristic signs, such as treetops stripped of branches and foliage. In open areas there will usually be numerous small holes and a considerable amount of debris left behind, such as metal and plastic casing or small parachutes, as well as debris from the targets.

Slide 32

Questions?

UNMAS

2

Lesson

1.3

IED FUNDAMENTALS

The Lesson

Time. This module requires approximately 45 minutes to teach and should be supplemented with 90 minutes of demonstration (see Annex B)

Performance Statement. At the end of this lesson, the participants will be able to outline the types of IEDs and their components and demonstrate a thorough understanding of the initiation systems.

Key Learning Points. The following teaching points are contained in the delivery of this lesson:

a Introduction to IEDs.

b Components of an IED:

i. Main charge:
   1. Military ordnance,
   2. Commercial explosives,
   3. Homemade explosives.

ii. Power source.
iii. Switch:
   1. Time,
   2. Command.
   3. VO.
iv. Initiator.
v. Container.

c IED initiation systems
   i. Time
   ii. Command
      1. Suicide
      2. Command Wire
      3. Remote Control
   iii. Victim

d IED Emplacement

Methodology. This Lesson will be delivered through the lecture method and participatory approaches and discussions.

Infrastructure. Classroom with projector facilities, sandpit, and outside areas.

Equipment. Inert munitions, inert IEDs.

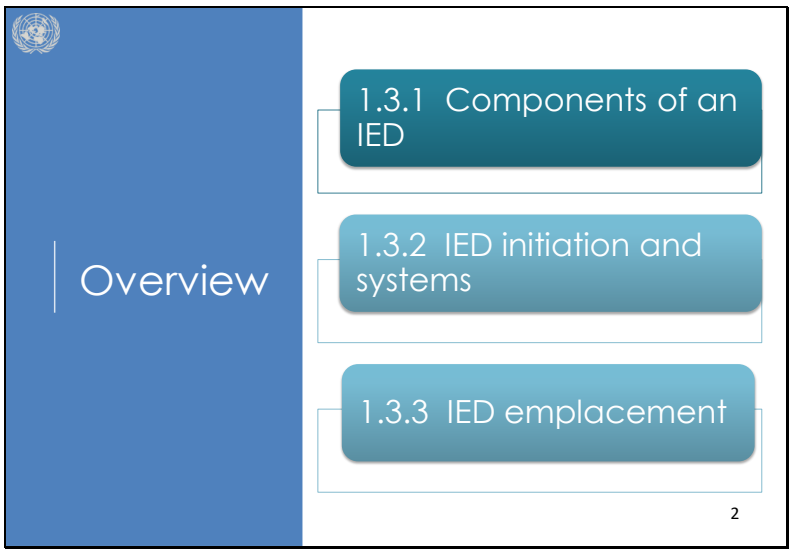
Slide 1

EHAT Lesson 1.3:
IED Fundamentals

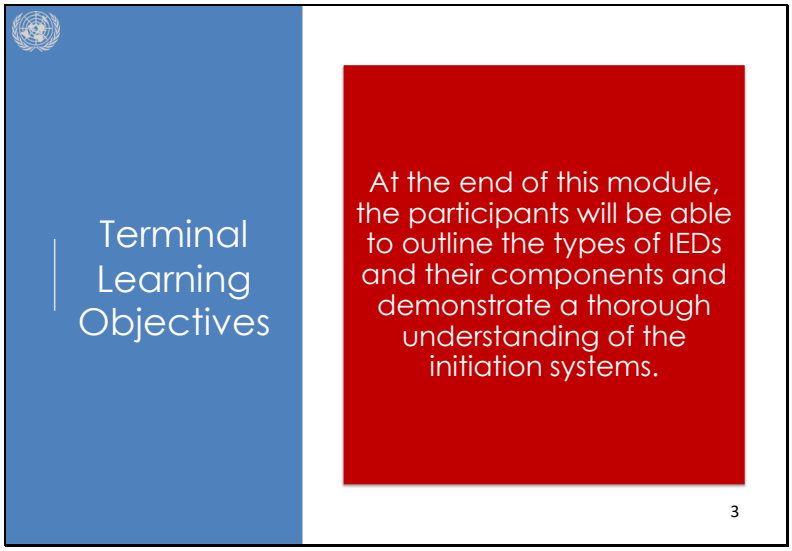
1

Find guidance inserted in the note section of each slide.

Slide 2


Overview
1.3.1 Components of an IED
1.3.2 IED initiation and systems
1.3.3 IED emplacement
2

Slide 3


Terminal Learning Objectives
At the end of this module, the participants will be able to outline the types of IEDs and their components and demonstrate a thorough understanding of the initiation systems.
3

Slide 4

Slide 5

Definition of an IED:

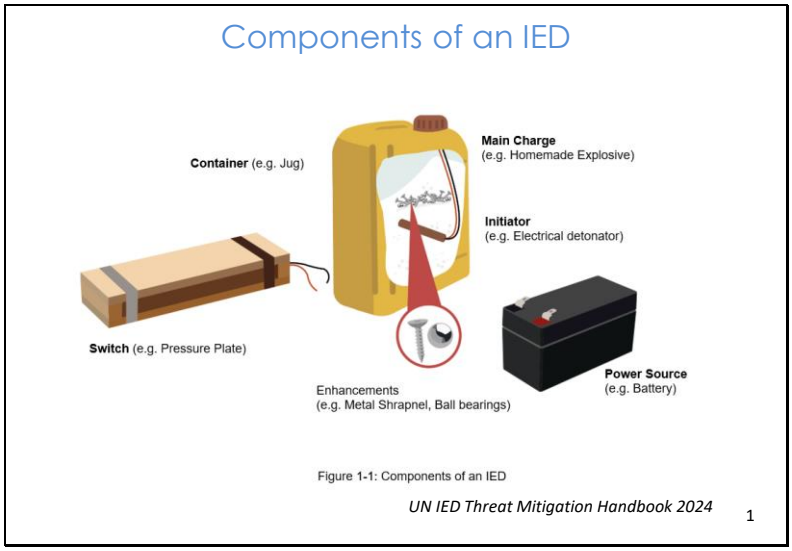
A device placed or fabricated in an improvised manner incorporating destructive, lethal, noxious, pyrotechnic or incendiary chemicals and designed to destroy, incapacitate, harass or distract. It may incorporate military stores, but is normally devised from non-military components

- ***UNMAS Lexicon Definition***

5

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

Slide 6



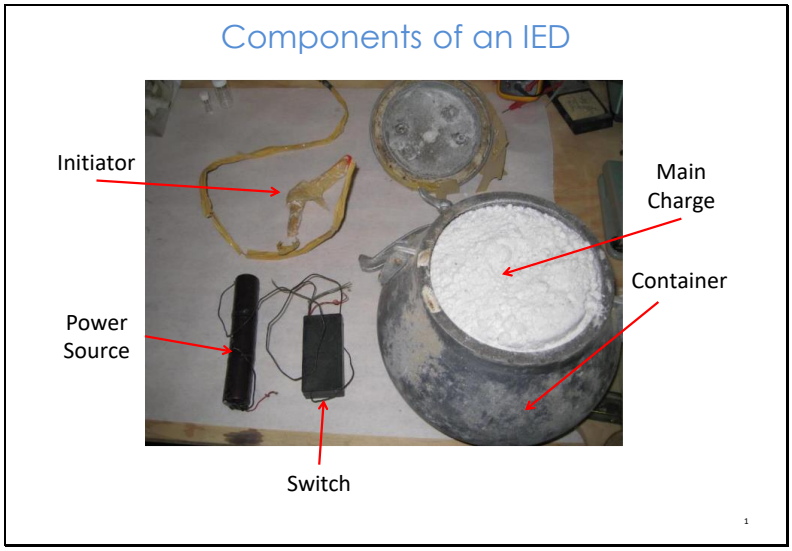
Although there are virtually limitless ways in which and IED can be built and employed, they generally consist of a

- Switch
- Initiator
- Main Charge
- Power Source
- Container (see Figure)

and may contain

- Enhancements.

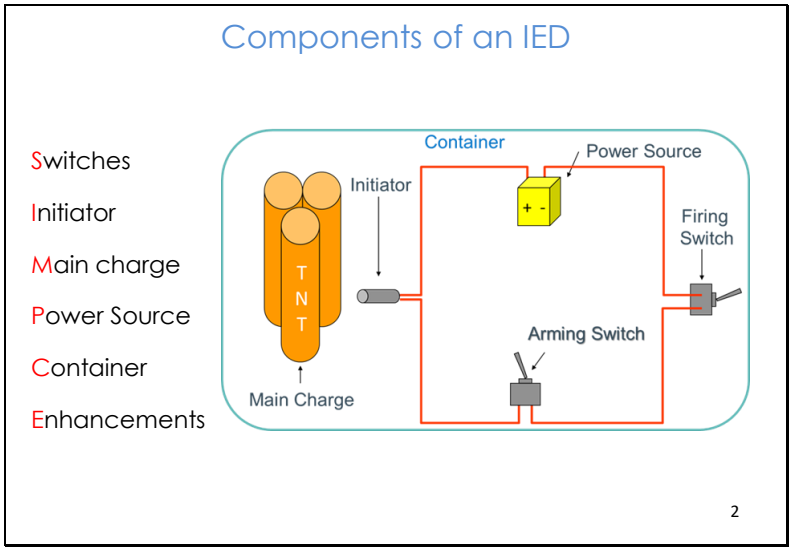
Slide 7



Here is an example of a real IED from Afghanistan, you can see it has the same core components.

Image courtesy of UK MOD.

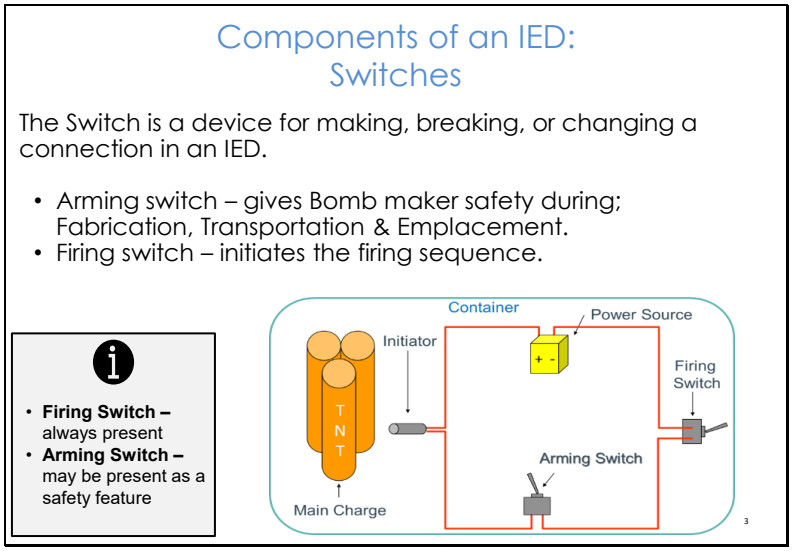
Slide 8



We will now go through each component in detail. This simple diagram will be used to illustrate the six (6) main components of an IED.
Each of these components will be described in detail in later slides.

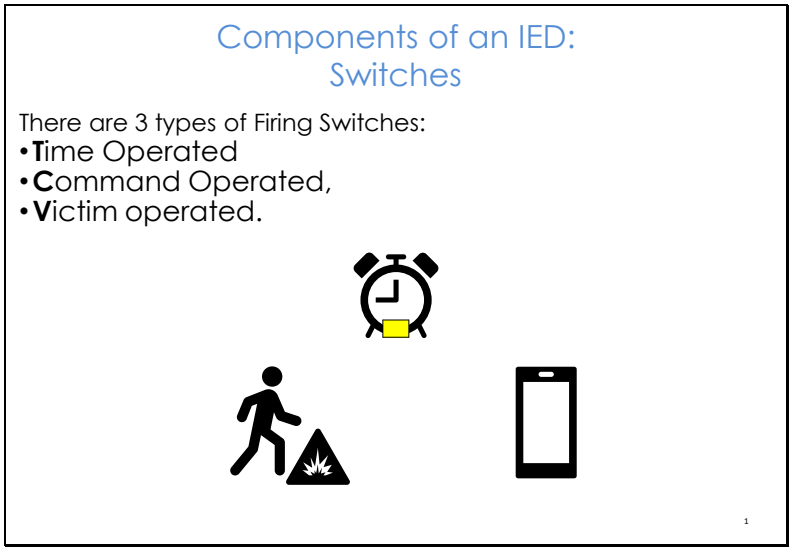
Image: UN IED Threat Mitigation Handbook 2024

Slide 9



The Switch is a device for making, breaking or changing a connection in an IED. As you can see there are two types of switches: an Arming Switch which enables a IED maker to keep the IED in a safe state while fabricating, transporting or emplacing the IED. This can be thought of like a safety catch on a rifle. A Firing switch is the switch that initiates the IED. All IEDs must have a firing switch but not all will have an arming switch.

Slide 10



At this point, it is worth noting that the Firing switch can generally be broken down into 3 categories. These are Time, Victim and Command operated switches. The type of switch determines the type of IED. E.g. if an IED had a time switch, it is described as a Time IED, if it has a victim operated switch it is described as a victim operated IED or VOIED. This will be described in more detail later in the lesson.

Slide 11

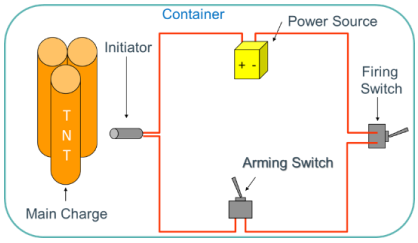
Components of an IED: Initiator

Any component that may be used to start a detonation or deflagration.

A small tube containing explosives which are sensitive to heat, shock, or friction.

Two types;
- Electric
- Non Electric

These can be:
- Military
- Commercial
- Home Made



2

High Explosives require a detonator to function. They are small tubes containing approx. 1g of explosives. Like military detonators these can either be electric or non-electric. Electric initiators use electric energy to detonate the explosive whereas non-electric generally use heat from a safety fuze. In almost all cases, IEDs tend to use electric initiators.

Detonators are normally either Military or Commercial and as shown they often have significant recognition features.

Initiators are usually the most complex component to manufacture and so IED makers will usually try to course these from commercial or military sources.

Slide 12

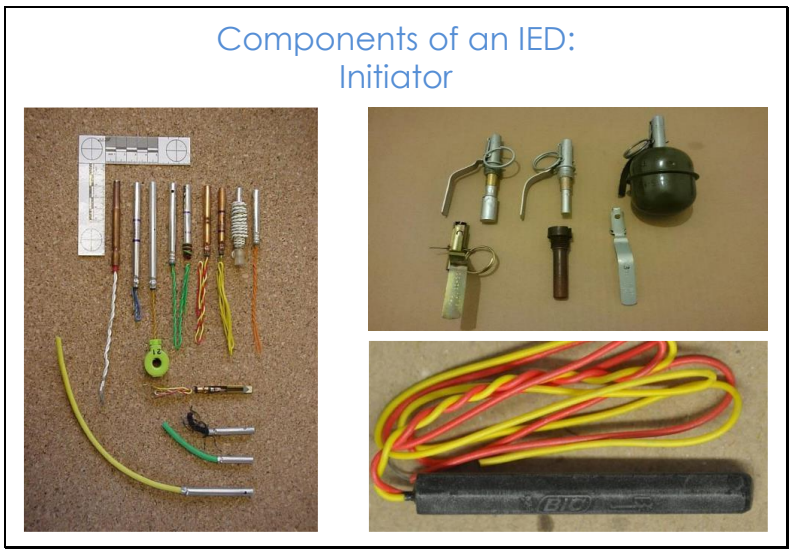


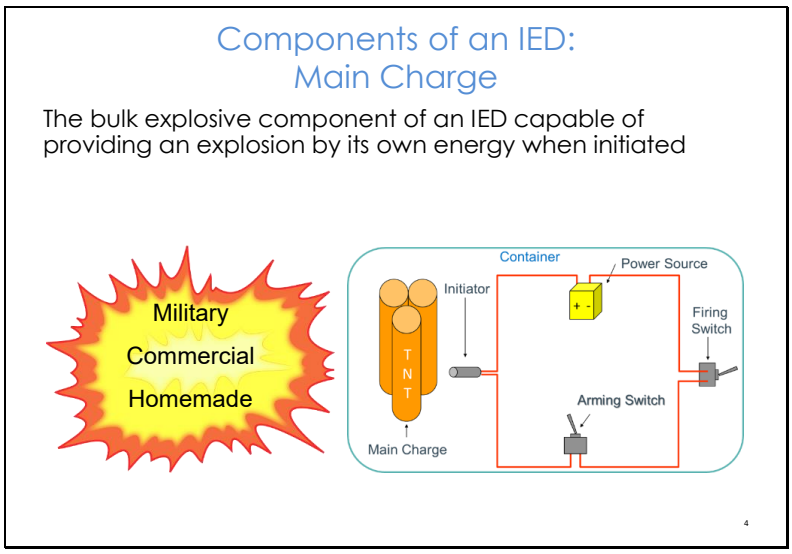
Image Left – these are an example of several military and commercial initiators. Those on the top are all electrical and those on the bottom are non – electrical. There is no significant difference between military and commercial initiators.

Image Top Right – the initiator in a grenade can be used to make a homemade non-electrical initiator.

Image Bottom Right – this is an example of a homemade electrical initiator.

All images courtesy of UK MOD.

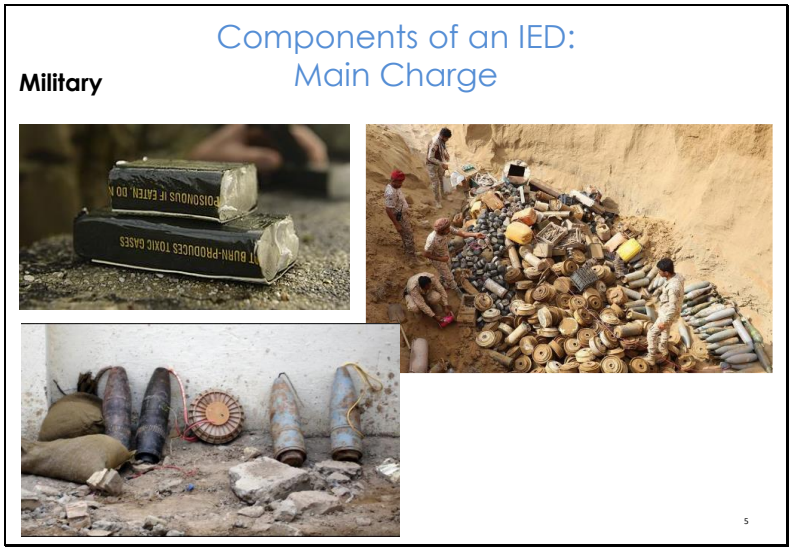
Slide 13



Explosives come in many shapes and forms, and we will consider explosive effects as part of this.

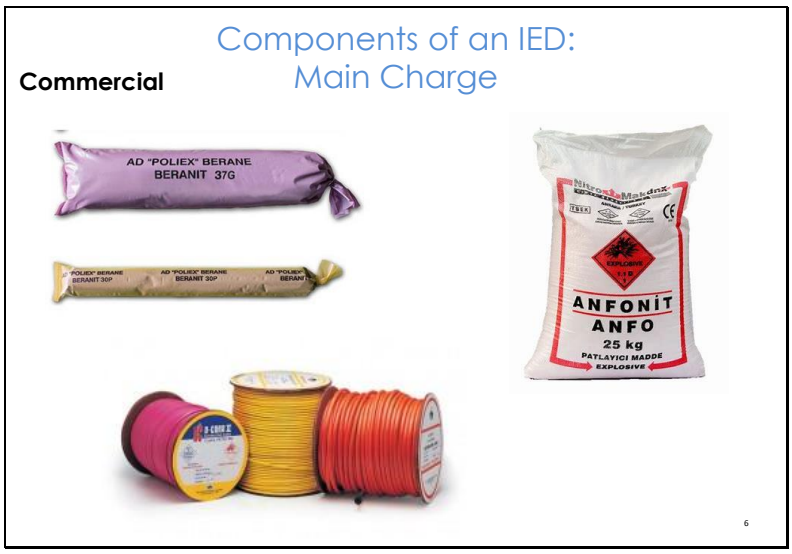
Just like detonators, there tend to be three categories of explosives used in IEDs. Military and homemade are the most common types used by organised IED networks, but commercial explosives are seen if there is a ready supply.

Slide 14



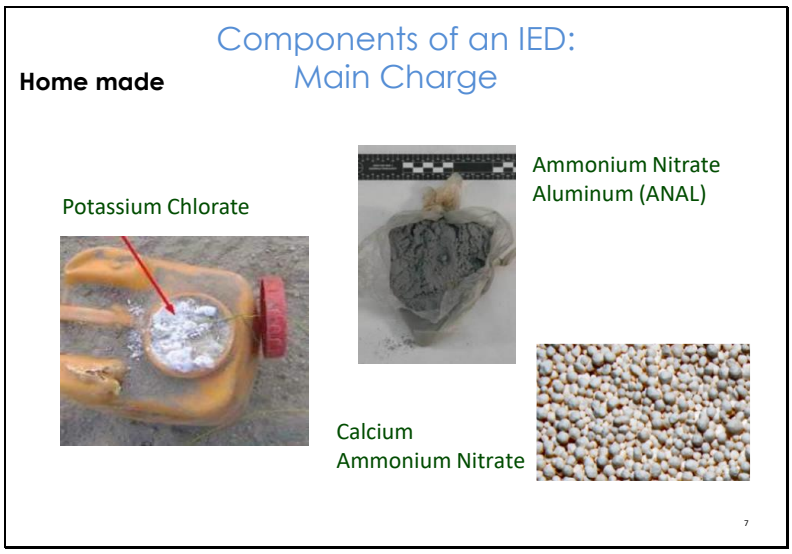
Military explosives can used in IED in a variety of way. It could be either bulk explosive such as C-4 (see image Top left – courtesy Wikipedia) or using complete munitions (mortars, mines, projectiles, grenades etc) in their current state (see Image Bottom Left – courtesy US DOD). Where there has been a conflict there are often many military munitions available for use by insurgents – they will often be happy to use ERWs and harvest mines from minefields. Obviously, most munitions already incorporate the appropriate target effect (fragmentation, blast) (see image Right – Courtesy Getty Images). Alternatively, the explosive from several smaller mines can be harvested to make a much larger main charge.

Slide 15



Commercial explosives are used by the civil engineering and mining sectors usually for quarrying, construction or demolition. Although these are licensed products they can be stolen or acquired by illicit means. They come in a variety of forms; solid, power or liquid. They can occasionally be in brightly coloured packaging but often they can be confused with normal materials.
Image top Left – A commercial plastic explosive.
Image bottom – commercial detonating chord. Although bright in colour this could be confused with insulated electrical wire.
Image Right – Ammonium Nitrate based explosive. Despite the label, this could be confused with fertilizer.

Slide 16



The manufacture of HME is widely known and it is easy to get recipes on the internet. There are many effective mixes – some require specialist chemicals – some don't.
Chemicals range from commonly used fertilizer (Ammonium Nitrate) to specialist industrial chemicals that can only be made in sophisticated factories – but have a legitimate use elsewhere.
All images courtesy of UK MOD.

Slide 17

Components of an IED: Power Source

A device that stores or releases electrical or mechanical energy. Used to provide power to the electrical initiator.

In most cases, the power source is usually a battery.

Common battery types include:

- 12V car batteries
- 12V Motorcycle batteries
- 9V and 6V dry cells.
- Multiple AA or D cells

12V Motorcycle Battery

6V Motorcycle Battery

9V Battery used in PBIEDs

1

Power Source: The key elements of information about a power source are its type and source, number of batteries and their configuration (series or parallel), it's voltage (if electrical) and how it is connected to close an IED switch.

Overview

Common types of batteries used as power sources include:

- 12V Car batteries
- 12V Motorcycle batteries
- 9V Dry Cells batteries
- 6V Dry Cells batteries

Image source unknown

Slide 18

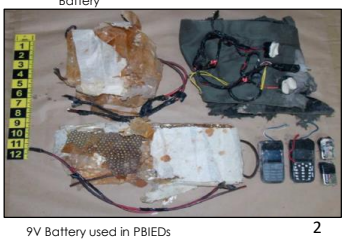
Components of an IED: Power Source

The key elements that determine the type of battery are:

- Availability
- Method of delivery
- Lead time for emplacement
- The number of initiators in the device.

12V Motorcycle Battery

6V Motorcycle Battery



9V Battery used in PBIEDs

2

The type of batteries used depends on:

- The **availability** of the batteries – Readily available batteries are typically used in IEDs as power source. For example, during the NATO ISAF mission in Afghanistan, AA batteries were readily available and so were often put together in series to make a suitable power source. In Somalia, the readily available motorcycle batteries are frequently used in Victim and Command IEDs.

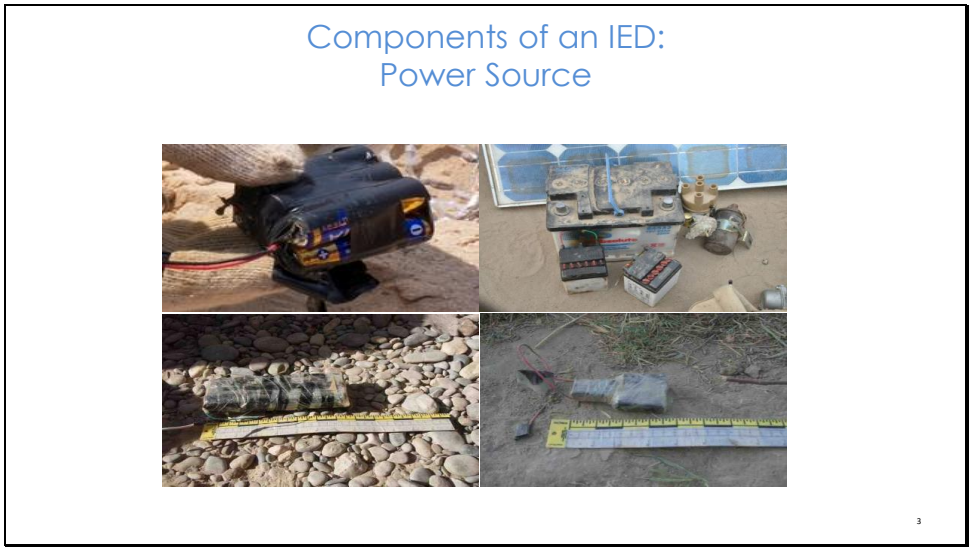
- **Method of delivery** – Person Borne IEDs have smaller batteries that can easily be hidden under the clothing. IEDs delivered by vehicles such as SVBIEDs and VBIEDs utilizes car batteries. Also, the mode of transport of the placer will play a role, if a placer or triggerman is on foot, they are unlikely to be able to carry a 12v car battery.

- **Lead time between emplacement and activation** of the device – The longer the waiting period the bigger the battery.

- In general, the greater the number of initiators in an explosive train, the larger the power source needs to be.

Image source unknown

Slide 19



Here we can see some example of common power sources used in IEDs.
Top Left and Bottom Left – common AA batteries connected in series and parallel. There were commonly used in Afghanistan. Interestingly, there was evidence of used AA batteries being discarded by some troops on patrol that were subsequently collected by the Taliban and used in IEDs to target the very same troops

Top Right – 3 different power sources, the large 12v car battery, two smaller 2 smaller 12v motorcycle batteries. Can you see the 3rd? Answer – the solar panel behind the batteries could be used as a power source.
Bottom Right – 3 9V batteries connected to make a more powerful battery.
Images sources unknown.

Slide 20

Components of an IED: Container

- An IED Container is any item with a void within it, into which the other components of an IED are placed.
- IED containers can simply contain components of an IED or can also act to **conceal** the components and / or **confine** the explosive material of the IED which can produce direction effects.
- The container can serve both as a container and potentially an enhancement.

4

An **IED Container** is any item with a void within it, into which the other components of an IED are placed. IED containers can simply contain components of an IED or can also act to **conceal** the components and / or **confine** the explosive material of the IED which can produce direction effects.

There are various forms of containers used by threat actors in t**ransportation** and **emplacement** of IEDs. Containers can be used for explosive use only or to carry more than one component of the IEDs.

An IED typically looks like whatever the container it uses. Anything that has a void in it can in theory be used as an IED container.
Image source unknown.

Slide 21

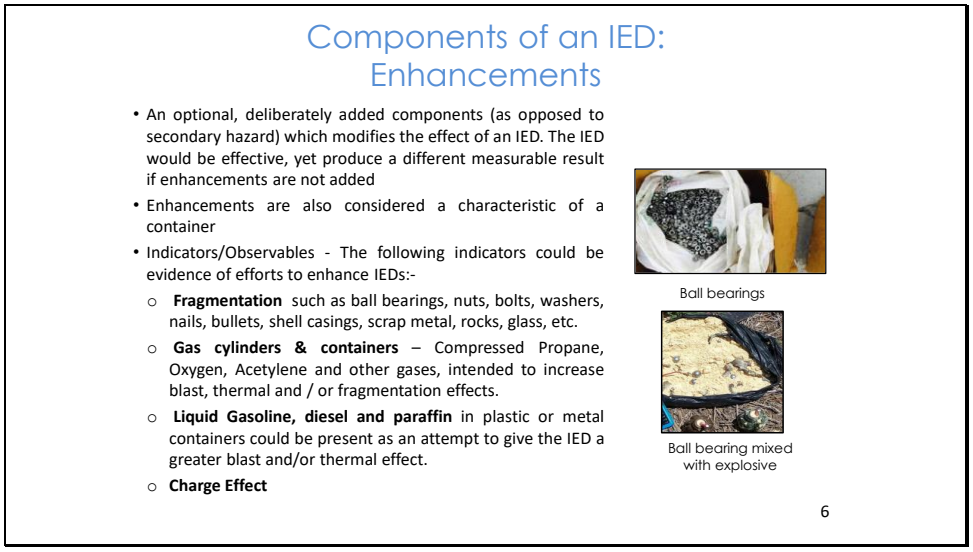
Components of an IED: Container

- **Plastic Containers** – 5 litre Milk Container & Yellow Oil Drums
- **Small Metal Boxes** - UVIED
- **Military Ordnance (MILORD)**
- **Vehicles (VBIED)**
- **Machined containers** for directional effects
  - Directional Fragmentation Charges (DFC)
  - Improvised Claymores (IC)
  - Platter charges
  - Explosive Formed Projectile (EFP)
- **Vests** – used by PBIED

5

These are some examples of common IED containers. The yellow cooking oil drum serves as a simple container, usually just to hold the main charge, usually HME. When trying to conceal UVIEDs, they will usually be contained in a metal box to help it look like a part of the vehicle. When military ordinance is used, the explosive material is usually already contained in some kind of delivery system e.g. an artillery shell. This is a container but can also act as an enhancement. Machined metal containers are fabricated to contain large but portable IEDs. They are fabricated to achieve directional effects such as directed fragmentation charges (DFC) or improvised claymores, platter charges or an Explosive Formed Penetrator (EFP) effect. These types of IEDs can be designed to target personnel (DFC or improvised claymores), soft skin vehicles (platter charges) or armoured vehicles (EFP). In the case of vehicle bourne IEDs, one can say that the vehicle itself is a container.
Image source unknown.

Slide 22

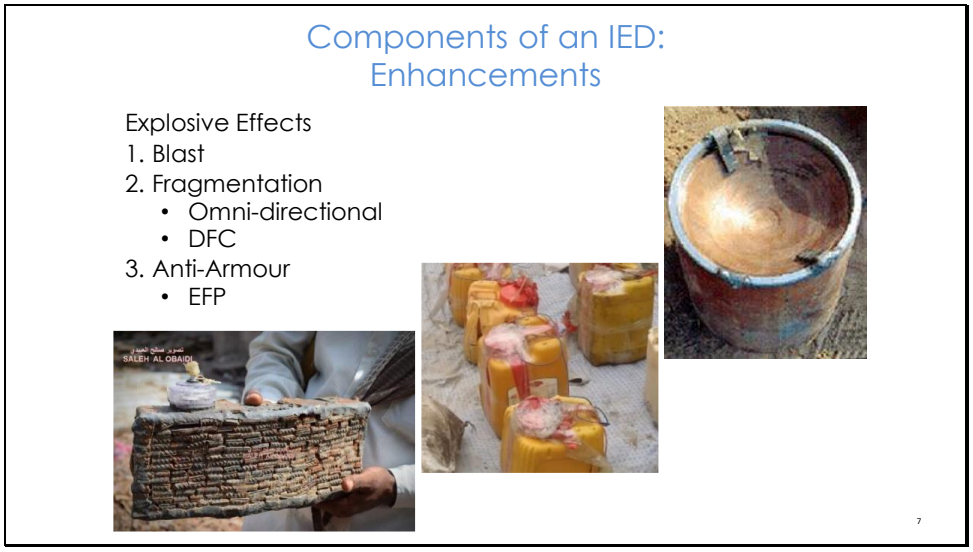


An optional, deliberately added components (as opposed to secondary hazard) which modifies the effect of an IED. The IED would be effective, yet produce a different measurable result if enhancements are not added
Enhancements are also considered a characteristic of a container
Indicators/Observables - The following indicators could be evidence of efforts to enhance IEDs:

- **Fragmentation** such as ball bearings, nuts, bolts, washers, nails, bullets, shell casings, scrap metal, rocks, glass, etc. could be present for use as an additive to the IED for purposes of providing an anti-personnel effect.
- **Gas cylinders & containers** Compressed Propane, Oxygen, Acetylene and other gases, intended to increase blast, thermal and / or fragmentation effects.
- **Powdered metals** and pastes to increase blast and/or thermal effect.
- **Liquid Gasoline, diesel and paraffin** in plastic or metal containers could be present as an attempt to give the IED a greater blast and/or thermal effect.

Image source unknown

Slide 23



Generally, there are 3 types of explosive effects used – blast, fragmentation and anti-armour.

Blast – tends to be large quantities of explosives and effective against vehicles or infrastructure – typically a VBIED will use blast as the primary effect. This does not require any enhancements.
Fragmentation is effective against personnel but is sometimes added to VBIEDs to increase casualties. Fragmentation charges generally require less explosives and can be more easily concealed. They may be omni-directional or directional. This effect generally requires some kind of enhancement.

The anti-vehicle effect is a characteristic of an enhanced container. This will be discussed more in the subsequent slides.

In terms of DtD – metal cased charges are easily detectable, however some buried plastic contained blast IEDs will have no metal content.
In terms of AtN – containers can offer some intelligence, and homemade fragmentation charges require metalwork facilities to produce, which can potentially be identified.

Slide 24

Components of an IED: Enhancements

Explosively Formed Penetrator, Self Forging Fragment

The EFP can defeat the new generation armoured vehicles.

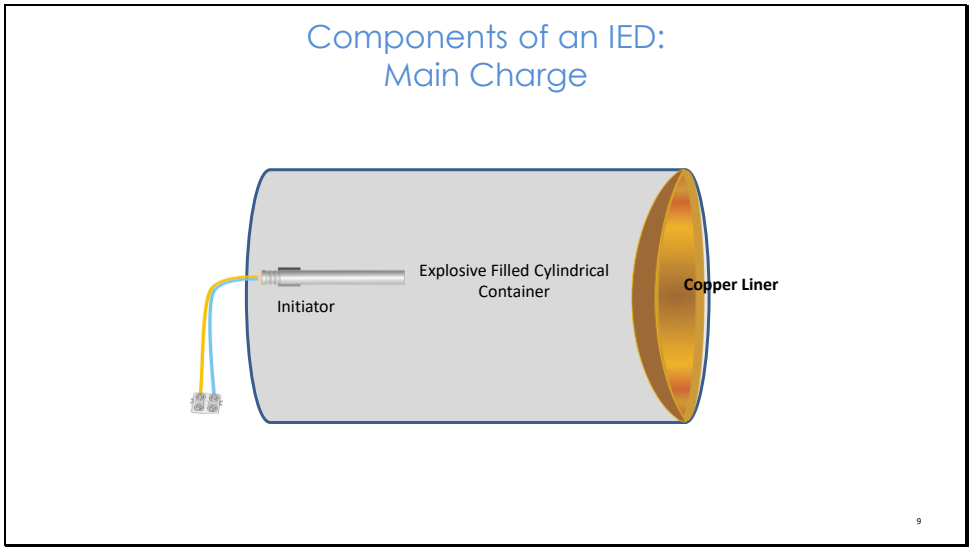
8

Anti – Armour target effects – most commonly this is achieved by using something called an EFP.

They use similar technique to military anti-armour charges by placing a shaped metal liner in front of the explosives. Which is then projected at the target at high speed.

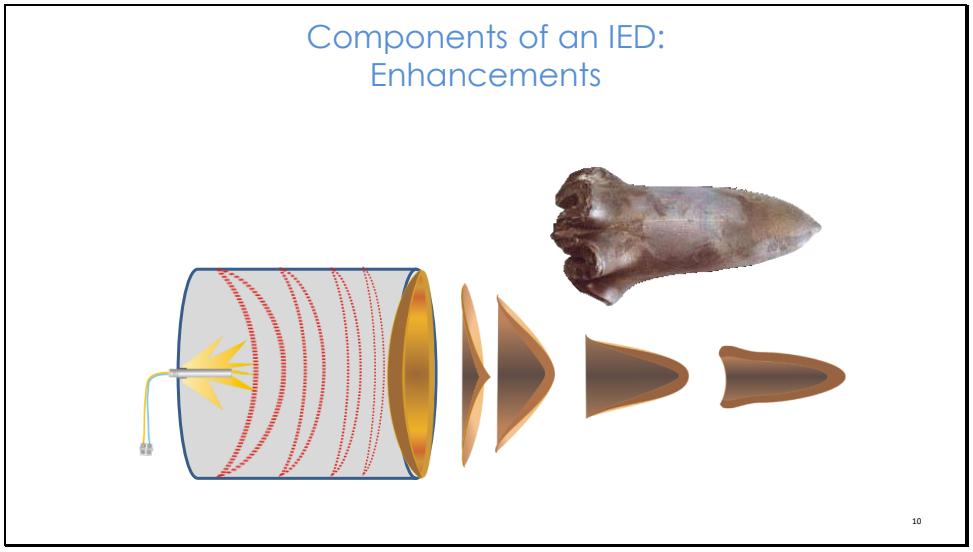
In terms of AtN – as shown metal working facilities and resources are required to produce these.

Slide 25



An Improvised EFP is likely to look like this – A detonator fitted in the rear, a cylindrical container (plastic or thin metal) containing HE and a copper liner at the front

Slide 26



This slide builds

- EFP before firing – note the shaped liner and the detonation started at the rear.
- PRESS ONCE to start animation 1. This shows the initiation and the detonation wave passing through the explosives towards the liner.

3. PRESS AGAIN to start Animation 2. This shows the effect of the detonation wave on the liner and the formation of the explosively formed projectile.

This shows the projectile shape and a high-speed photo of a projectile in flight. The speed is roughly 2-3,000 meters per second. Approx 3-4 times faster than a typical assault rifle bullet.

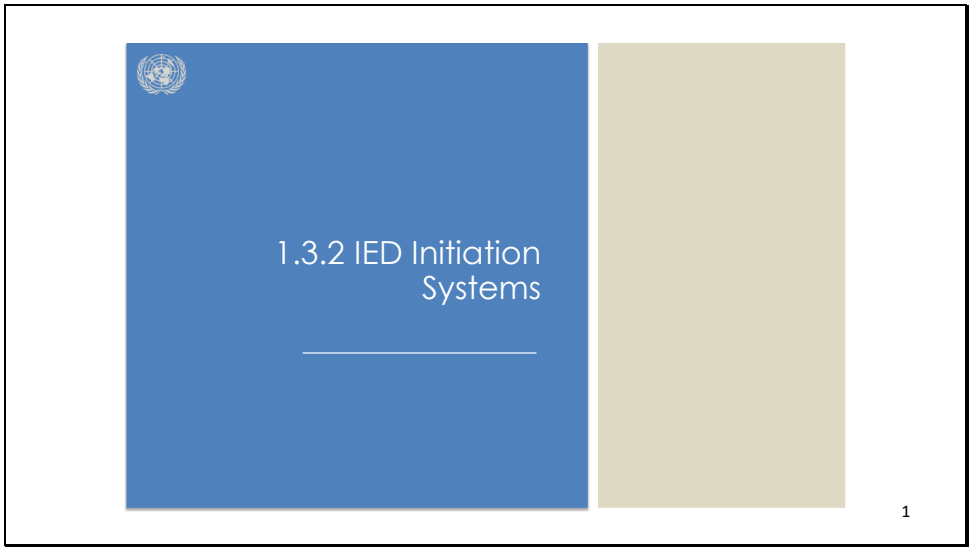
Slide 27

Questions?

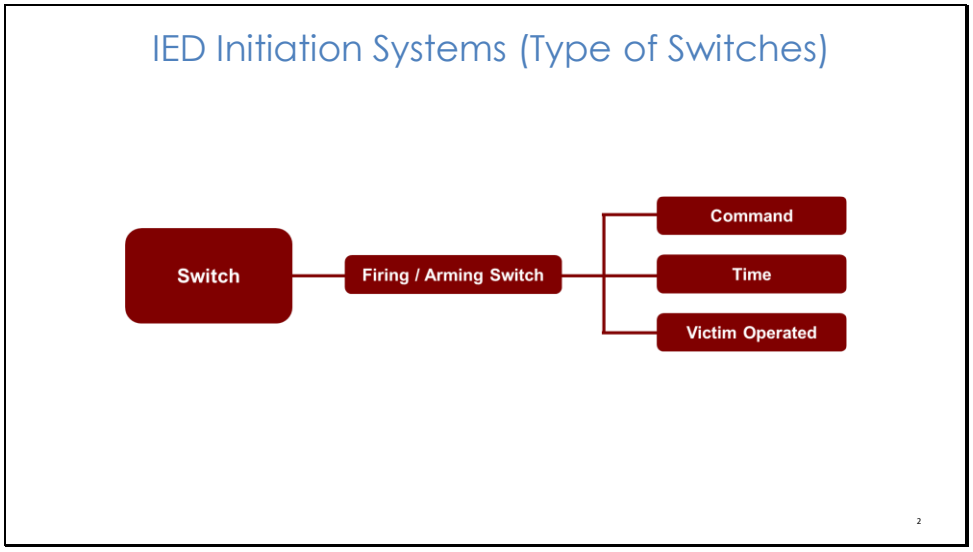
UNMAS

11

Slide 28

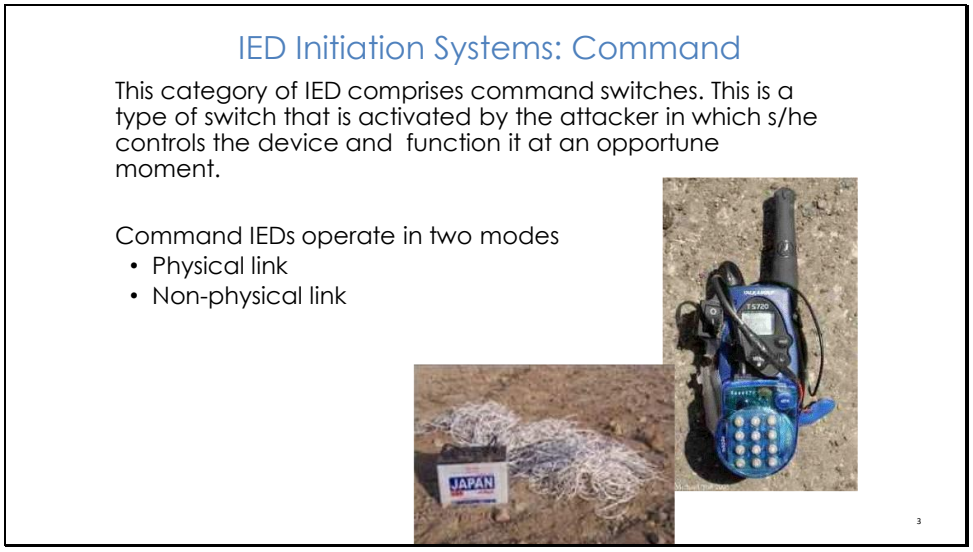


Slide 29



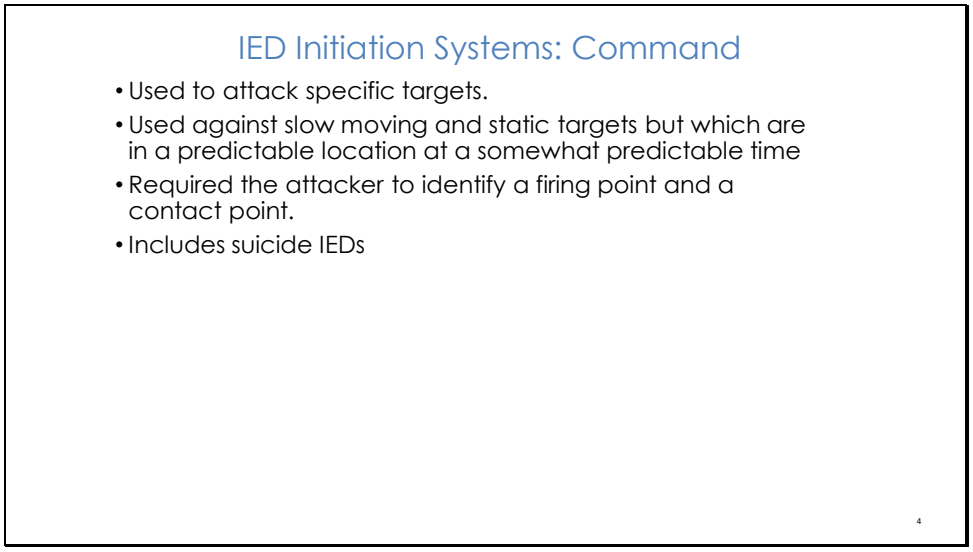
It was briefly mentioned during the section on switches that the Firing switch can generally be broken down into 3 categories. These are Time, Victim and Command operated switches. The type of switch determines the type of IED. We will now look at each of these in detail to help understand why each type of IED is used. Image: UN IED Threat Mitigation Handbook 2024

Slide 30



Command IEDs use a type of switch that is activated by an attacker in which the s/he controls the device and functions it at an opportune moment. There are a variety of different Command switches that pose significantly different challenge to CIED operations. Generally, there operate in two modes, using a physical link such as with a wire or string, or non-physical such as using a radio signal.
Images courtesy of UK MOD.

Slide 31



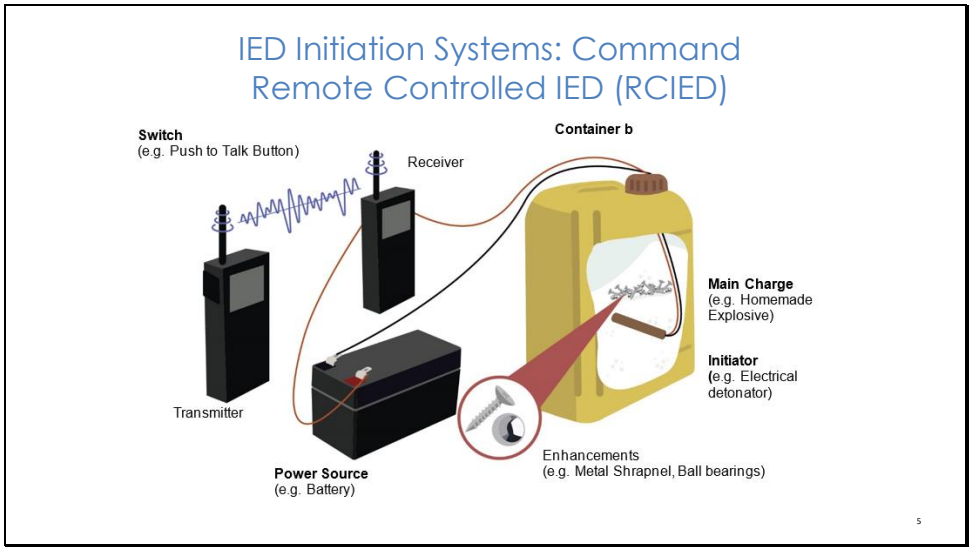
Command IEDs are generally used to target very specific targets. As they are under the control of the attacker, they can choose which specific vehicle within a convoy can be targeted for be best effect and are able to prevent harming specific groups such as civilians.

These types of IEDs can be used to target moving or static targets however moving target carry the risk of initiating the IED when the target isn't in the exact location. This means these types of IED require some kind of aiming system (usually an aiming marker) and generally require a location where a moving target will slow down to a speed at which they can be targeted. E.g. at a sharp road bend, a junction or a narrow bridge. These are often called vulnerable points; we will discuss these in more detail later in the course.

Command IEDs also require the attacker to identify a firing point and a contact point. This means command IEDs generally require advantageous terrain to be employed.

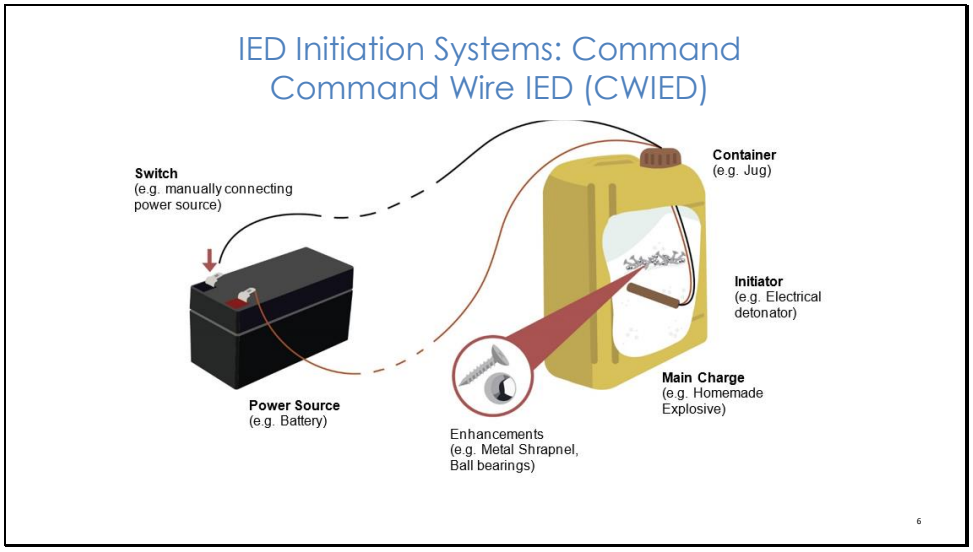
Suicide IEDs are also considered a type of Command IED.

Slide 32



As mentioned, there are two main types of Command IED – those that use a physical and those that use a non-physical link. The most common form of non-physical link is the use of a radio or other electro-magnetic signal. These are referred to as remote control or RC IEDs. These use a transmitted which send an electro-magnetic signal to a receiver. This receiver then closes a circuit and initiates the IED. This can be either a short transmission using a car alarm key which can be as little as 20m, or it can use a radio signal which can be many hundreds of meters, or it can use a mobile phone signal which could be from anywhere as long as the firing point can see the target at the contact point.
Image: UN IED Threat Mitigation Handbook 2024

Slide 33



The most common form of physical Command IED is using a Command wire or CW IED. A Command Wire IED is a simple physical electrical cable linking the triggerman to the explosives. The battery may be at either end or the physical act of completing the circuit acts as the firing switch. CWs can be detected during search operations. They are also significant in that often-aiming markers are present, and triggerman location cannot move once the IED is emplaced. Domination of high ground can provide a deterrent to the triggerman.

Image: UN IED Threat Mitigation Handbook 2024

Slide 34

IED Initiation Systems: Command Suicide

Usually refers to an individual wearing explosives and detonating them in order to kill others including themselves.

The bomber will conceal explosives on and around their person, commonly using a vest and will use a timer or some other trigger to detonate the explosives.

The logic behind such attacks is the belief that an IED delivered by a human has a greater chance of achieving success than any other method of attack

7

Image courtesy of UK MOD.

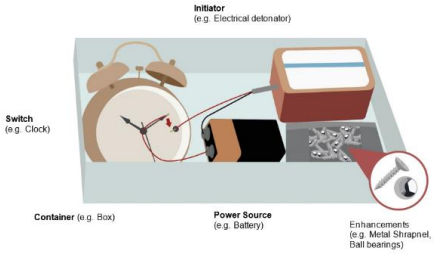
Slide 35

IED Initiation Systems: Time

- Time initiated is the method by which an IED self-initiates at a predetermined time or delay.
- The relies on accurate predictions by the aggressors of the intended target's time at a specific location.
- Used for targeting static, predictable targets.

Types of timed IEDs

- Mechanical
- Chemical
- Electronic



8

Time initiated is the method by which an IED self-initiates after a predetermined delay. This is achieved using mechanical, electronic and non-electric timers. The effectiveness of a time initiated IED relies heavily on accurate predictions by the aggressors of the intended target's time of presence at the emplacement location. These types of IEDs are used for targeting specific targets in static locations which have a predictable pattern. There are generally 3 types of Timed IEDs – Mechanical, chemical and electronic timers.
Image: UN IED Threat Mitigation Handbook 2024

Slide 36

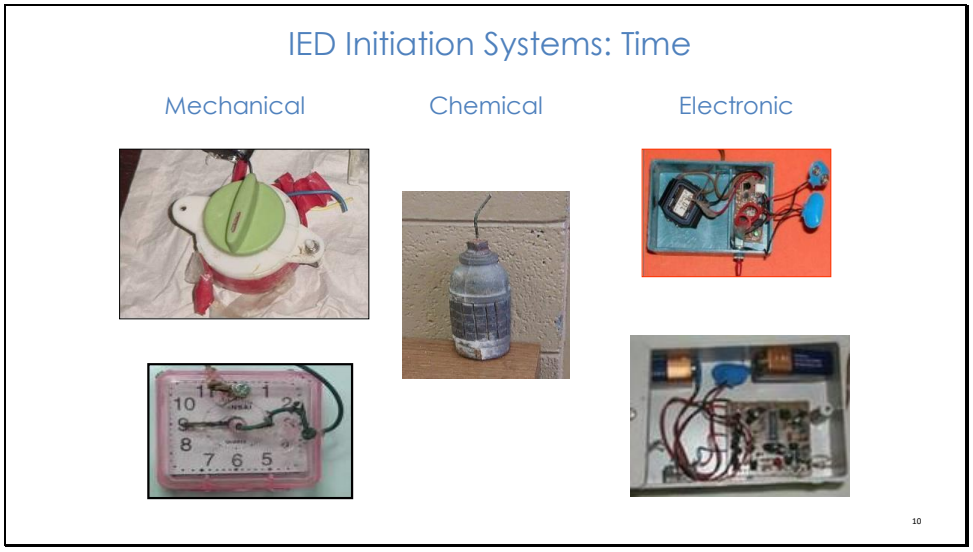
IED Initiation Systems: Time

Advantages
- Allows time to evacuate
- Allows time to escape
- Can be placed long before known event

Disadvantages
- Difficult to attack a specific target
- Can be stopped by trained IEDD/EOD team
- Once set the terrorist loses control

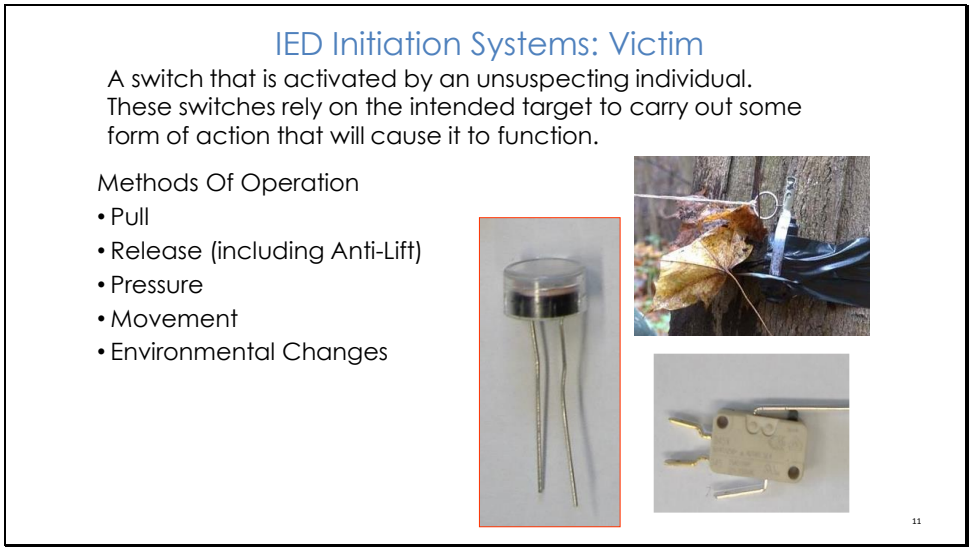
9

Slide 37



These are some examples of Time IEDs. Mechanical timers use a physical mechanism to close a switch. In this case these use the hand of a clock or a microwave timer. A simple chemical timer could be a burning fuze or a chemical reaction releasing heat (exothermic). Electronic timers are slightly more complex and use digital watches or electronic circuits to initiate a device.
Image source unknown.

Slide 38



A switch that is activated by an unsuspecting individual. These switches rely on the intended target to carry out some form of action that will cause it to function.

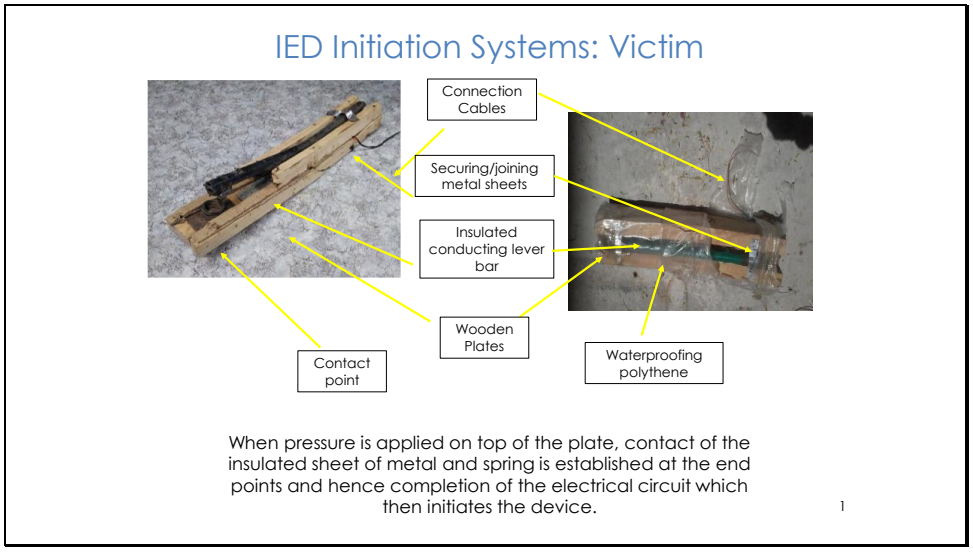
There is various method in which a victim operated will function. The most common being pressure in the form of improvised pressure plate.

Instructor Reference
Methods Of Operation

- Pull – the action of pulling a chord or connector which initiates an IED. this can initiate a chemical timer such as a grenade or immediately function an IED by closing a circuit.
- Release (including Anti-Lift) – Anti-lift devices are using placed under attractive items. When the victim picks up the item, the IED functions.
- Pressure – the act of applying physical pressure which closes a switch. Most common is pressure plates.
- Movement – Use of Passive Infra-Red (PIR) sensors. These sensors are commonly found on outdoor security lights.
- Environmental Changes – use of light sensitive devices which initiate when a victim changes the environmental condition. E.g. a small solar panel could be buried and when uncovered it is exposed to light and initiates an IED.

Images courtesy of UK MOD.

Slide 39



- Medium metal switches have wooden planks that has a sheet of metal or wire attached to one of the horizontal planks with a small spring at one end. A malleable sheet of metal is insulated but one end, to the side of the spring, is left bare without insulation. The metal is adjusted to avoid contact to the spring by twisting it slightly upwards. The other ends of the two metal sheets are connected with wires to the battery and initiator. The switch can be waterproofed by use of polythene paper to avoid uncontrolled detonation in case of rains. The wooden plates are secured together by thin sheets of metal nailed to them.
- When pressure is applied on top of the plate, contact of the insulated sheet of metal and spring is established at the end points and hence completion of the electrical circuit which then initiates the device.
- Assessed to be designed to target vehicles rather than personnel owing to the pressure required to active the device.

Image source unknown.

Slide 40

IED Emplacement

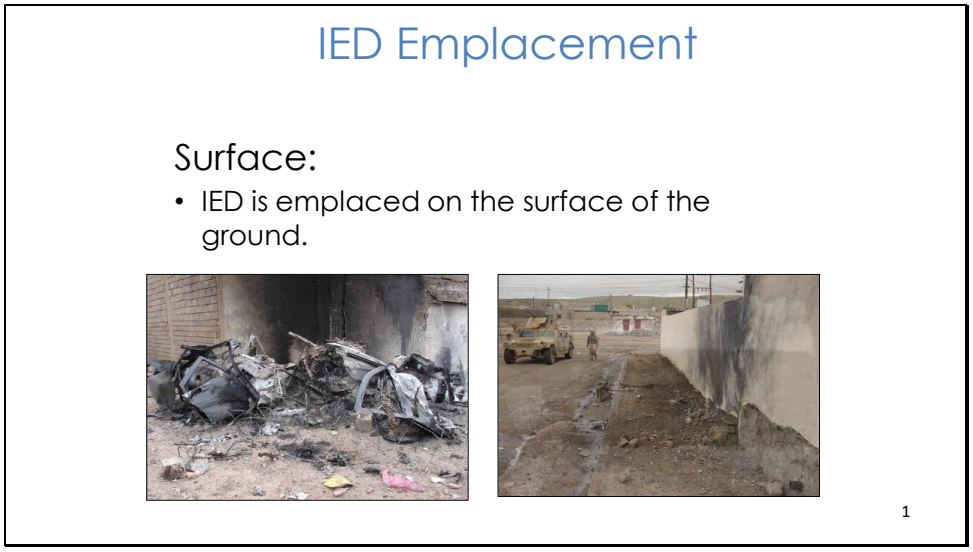
Deliberate emplacement in Stages: Normally Hidden

- Site Preparation - Hole dug at a pre-determined IED location - no conspicuous material, except a shovel.
- Emplacement and camouflaged
- Primed & Initiated – usually during daylight hours

Hasty emplacement:
Not as well camouflaged

3

Slide 42



Emplacement
A description of where a device was placed to attack the intended target. Examples of surface emplacement include Vehicle Borne IEDs (VBIED) and unburied roadside devices.

IED aggressors may pre-position the IED where there is a pattern of movement and predictability. This allows them to go unnoticed while planting the IED, it also allows them to position the IED well ahead of time.

Image source unknown.

Slide 43

IED Emplacement

Subsurface:

- The IED is buried beneath the surface of the ground.

2

IED are routinely buried by aggressor as a method of concealment.

Image source unknown.

Slide 44

IED Emplacement

Elevated:

- IED emplaced above the surface: hanging from an overpass, on a roof, etc.

3

IEDs may be found in elevated positions as well. Hostile actors may do so for various reason such as concealment or to focus their attacks on a vehicle gun mount.

Image source unknown.

Slide 45

Quiz

1. Name the components of an IED
   - *Switch, Initiator, Main Charge, Power source, Container, Switch and Enhancements (optional)*
2. Name sources of explosive used to make IEDs ?
   - *Military, commercial and Home Made Explosive.*
3. Name type of switches
   - *Command, Time, Victim operated*
4. Give examples of containers
   - *Plastic containers, small metal boxes, MILORD, vehicles, machined containers, vests*

4

Slide 46

Questions?

UNMAS

5

Lesson

1.4

IED IMPACTS AND MISSION SPECIFIC THREATS

The Lesson

Time. This module requires approximately 45 minutes to teach.

Performance Statement. At the end of this lesson, participants will be able to explain the IED threats in relation to their own specific missions and/or homeland security.

Key Learning Points. The following main teaching points are contained in the delivery of this lesson:

a Mission Specific IED Threat Brief – Placeholder slides.

b IED impact (to be tailored to the specific theatre of Operation).
   i. Impact of IEDs on delivery the mandate of the Peace Support Missions
   ii. Impact of IEDs on loss of Human life
   iii. Impact of IEDs on Political situation

Methodology. This Lesson will be introduced through the lecture method.

Infrastructure. Classroom with projection facilities.

Equipment. Nil

Instructor Guidance. This lesson requires the Instructor or training institution to develop up to date threat briefs. **This is a member state responsibility**.

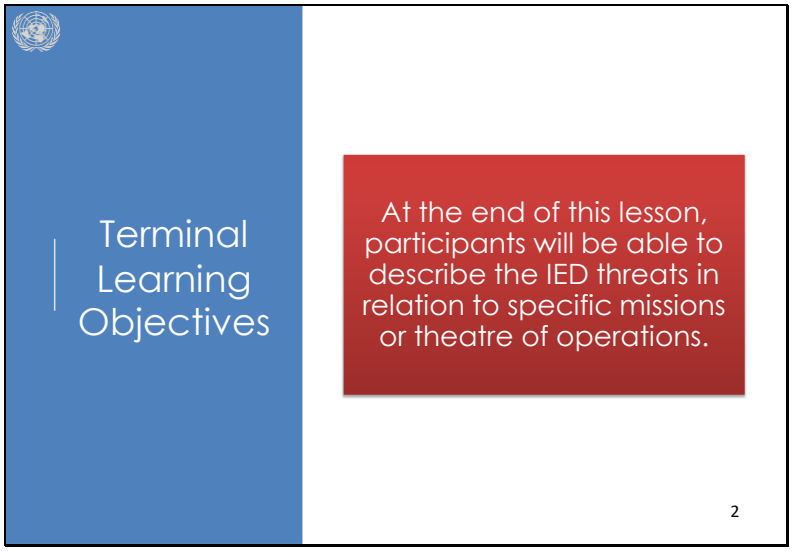
Slide 1

EHAT Lesson 1.4: Mission Specific IED Threats

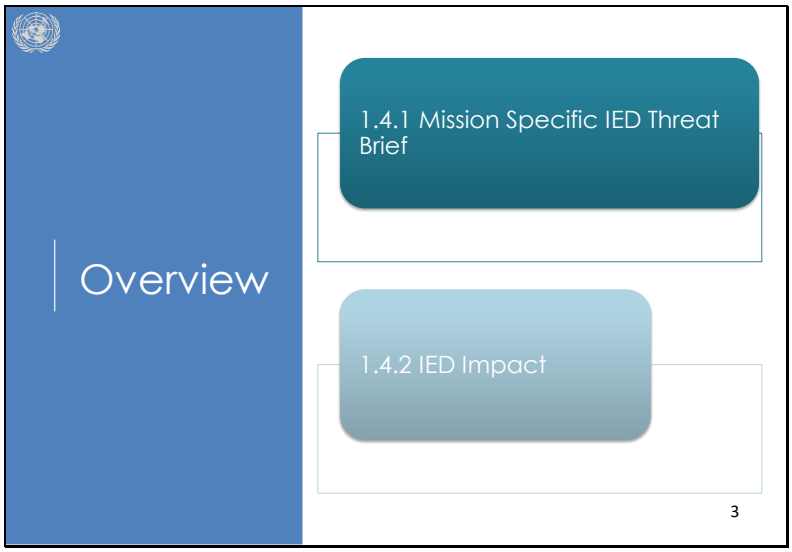
1

Find guidance inserted in the note section of each slide.

Slide 2

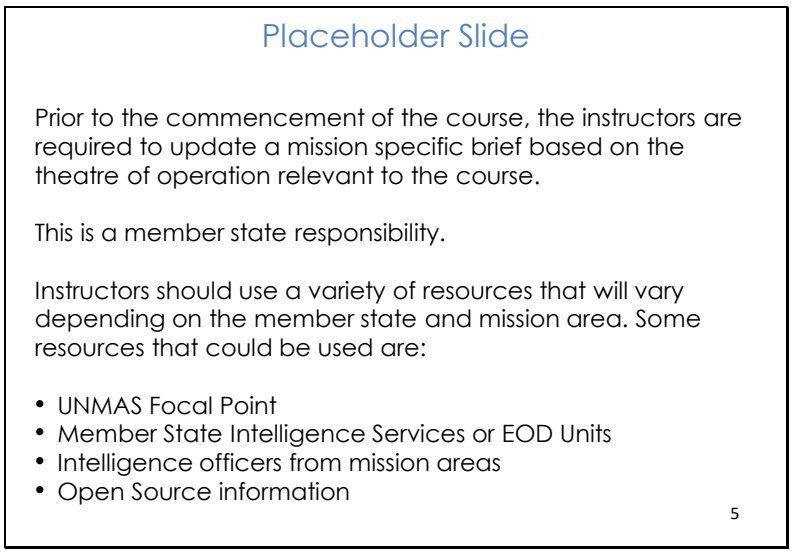


Slide 3



Slide 4

Slide 5



Important Note

This slide is a placeholder for the Member State to develop its own content/training material for the specific IED threat which they will face on their deployment.

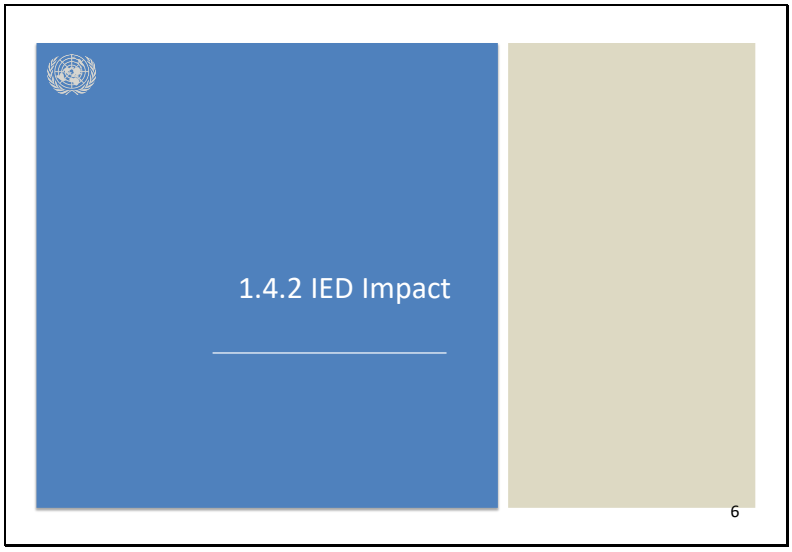
Prior to the commencement of the course, the instructors are required to update a mission specific brief based on the theatre of operation relevant to the course.

This is a member state responsibility.

Instructors should use a variety of resources that will vary depending on the member state and mission area. Some resources that could be used are:

- UNMAS Focal Point
- Member State Intelligence Services or EOD Units
- Intelligence officers from mission areas
- Open-Source information

Slide 6



Slide 7

IED Impact on Peace Support Missions

- Equalizing effect of IEDs
- Freedom of Movement
- Morale
- Threat to the peacekeepers
- Protection of civilians

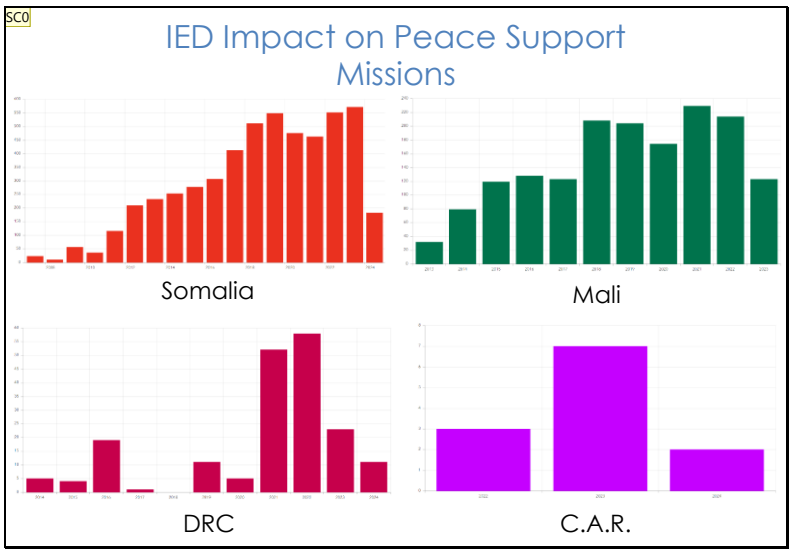
7

IEDs impact the delivery of mandated peacekeeping, and peace enforcement missions in a number of ways.

- Primarily, IEDs have an equalizing effect which means poorly equipped and trained armed groups can match up to well trained and equipped UN troops.
- Due to both the physical and psychological effect of IEDs, they are able to deny freedom of movement to UN troops. This inability to freely move, prevents UN troops from being able to effectively implement the mandate. IEDs can also affect the freedom of movement of troops for physical reasons. Dismounted troops in an IED environment often have to carry heavy CIED equipment which limits how far and fast they can deploy on foot.
- IED also have a devastating effect on troop morale. This lack of morale can further impact freedom of movement due to an unwillingness to deploy out of base locations.
- IEDs undeniably pose a threat to peacekeeper. Often in an IED environment, it is the peacekeepers who are targeted.
- Protection of civilians is often the priority objective of mission mandates. Denial of peacekeeper freedom of movement and intentional or accidental targeting of civilians with IEDs can be seen as a failure to enforce the mission mandate.

Image source unknown.

Slide 8



- Between 2016-2021, IED general trend is upwards
- Understanding nature of threat is critical.
- MINUSMA has highest EO threat targeted at the Mission, with incidents climbing steadily based on an understood and quantifiable threat.
- The EO threat in CAR is least understood or identified due to lack of site exploitation; likely to increase
- The IED threat in DRC is better identified where targets and locations are focused on Eastern Congo; likely for the incidents to go up.

Image Statistics of IED in UNPKO.

Slide 9

IED Impact on Peace Support Missions

The UN Resolution to counter the threat posed by IEDs.

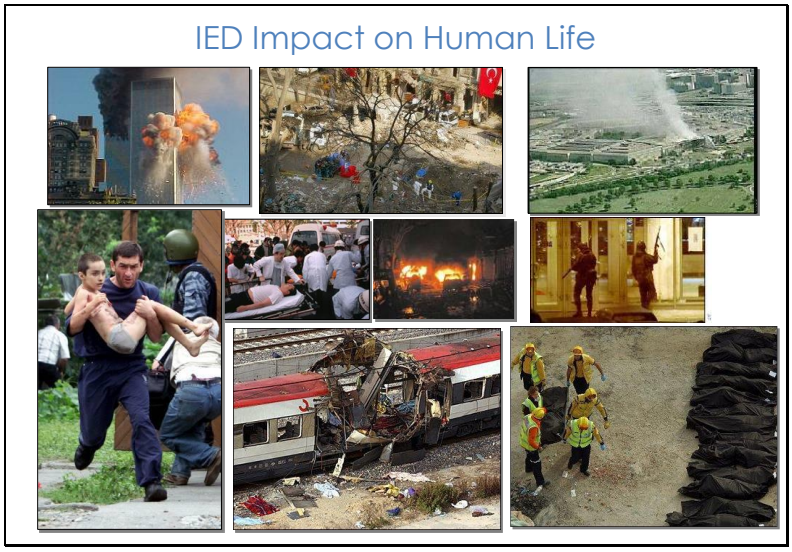
IED The Global Threat – Peacekeeping

UN Resolutions

UN Member States noted the impact of IEDs during the 70th session of the General Assembly through the adoption of two resolutions. On 7 December 2015, the General Assembly adopted a resolution on countering the Threat Posed by IEDs (A/70/46)3 whereby Member States expressed concern over IED attacks on UN personnel and the impact these attacks have on freedom of movement, and the ability to deliver on mandates. On 9 December 2015, the General Assembly adopted the resolution on Assistance in Mine Action (A/70/80)4, which recognized the humanitarian threat posed by IEDs in post-conflict situations. Impact of IEDs and the urgent need to address this issue is also highlighted in the Report of the Secretary-General (A/71/187) of 25 July 2016 'Countering the threat posed by improvised explosive devices').

The UN mitigates the threat of IEDs through activities designed to enhance the safety and security of personnel, assets and facilities and to enhance mobility of UN personnel, each of which, support the implementation of the mandate and are within the UN's right to self-defence.

Slide 10



This slide shows media images of some of the most prolific IED incidents of the last few years. Whilst there is a political impact of many IED and terror attacks, the one common impact of all IEDs is the impact on human life.

Slide 11

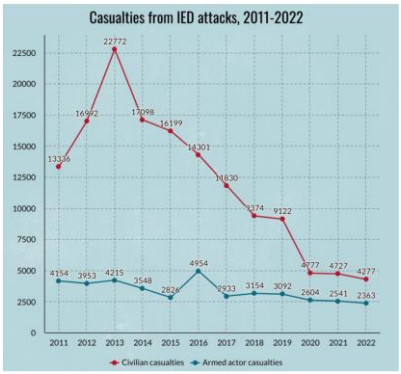
IED Impact on Human Life

Between 2010-2020*:

- About 170,000 people were killed or injured by IEDs.
- Of all the injuries and deaths as a result of explosive weapons, 47% were as a result of IEDs.
- About 136,000 of these injuries and deaths were civilians – about 80%.
- General trend in declining incidents over the 10 years.

In 2023**:

- 2,953 civilian casualties, 4,520 armed actors.
- Between Jan-June 2023 there were 117 civilian deaths in Somalia alone.



- Figures taken from the NGO Action on Armed Violence report "IEDs: Past, Present and Future".
- **Figures taken from AOAV 2023 Report.
- Graph – AOAV Report on Improvised Explosive Device (IED) Incidents
- for January – June 2023

INSTRUCTOR NOTES

Prior to the lesson the instructor is to obtain updated figures for the specific theatre of the target audience.

Slide 12

IED attacks can impact on political processes when they are used to attain power, claim territorial control, disrupt elections and target individuals and institutions, including the United Nations.

Aside from the political situation in the mission, the deadly effect of IEDs can affect the politics of the Troop Contributing Countries. IED result in both the increased loss of life, as well as increased spending required to protect peacekeepers. Both factors contribute to diminished appetite for Member States to support missions with uniformed personnel.

Attacks on humanitarian personnel can either be direct or take the form of sequential attacks on first responders after they have arrived on the scene of an incident.

Such attacks affect the delivery of humanitarian and food-related assistance and the safe return of internally displaced persons and refugees, as well as the socioeconomic recovery of affected nations.

IEDs that remain undetonated on urban or rural terrain can block humanitarian access to vulnerable populations and vital infrastructure, and hinder reconstruction efforts.

Over the last decade, hundreds of humanitarian workers have been killed or injured by IEDs. Nearly one third of the incidents occurred in Afghanistan, where one quarter of non-governmental organizations have had staff that were killed or injured by IEDs; and one third of those organizations have pulled entire operations from specific areas owing to IED threats.

Humanitarian organizations spend increasing amounts of their budget on their own security in order to ensure adequate protection for their personnel.

Slide 13

Questions?

UNMAS

2

Module

2

MITIGATION MEASURES

Module 2 at a Glance

Training Objective. To Enhance participants' knowledge of explosive hazards and their impact on Homeland Security and Peace Support Operations (PSO).

Lesson 2.1 – C-IED Mission Enabling Assets. At the end of this lesson, the participant will understand the role of different C-IED capabilities commonly found in Peace Support Operations.

Lesson 2.2 - Incident Response (5C's). At the end of this lesson, participants will be able to demonstrate the application and understanding of the 5Cs in response to explosive hazard emergencies.

Lesson 2.3 – Ground Sign Awareness. At the end of this lesson, the participants will be able to recognize the characteristics of sign and understand how ground sign is seen and how it can be linked to possible IED activity.

Lesson 2.4 – Vulnerable Points and Areas. At the end of this lesson, the participants will be able to recognize vulnerable points and areas concerning explosive hazards.

Lesson 2.5 – C-IED Checks - 5/25m checks. At the end of this lesson, participants will be able to demonstrate understanding of why the 5/25m check is used and its correct demonstration.

Lesson 2.6 – Basic Search. At the end of this lesson, participants will be able to undertake basic person and vehicle search as well as VP 360 domination procedures.

Lesson 2.7 – Mine Awareness. At the end of this lesson, the participant will understand on Mine Awareness hazards in PSO.

Lesson

2.1

C-IED MISSION ENABLING ASSETS

The Lesson

Time. This module requires approximately 45 minutes to teach.

Performance Statement. At the end of this lesson, the participant will understand the role of different C-IED capabilities commonly found in Peace Support Operations.

Key Learning Points. The following main teaching points are contained in the delivery of this module:

(1) C-IED Capabilities
   a. Search
      i. Search Team and Advisor
      ii. Explosive detection dog
      iii. Search and Route clearance package
   b. Disposal
      i. EOD Teams
      ii. IEDD Teams
   c. Exploitation
      i. Weapon Technical Intelligence (WTI)
      ii. Post-blast investigation
   d. Electronic Counter Measures (ECM)

Methodology. This Lesson will be introduced through the lecture method combined with class discussions and Q&A sessions.

Infrastructure. Classroom with projector facilities.

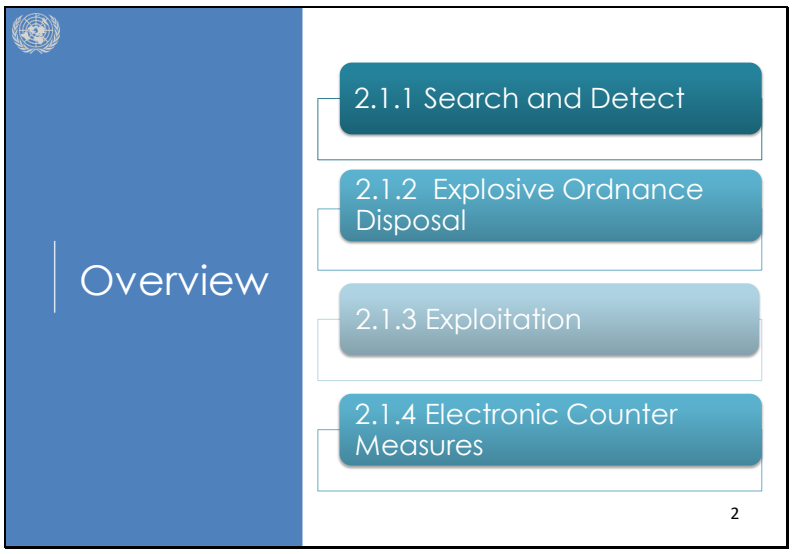
Slide 1

Lesson 2.1: CIED Mission Enabling Assets

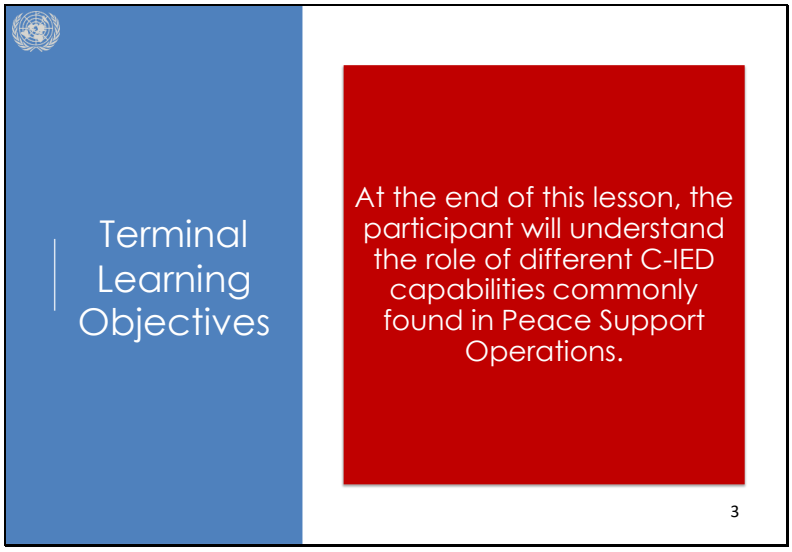
1

Find guidance inserted in the note section of each slide.

Slide 2

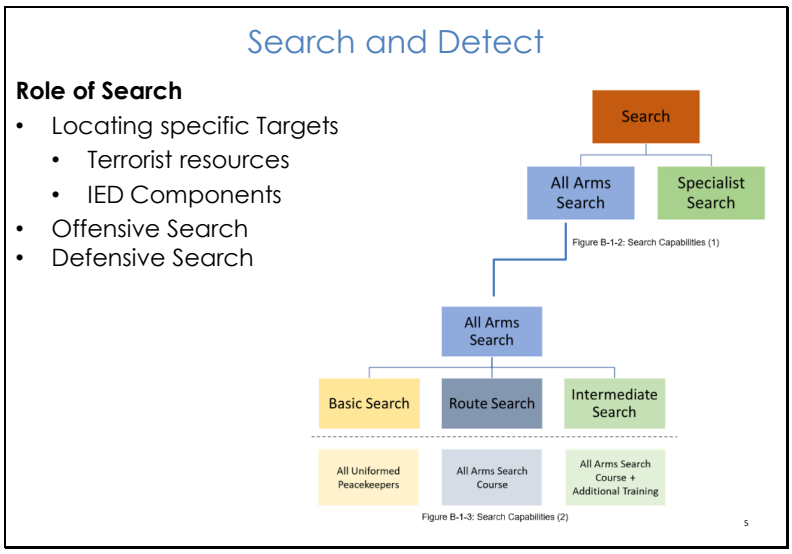

Overview
2.1.1 Search and Detect
2.1.2 Explosive Ordnance Disposal
2.1.3 Exploitation
2.1.4 Electronic Counter Measures
2

Slide 3


Terminal Learning Objectives
At the end of this lesson, the participant will understand the role of different C-IED capabilities commonly found in Peace Support Operations.
3

Slide 4

Slide 5



Search is the capability to locate **specific targets** using **intelligence assessment, systematic procedures** and **appropriate detection techniques**. The specific targets can vary but these are usually Terrorist Resources and IED component. Not only are they searched for when deployed but also:

- In manufacture
- In transit
- In storage
- And when deployed.

Search is a key enabler, providing the means to shape and control the environment in which military assets are active or where there are security interests across the operational framework. Search can be broken down into two distinct elements offensive and defensive

Offensive Search:

- Acquire intelligence
- Deny Threat resources
- Gain evidence for prosecution

Defensive Search:

- Force Protection
- Protection of events
- Protection of infrastructure

In its broadest terms search can be broken down into all arms search capabilities and specialist search capabilities.

- **All Arms Search**. Search capabilities employed by non-specialist members of a unit. There are different levels of all arms search capabilities.
- **Specialist Search**. Search capabilities employed by advanced search personnel trained, equipped, and qualified to do so. Information regarding Specialist Search is contained in the UN Military Engineer Unit Manual. Examples of specialist search operations include defensive building search, Confined spaces search, Hazardous environment search, aircraft search or support to EOD.

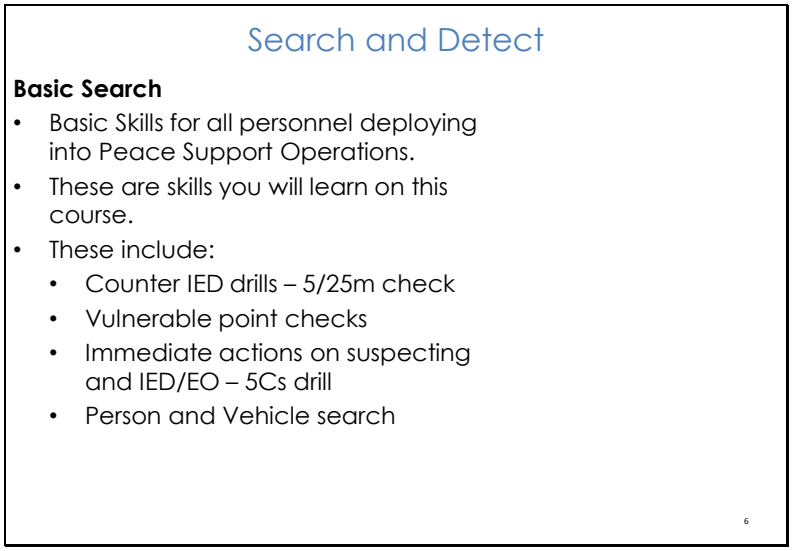
Within All Arms Search there are three levels of search capability, namely:

Basic Search – This is a skill all peacekeepers should have which gives them an awareness of search and basic search TTPs.

Route Search – Route search is a team skill for conducting assessed parts of routes for the presence of EO and IEDs.

Intermediate Search – Intermediate search includes route search skills with the addition skills such as Area Search, and compound searches.

Slide 6



Basic search is a core skill which all personnel deploying on UN PSO should have. These are skills you will learn on this course which will help you to minimize the risk posed by IEDs and other explosive hazards. These drills include:

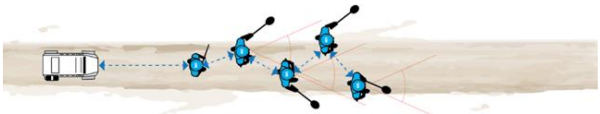
- Counter IED drills – 5/25m check
- Vulnerable point checks
- Immediate actions on suspecting and IED/EO – 5Cs drill
- Depending on the rule of the mission, Person and Vehicle search is also covered.

Slide 7

Search and Detect

Intermediate Search

- Operate as a team.
  - Team Commander
  - 2IC
  - 4 Searchers (6 for ATMIS)
- Distinct function to EOD
- All mobility Units must have 1-2 teams
- Specially equipped with detectors and ECM
- Planning Considerations – Time



7

In the UN mission setting the success of the IED TM effort is largely dependent on information-based operations against IEDs and precursors. All mobility units are to count with All Arms Search Teams (AAST) comprised of trained searchers, equipped with precision search equipment and ECM, capable to conduct basic search procedures. More detail will be covered later in the course, but it is worth highlighting at this stage that commanders and planners must consider the time it takes to conduct search operations. For example, a point VP (e.g. a road culvert) will typically take an hour to search assuming no IED is discovered. Advice on the time for search operation should be sought from the Search Advisor or search team commander.
Image Right – Bangladeshi Search Team on operations in Mali.
Image Bottom – an example of how a route search team operate as a team. More detail will be covered in subsequent lessons.

Slide 8

Search and Detect

Search – Explosive Detection Dogs

- Explosive Detection Dogs (EDD) trained to locate and correctly indicate explosive substances
- Target active threats
- Considerations:
  - Handler + Dog
  - Special support required
  - Early planning

8

Explosive Detection Dog (EDD) refers to a dog specifically trained to locate and correctly indicate, the presence of vaporised molecules of defined explosive substances. EDDs are used in many different roles within security risk mitigating operations and, as such, complement an existing security framework. EDDs are well suited for activities such as, Entry Control Point (ECP) deployment (vehicle and luggage/cargo verification), facility security verification, open area verification and IED incident response.

EDD training and deployment are significantly different from those of Mine Detection Dogs (MDDs). EDDs target an "active threat," which is the main reason why the prevention of "false indications" during assessment procedures is more important for EDDs than for MDDs. Additionally, EDDs operate in search areas where control of surroundings (environmental control) cannot always be achieved, which increases the demands on their ability to operate in different environments with disturbances, as well as on environmental stability.
Planning Considerations:

- EDD is the dog and the handler
- EDD require climate-controlled living spaces, break areas and vehicles. EDDs may also require a specific diet that is not available in the host country. Additional equipment, and support requirements may vary dependent on troop contributing nation. If deploying an EDD, the vehicle space for dog and handler, as well as air conditioning, food and water must all be factored.
- EDD Logistics support, limitations and capabilities should be addressed early in the mission planning process, if EDDs will be used.

Slide 9

Search and Detect

Search – Explosive Detection Dogs

- Limitations:
  - Time
  - Wind
  - Rain
  - Heat

9

Just like humans, EDD cannot work indefinitely. They need to be used for a limited specific time periods before being rested. This time will depend on the environmental conditions such as the temperature. It is also worth noting that EDD rely on their sense of smell. Factors such as strong wind and rain will severely affect the dog's ability to identify a target.

Slide 10

Search and Detect

Route Clearance Package (RCP) or Mission Enabling Unit (MEU)

- Identify and remove IED and explosive hazards
- Provide Freedom of movement
- Specifically Equipped
- Capability varies based on contributing countries

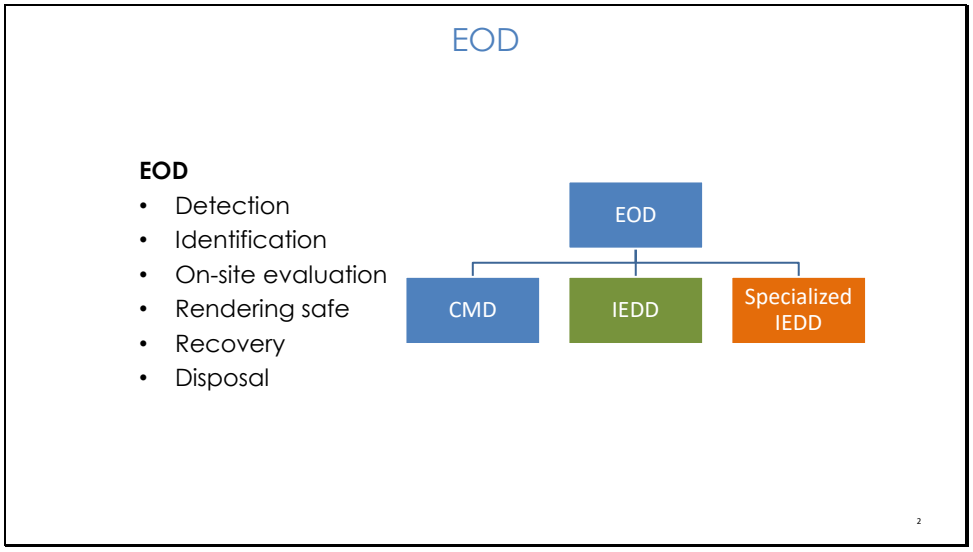
10

Route Clearance Package or Mission Enabling Unit is specially equipped teams with the equipment designed to aid in identifying IEDs and explosives hazards along routes of travel and to within the mission area. They may also be equipped to me able to remove obstacles and open/improve by-pass routes. These can either be formally established as part of the mission (as in ATMIS) or they can be put together Ad-Hoc for specific tasks. Generally, these include Search Teams, and EOD Team and engineer equipment.

Image – Source unknown

Slide 11

Slide 12

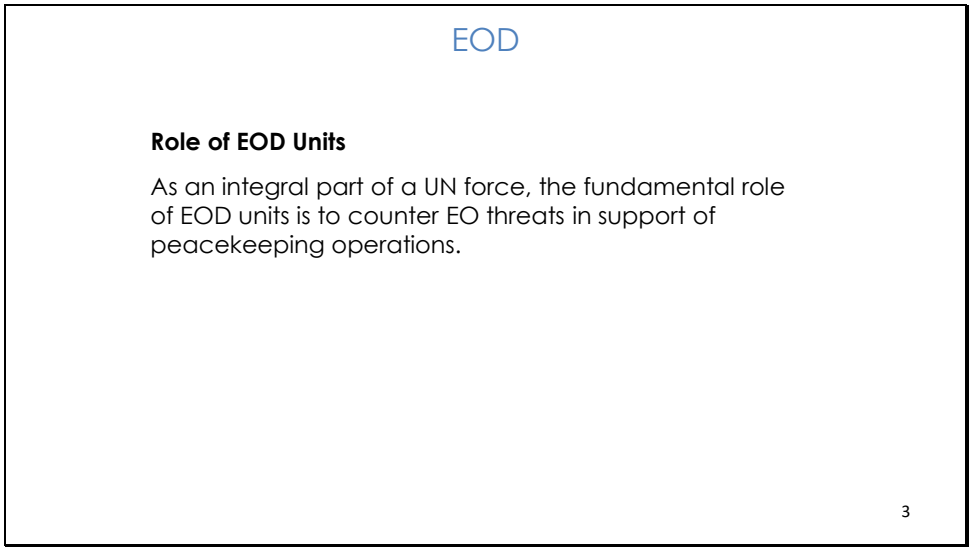


Explosive Ordnance Disposal (EOD) includes the detection, identification, on-site evaluation, rendering safe (making the EO/IED safe by specific techniques), recovery and disposal of explosive ordnance, including IEDs.

EOD Units will be assigned the mission of search, disposal and component recording and recovery to effectively mitigate EO threats in support of Force Protection (FP) and Protection of Civilians (PoC).

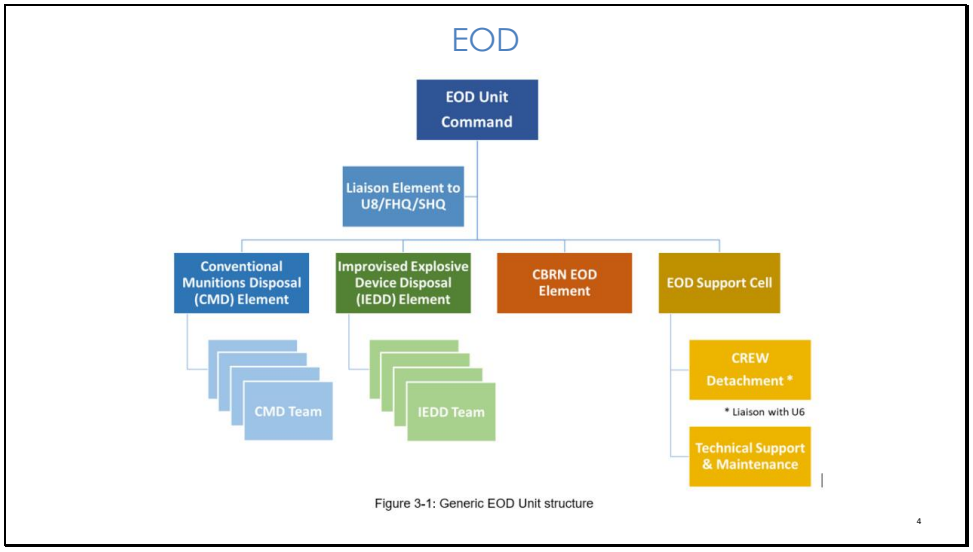
The term EOD is a broad term which covers 3 distinct fields, Conventional Munitions Disposal (CMD), IED Disposal (IEDD) and specialized EOD which includes maritime, Assault IEDD and CBRN IEDD. Its important to understand the different role of CMD and IEDD so they are employed correctly. As planners, if an EOD unit is attached, you must understand what specializations the EOD unit has.

Slide 13



Ref: UN EOD Unit Manual

Slide 14



The diagram pictured on the slide is a generic military EOD unit structure containing a HQ element with CMD, IEDD and support cell components.

Capabilities

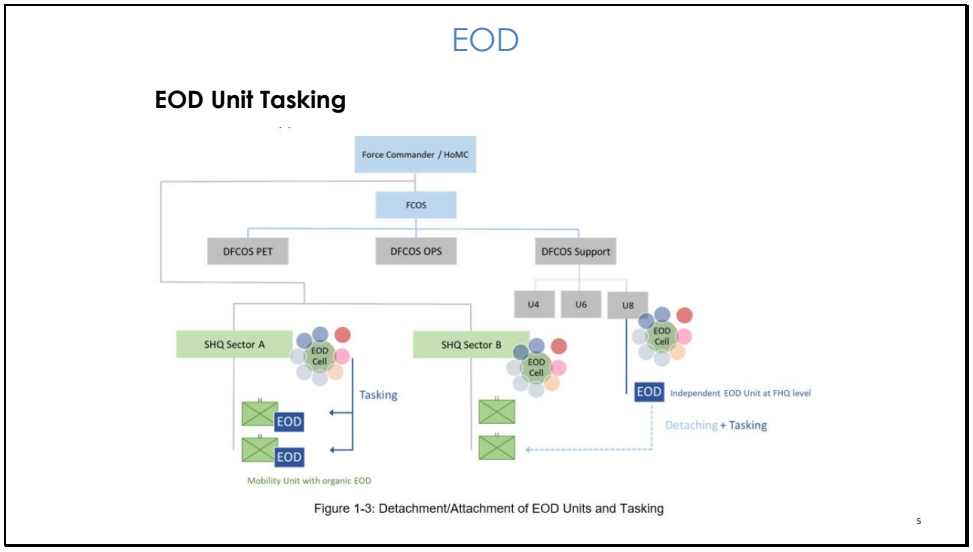
The core capabilities of a military EOD unit include:

- CMD activities.
- IEDD activities.
- Support to mission partners.

Note: EOD Units must always be scalable in size, modular in function and mission tailored. The EOD unit size and composition depend on the mission size, composition and requirements it supports and the physical characteristics of the mission area.

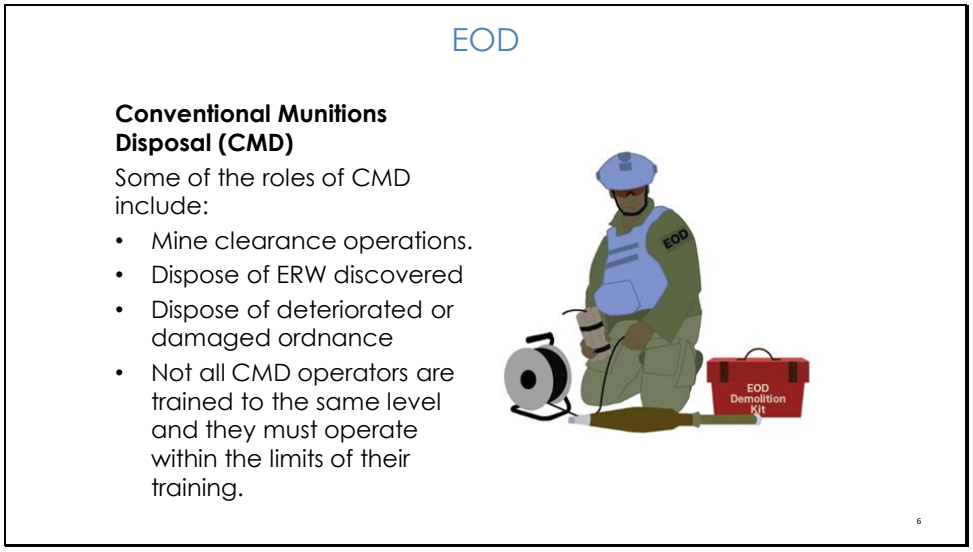
Note: Generic UN EOD model does not include integrated Search Teams. This function is carried out by all arms.

Slide 15



EOD units can deploy as an individual unit and be tasked by the FHQ to serve as general area support, or dedicated unit or mission specific support. In this case, EOD Units or sub-units will be commander and controlled by the U8 section and will be assigned specific missions and tasks to support a specific unit within another part of the Force. Eg an EOD Unit tasked to another TCC Infantry Battalion. EOD units may also deploy as a dedicated and organic enabler to a larger force, such as an Infantry or Engineer company or battalion or e.g., Combat Transport units to serve as route reconnaissance/route clearance for logistic convoys. These EOD forces will be solely dedicated to that contingent, supporting only their specific missions and cannot be tasked or detached by the U8. Understanding this relationship is important to enable effective use of EOD units.

Slide 16



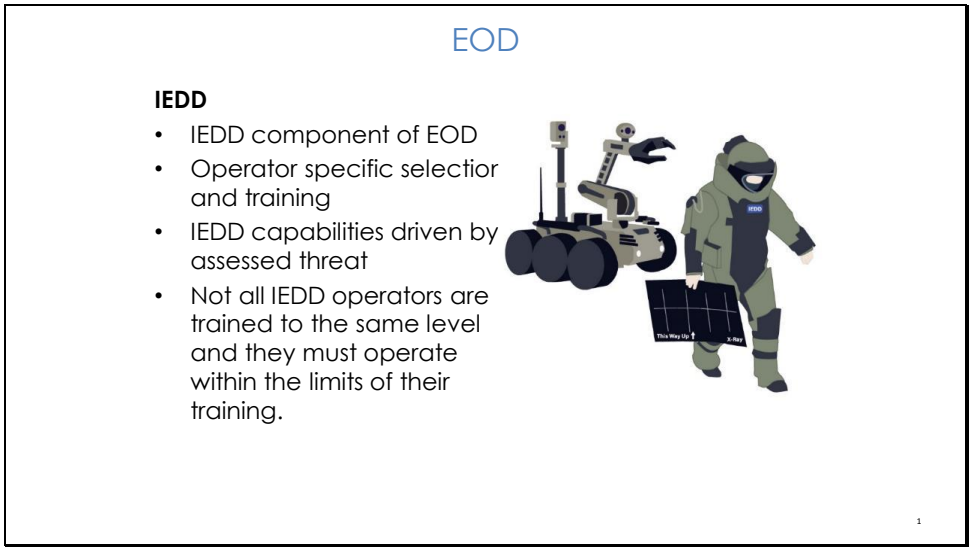
CMD refers to any EOD operation conducted on ammunition that is used as a conventional weapon. CMD activities may be taken as follows:

1. As part of mine clearance operations, upon discovery of Explosive Remnants of War (ERW).

2.To dispose of ERW discovered outside hazardous areas (this may be a single item of ERW or a larger number inside a specified area).

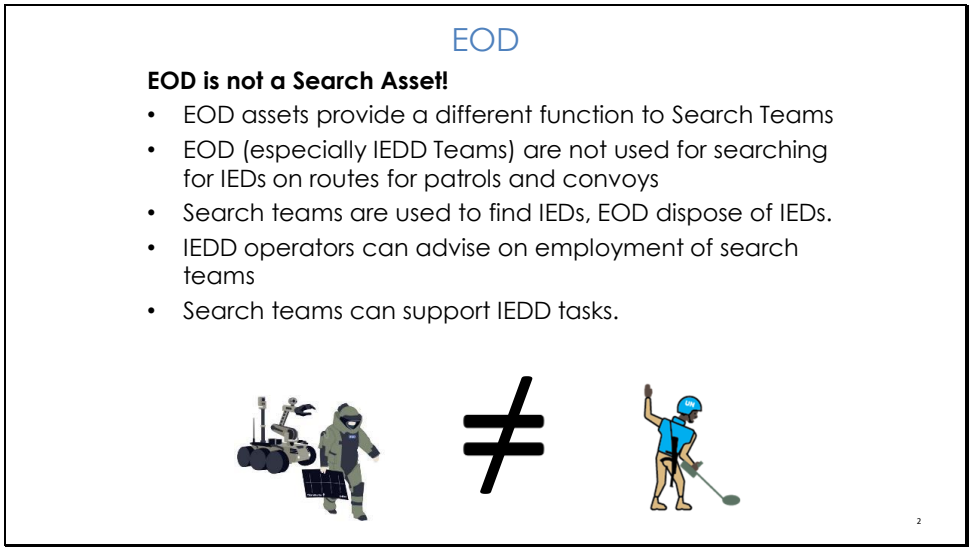
3.To dispose of items of conventional ordnance which have become hazardous by deterioration, damage, or attempted destruction.

Slide 17



IEDD Teams are EOD (CMD) Teams that have additional advanced training. IEDD is the collective term referring to the following EOD procedures, intended to result in the final elimination of an IED, including detection, location, access, identification, evaluation, hazard mitigation, rendering safe, component recording and recovery and final disposition.

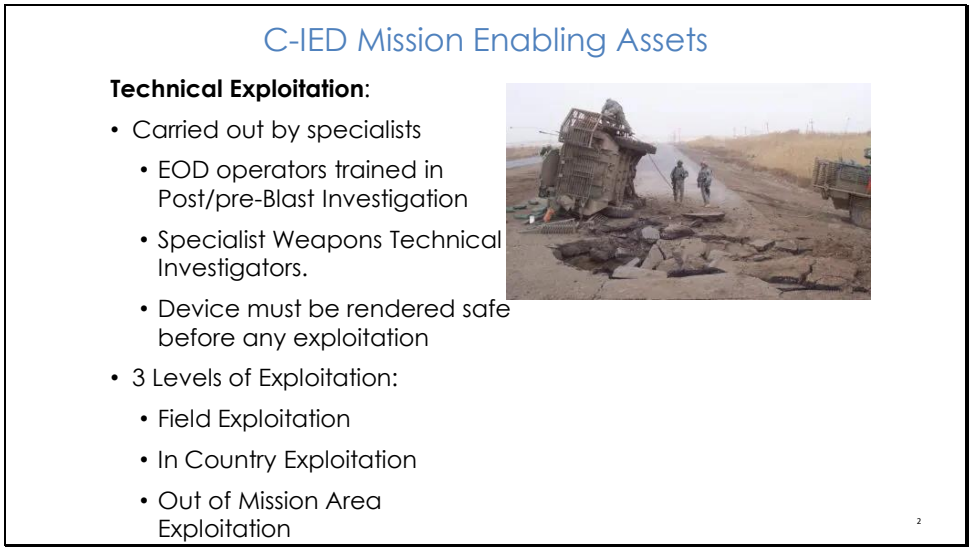
Slide 18



It is important to note that EOD teams are not the same as search teams and they serve very different functions. Training EOD teams, especially IEDD teams, takes a significant amount of time and resources and so there are generally very few of these teams compared to search teams which are comparatively easier to train and equip. This means they must be employed efficiently. EOD teams are not to be used for leading convoys or carry out searches of VPs, this is the role of Commanders and Search teams. Search teams locate IEDs, and EOD teams are brought in to dispose or neutralize them. Experienced IEDD operators can however advise on where and how to employ search teams and Search teams can be used to support IEDD tasks.

Slide 19

Slide 20



Valuable technical intelligence to support CIED can be derived from the exploitation of captured information and materiel, but may be limited by the mission mandate, resources or expertise available.

Technical Exploitation is carried out by Trained EOD operators and specialist weapons technical investigators. It is important to note that any exploitation of an IED must be done after it has been rendered safe, and it must be treated as forensic evidence. Beyond this, all commanders have a role to play in exploitation through accurate recording and reporting of IED incidents, whether FIND or STRIKE.

Exploitation activities are classified by level according to the assets available and the amount of potential data that can be exploited. The exploitation levels are:

Level 1 (field exploitation). This captures the IED incident context (scene and events) and preserves, recovers and identifies physical artefacts. That is normally conducted by specialists such as EOD teams, 'high-risk' search teams or 'sensitive-site exploitation' teams. It may include an immediate assessment of aggressor TTPs and capabilities and provide support to FP vulnerability assessment. Level 1exploitation reports should focus on FP and be disseminated to tactical elements to enhance FP.

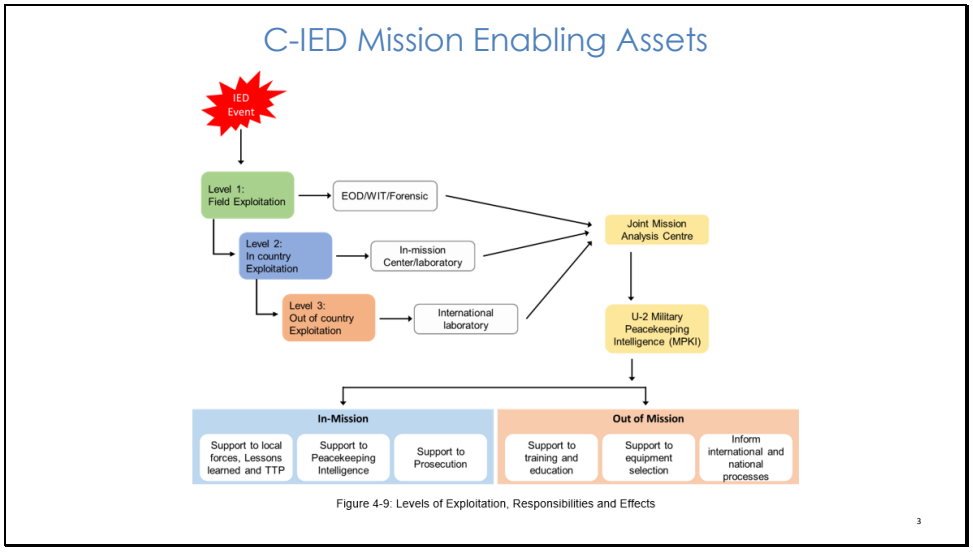
Level 2. (In country) If available, Level 2 exploitation is conducted by specialists and scientists in a deployed laboratory or one provided by host nation capabilities within the mission area. This level focuses on the detailed technical and forensic examination of evidence to determine the source of components and the nature of IED

construction and to identify the individuals associated with it. That in turn further informs FP, intelligence analysis and efforts to degrade the aggressor's network.

Level 3. **Out-of-Mission area** exploitation is conducted by 'national-level' laboratories of Member States using reach back capabilities. The analysis often feeds back into the strategic arena, focusing on degrading the strategic and operational elements of the aggressor's network.
Biometric data is identified using technologies that measure and analyse human body characteristics such as fingerprints, eye retinas and irises, voice patterns, facial patterns, and hand measurements for identification purposes. Biometric data is distinctive for each person. Aggregated biometric signature collection and exploitation provides an unprecedented capability to identify and track persons of intelligence and security interest.

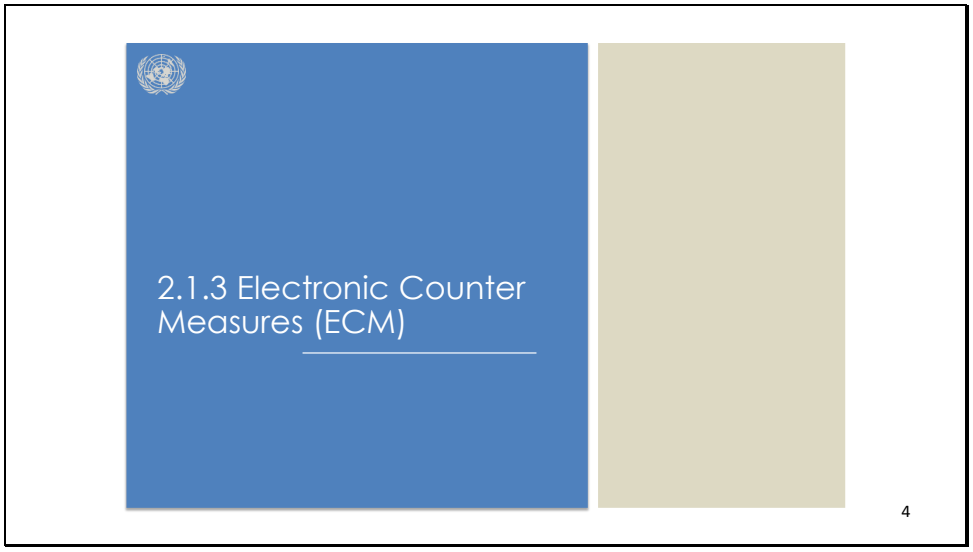
Image - Buried IED blast in 2007 in Iraq. By http://www.flickr.com/photos/soldiersmediacenter/, via Wikimedia Commons

Slide 21



This slide shows who conducts each level of technical exploitation and how this supports the joint mission analysis centre. As you can see, the outcome or product of technical exploitation supports a few different lines of effort such as seeking prosecution or targeting of those in the IED system, to changing training and equipment selection to adapt to the evolving IED threat. As commanders and planners at all levels you must recognize that you are an enabler of this process. Level 2 and 3 exploitations cannot be carried out if level 1 exploitation is not conducted. As a commander and planner this may require you to provide the time and resources to enable EOD/WIT teams to conduct exploitation, conduct accurate reporting and proving logistical support to enable the transport of forensic material to in-mission laboratory.

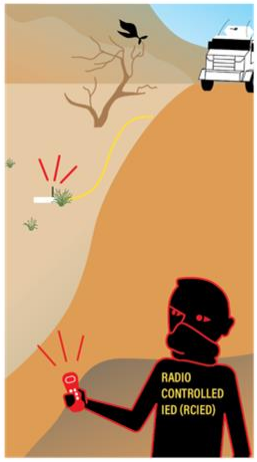
Slide 22



Slide 23

C-IED Mission Enabling Assets

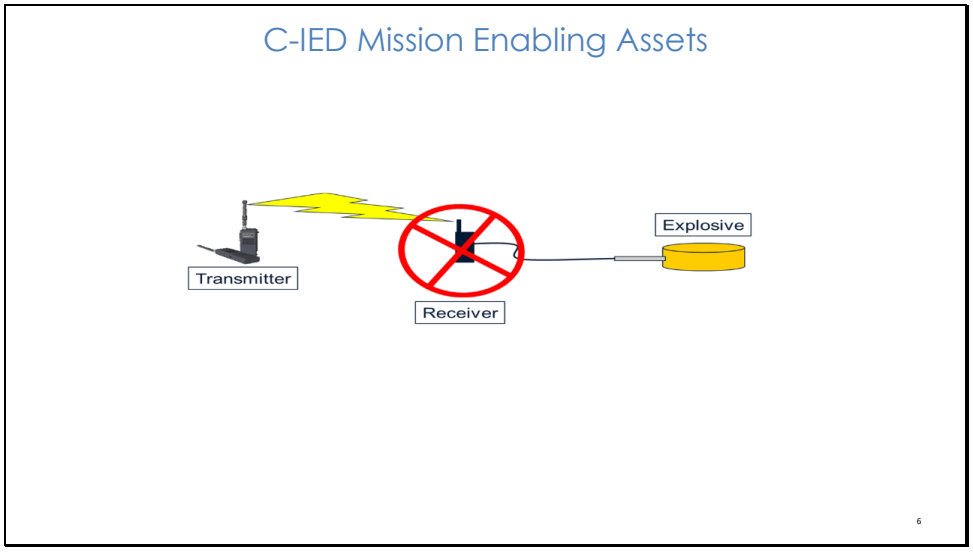
Electronic Counter Measure (ECM) - Protective measure designed for use against threat of remote controlled improvised explosive devices (RCIED)



5

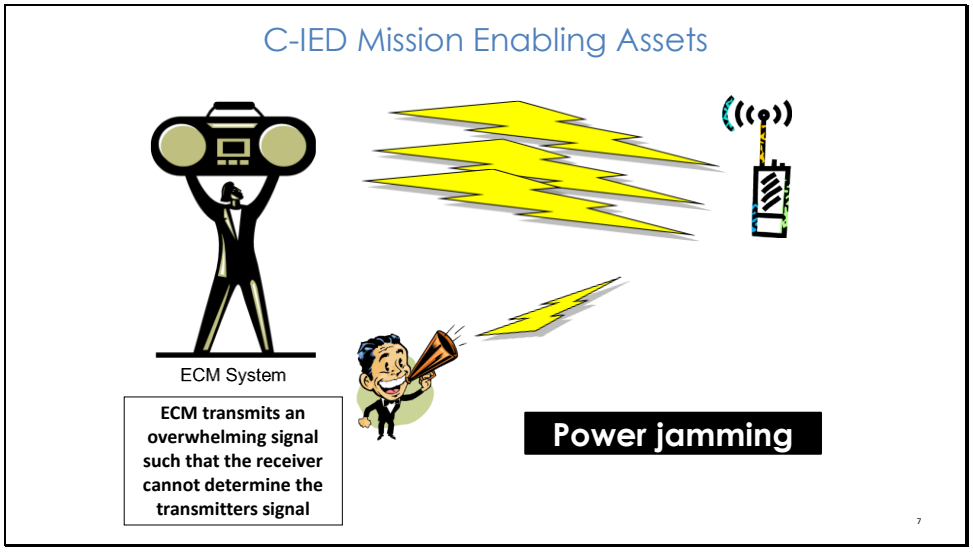
Electronic Counter Measures (ECM) uses the electromagnetic spectrum to support Force Protection (FP) by mitigating the risk from RCIEDs. IED jamming systems provide a degree of protection against RCIEDs. Effective ECM can mitigate a perpetrator's effective use of the electromagnetic spectrum (EMS) through using electromagnetic energy. However, it is only a supporting measure to mitigate the threat and does not guarantee protection against an IED threat in general, only to a limited extend against radio controlled IEDs (RC IEDs).

Slide 24



The purpose of electronic warfare is to deny the opponent the advantage of, and ensure friendly unimpeded access to, the electromagnetic spectrum.
ECM Units generate jamming from Antennas and block any signal in designated frequencies.
According to the waveform's programme the jamming creates an area of protection which prevents triggering of RCIED.

Slide 25

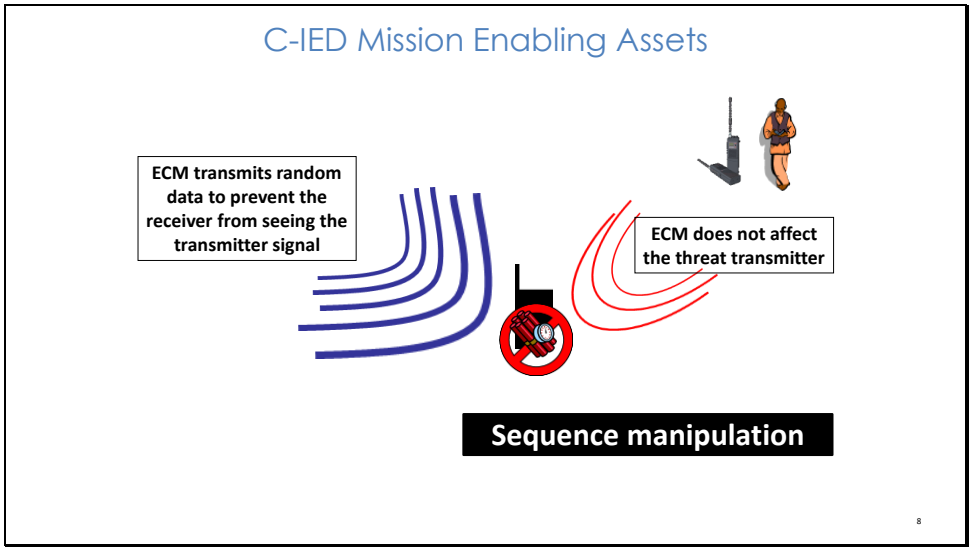


ECM works in two ways.

- Power jamming. ECM emits a very strong signal which essentially overpowers the triggerman signal, preventing from initiating the device.

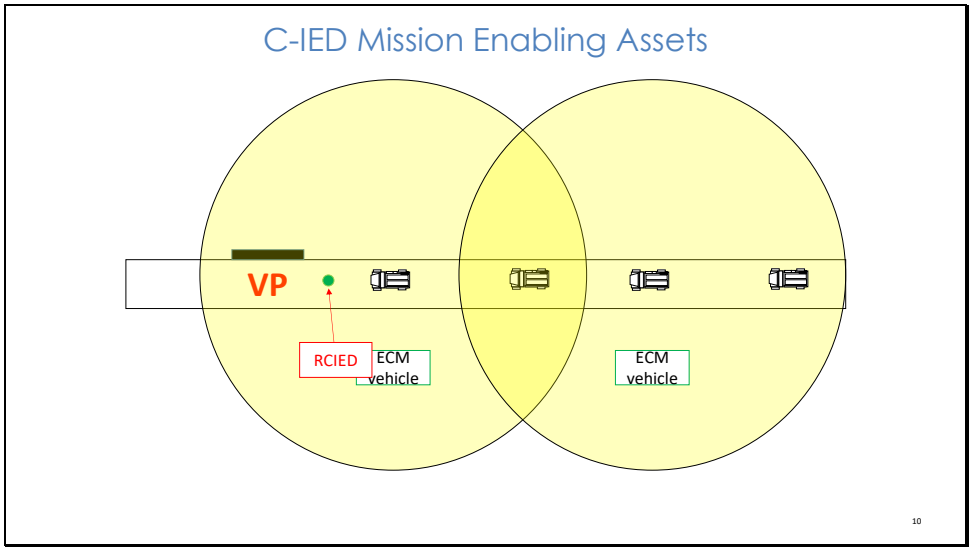
- Try this practical experiment if time permits and if required; you need three volunteers; one volunteer left, right and middle of the room. Have the people on the left and right have a conversation at normal volume. Get the person in the middle to talk very loudly; can they still understand each other?

Slide 26



ECM works in two ways.
2. Sequence manipulation. The ECM Unit transmits random data that confuses the receiver and prevents the command signal from being understood.

Slide 27



In some situation there may not be enough ECM systems for every vehicle and/or person. Therefore, careful planning must be conducted so ECM systems are employed in the most efficient manner possible. Considerations:

- Convoy spacing should overlap effective ECM range
- Front and rear vehicle covered
- Spacing should vary according to terrain
- Check with your ECM manager to confirm systems do not interfere with each other
- Conduct 5/25m checks at halts and before turning ECM off
- Ensure preventative maintenance and testing has been carried out

Slide 28

Questions?

UNMAS

11

Lesson

2.2

INCIDENT RESPONSE

The Lesson

Time. This module requires approximately 135 minutes to teach. 45 minutes of classroom theory followed by 90 minutes of practical training. See Annex B.

Performance Statement. At the end of this lesson, the participants will be able to recall the 5Cs and practically carry out the drill.

Key Learning Points. The following main teaching points are contained in the delivery of this module:

(1) Introduce and explain 5Cs:
   a. Confirm
   b. Clear – the area
   c. Cordon
   d. Control
   e. Call

(2) Incident reporting
   a. Key information in an incident report

(3) Actions on IED Strike.

(4) Reducing the effect of IED.

Methodology. This Lesson will be introduced through the lecture method combined with the participatory approaches and in-class exercises/demonstrations.

Infrastructure. Classroom with projection facilities, outside areas.

Equipment. Demonstration vehicle, inert IED, Handheld radio

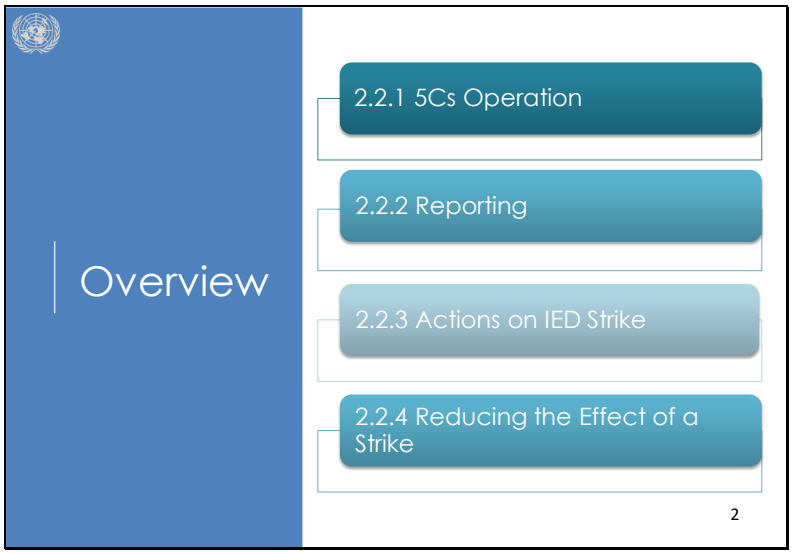
Slide 1

EHAT Lesson 2.2: Incident Response

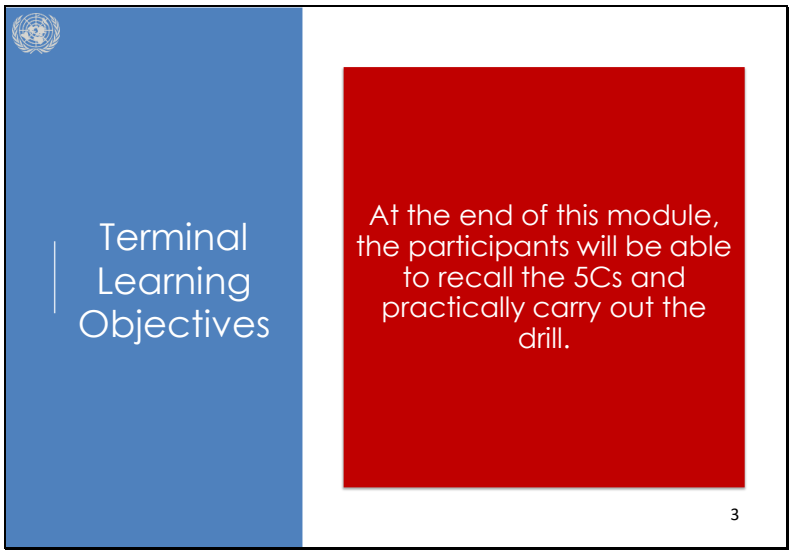
1

Find guidance inserted in the note section of each slide.

Slide 2

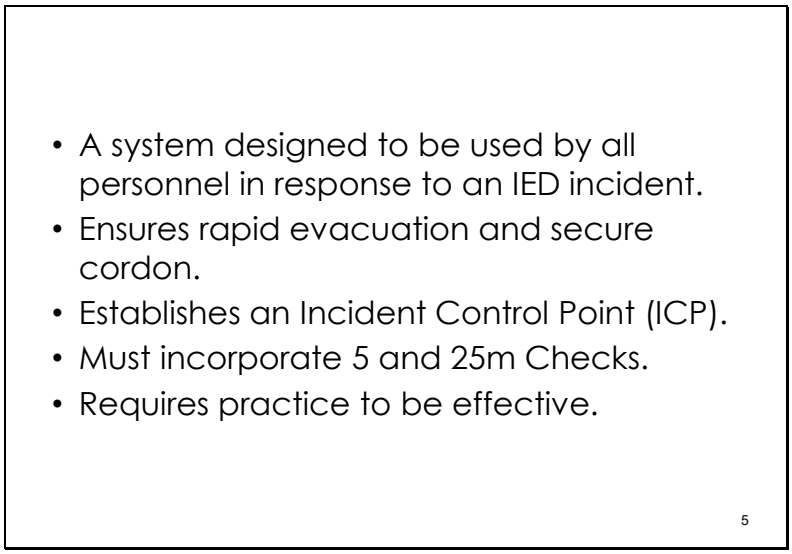

Overview
2.2.1 5Cs Operation
2.2.2 Reporting
2.2.3 Actions on IED Strike
2.2.4 Reducing the Effect of a Strike
2

Slide 3


Terminal Learning Objectives
At the end of this module, the participants will be able to recall the 5Cs and practically carry out the drill.
3

Slide 4

Slide 5

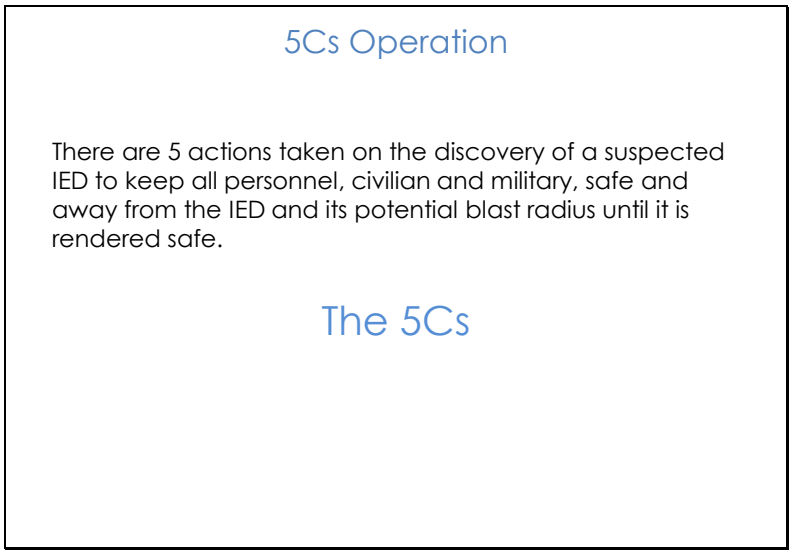


Incident Response Procedure

This is not just used for the military but also for all personnel that have been deployed.

- This drill must always be followed exactly, to ensure the safety of all during an IED incident.
- By following the drill, it allows the evacuation process to be carried out safely and efficiently.
- Establishing an Incident Control Point (ICP) in a safe and secure location is essential as it ensures control over the procedure.
- Safety for all involved in the evacuation process is essential. Do not become complacent, and do not set patterns that allow you to be targeted in the future. Therefore, ENSURE drills (like 5 and 25m checks) are ALWAYS carried out.
- **THIS DRILL MUST BE PRACTISED**!!!
- It is essential that, all personnel involved clearly understand their roles and responsibilities to ensure it is carried out correctly and safely.
- Incidents that require this procedure are stressful, dangerous and confusing, only practice can reduce this.

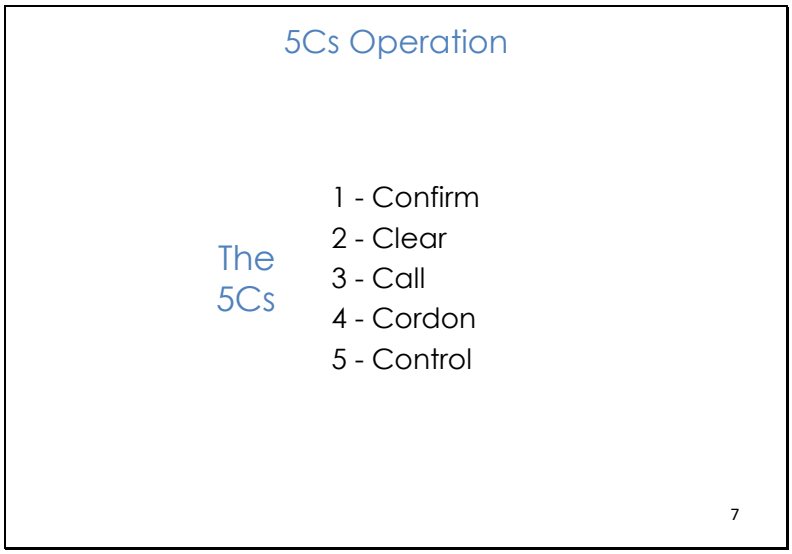
Slide 6



Incident Response for a Suspected Find

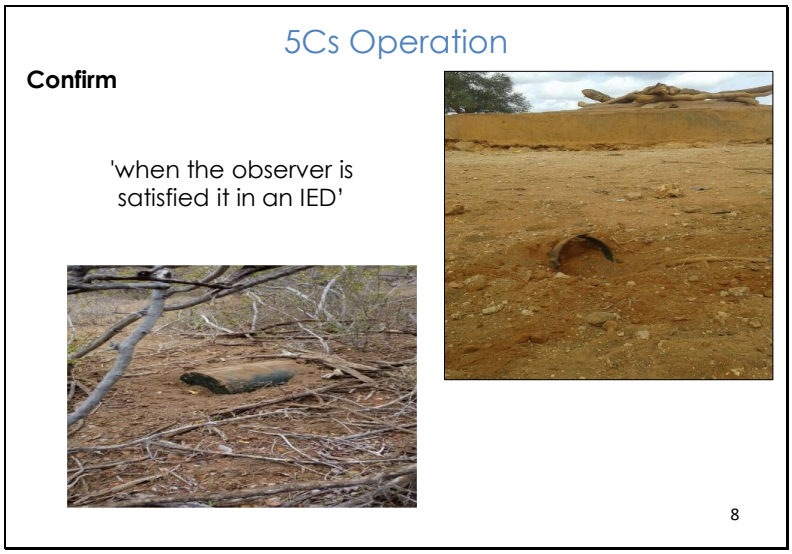
The whole reason why we conduct the 5Cs is to ensure the safety and security of all personnel around a suspected find. There is no reason to not act on a suspected find. This could put others around you in danger. There are five steps to be taken so that incidents can be controlled safely, thus protecting all those that may be affected.

Slide 7



The 5Cs Operation is a common and proven TTP that should be employed whenever there is a suspected or confirmed IED incident. The drill is first at foremost to provide protection to friendly troops and civilians, but it also served to set the conditions for the EOD teams. It also serves to preserve device materials which may be used for tactical and technical exploitation of a device or for evidence in criminal prosecution. The 5Cs consists of 5 phases – Confirm, Clear, Cordon, Control, Call.

Slide 8



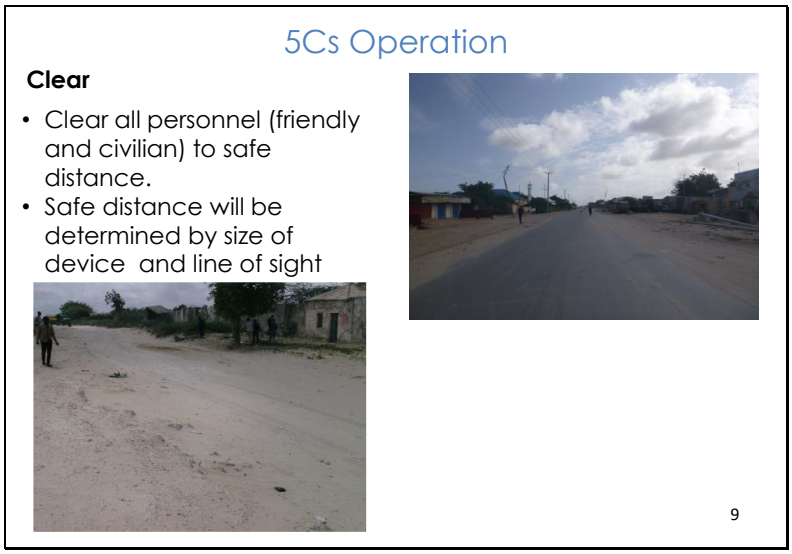
The first step in the '5Cs' drill is to confirm that there is sufficient likelihood of an IED being present to justify a specialist operation.

The definition of 'confirm' can be no more prescriptive than 'when the observer is satisfied it in an IED.'

Avoid the natural curiosity of wanting to 'over-confirm'. This can be risky. It is also natural that the local commander will want to see the suspect IED for himself to justify any decision that will initiate a clearance operation. However, this should be resisted if there is risk of the local commander becoming a casualty.

Images Courtesy AU Transition Mission in Somalia

Slide 9



Having confirmed the presence of a probable IED, the next step is to clear people from the incident site to a safe distance.

A 'safe' distance depends on the size of the IED main charge, any enhancements, cover provided by the surrounding environment, and how much risk can be tolerated.

IEDs cause casualties by blast over-pressure (the rapid expansion of air), fire, fragments, and falling debris from buildings, e.g. glass and roof tiles.

The severity of injury from a blast and fragmentation is reduced with distance. So, the risk of injury decreases with distance from an IED explosion.

Images Courtesy AU Transition Mission in Somalia

Slide 10

5Cs Operation

Apply the following safety distances in urban locations according to the size/estimated size of the device.

"Double the distance for rural locations"

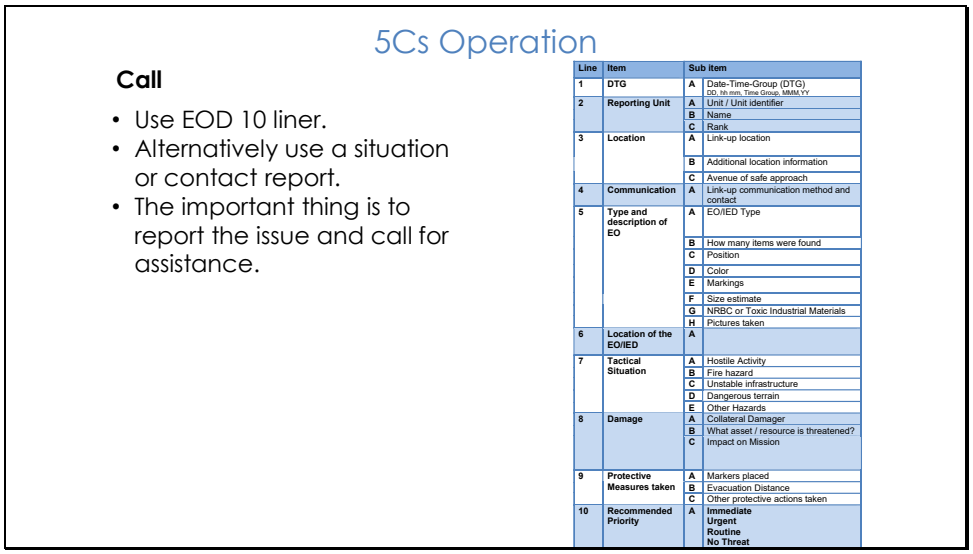
Handheld item e.g briefcase, shopping bag	100m	
Suitcase, larger item or small vehicle.	200m	
Car (Standard Sedan)	400m	
Larger Vehicle or Tanker	1000m	

Clear

These are recommended distances which are dependent on the assumed size of the threat/hazard.

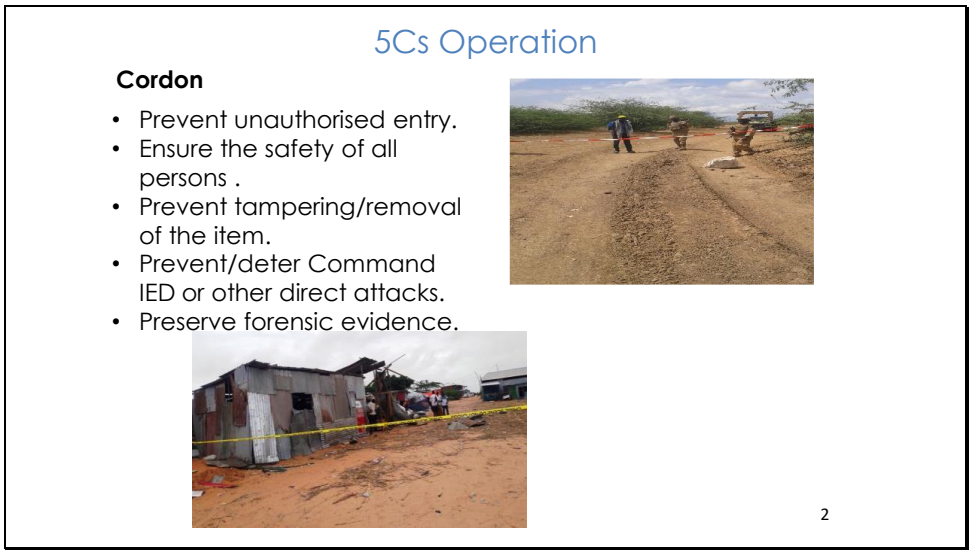
- In rural locations, these distances are to be doubled as buildings will not provide cover or reduce the effects of blast and fragmentation.

Slide 11



When the presence of a probable IED has been confirmed, the local commander should inform his higher headquarters of the situation and request assistance at the earliest appropriate opportunity. The EOD 10-liner report should be used for reporting IED incidents. As a minimum a situation report or contact report should be sent. The key here is to report the issue to allow the HQ to provide support.

Slide 12



Having cleared an area around the probable IED, the local commander should create a cordon to control assess. Civilians would not normally be allowed into the cleared area. A robust cordon is an essential element of the operation to:

- Prevent unauthorised entry.
- Ensure the safety of all persons.
- Prevent tampering/removal of the item.
- Prevent/deter Command IED or other direct attacks.
- Preserve forensic evidence.

The method of establishing a cordon will be determined by local commander and is affected by the terrain and availability of resources. A cordon should be established at a safe distance from the incident site, outside of the blast and fragmentation radius.

Images Courtesy AU Transition Mission in Somalia

Slide 13

5Cs Operation

Control

- Stop unauthorized access to the cordon.
- Facilitate access to EOD team.

Selection of ICP criteria:

- In a safe and unpredictable location.
- At a safe distance from the incident, dictated by the ground.
- ICP location must be checked.
- A secondary ICP location should be considered.
- Never use the same ICP location twice.

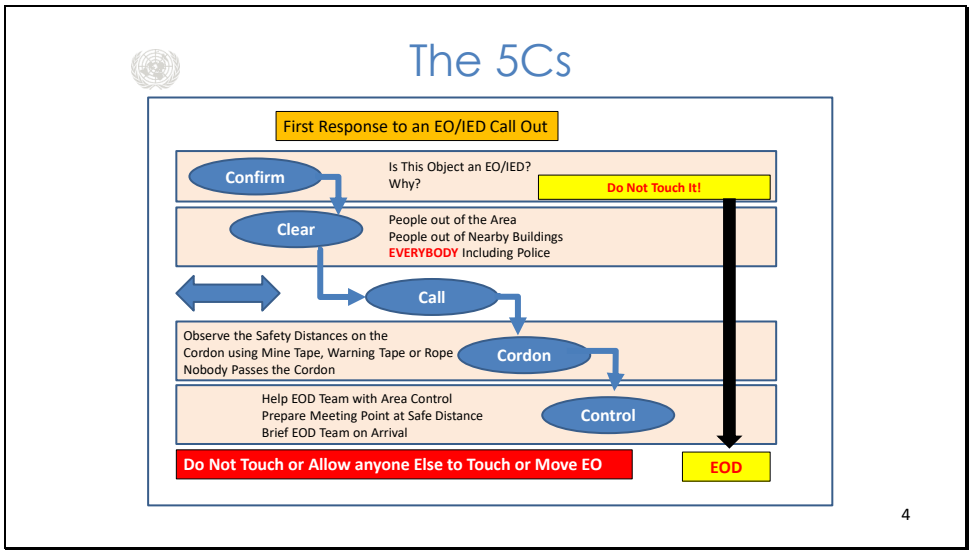
Stop all personnel or vehicles from entering the cleared area. Do not allow anything to disturb the area near the suspected explosive device.

Facilitate the passage of lines of the EOD team to conduct the intervention on the suspected explosive device. Local security patrols can be organized. Designate and search the helicopter landing area if needed. Maintain observation of the area surrounding the suspected explosive device.

An Incident Control Point (ICP) should be established by the local commander on the scene.

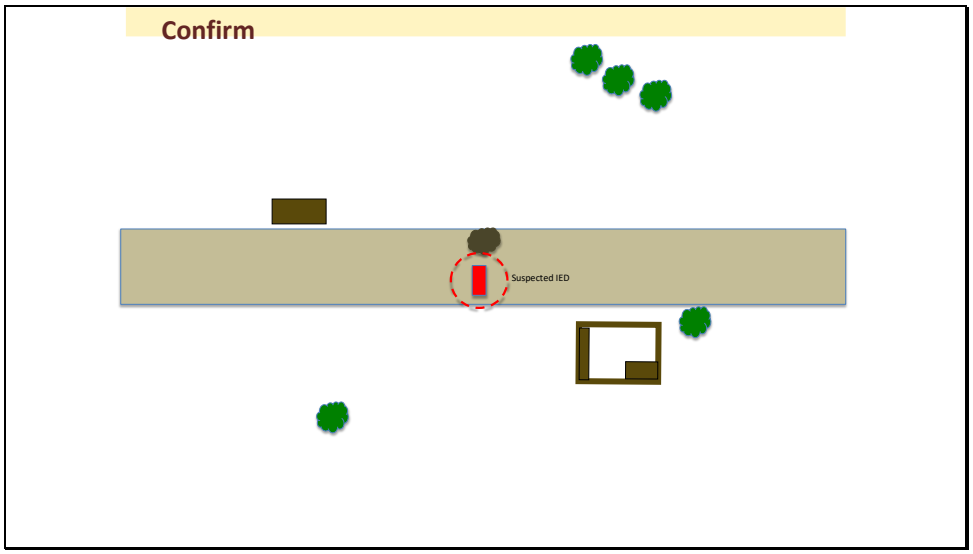
Images Courtesy AU Transition Mission in Somalia

Slide 14



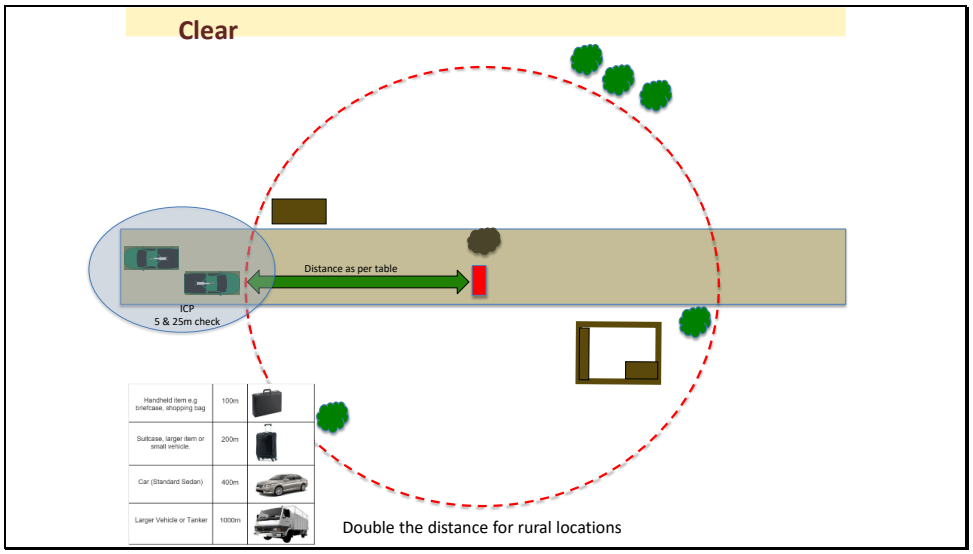
Ref: UN Landmine, ERW, IED Handbook.

Slide 15



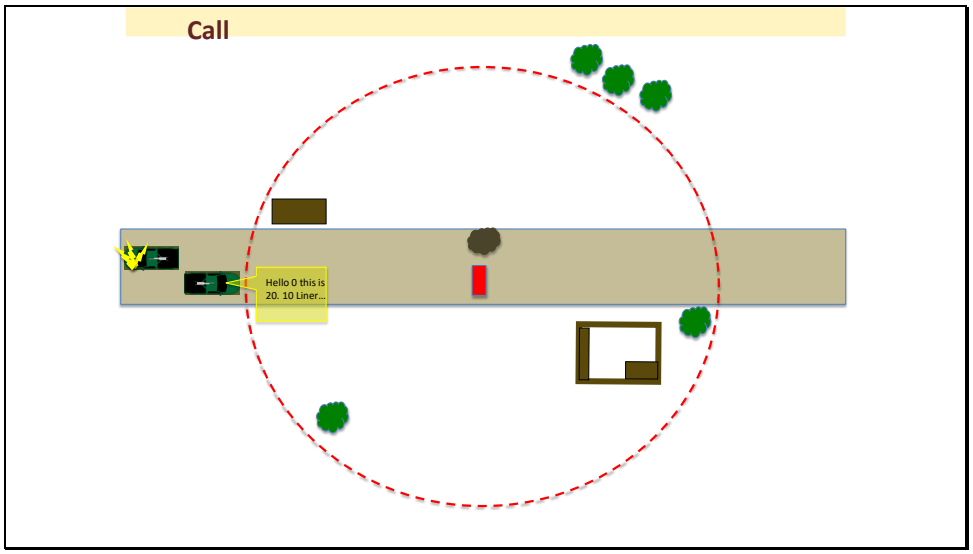
Confirm
Animation of an urban find

Slide 16



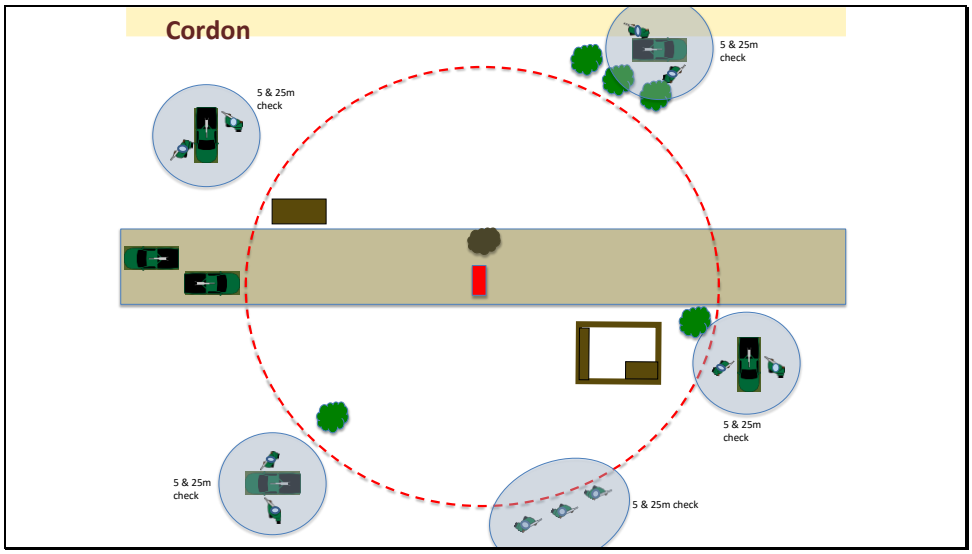
Clear
Animation of an urban find

Slide 17



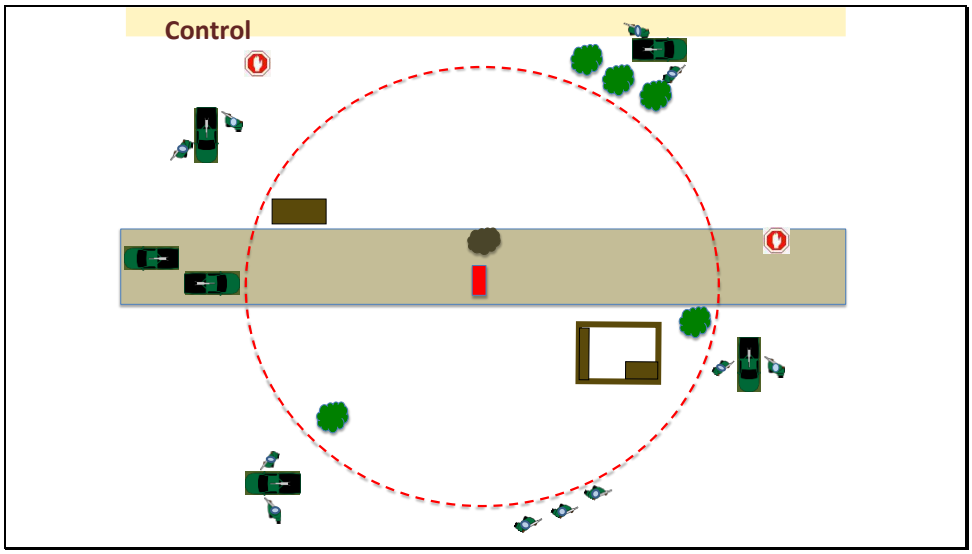
Call
Animation of an urban find

Slide 18



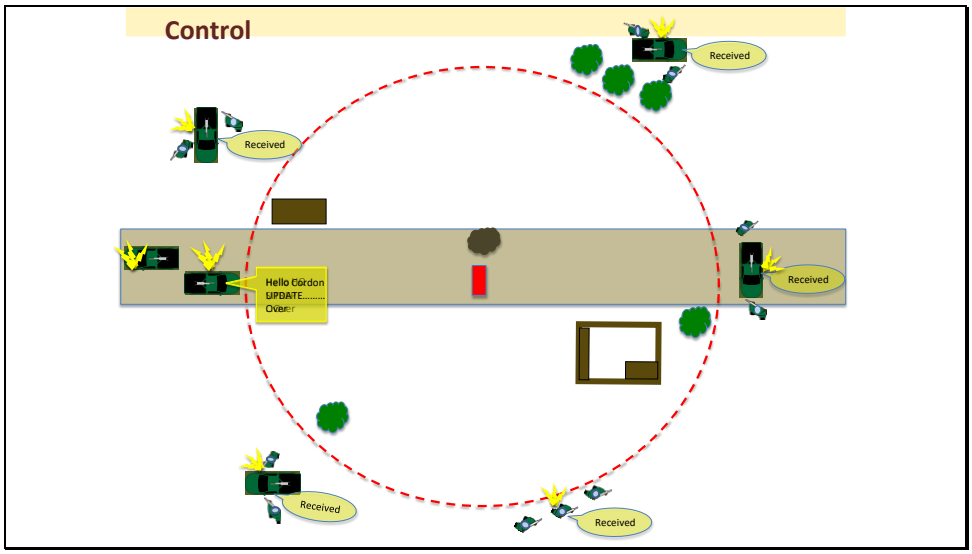
Cordon
Animation of an urban find

Slide 19



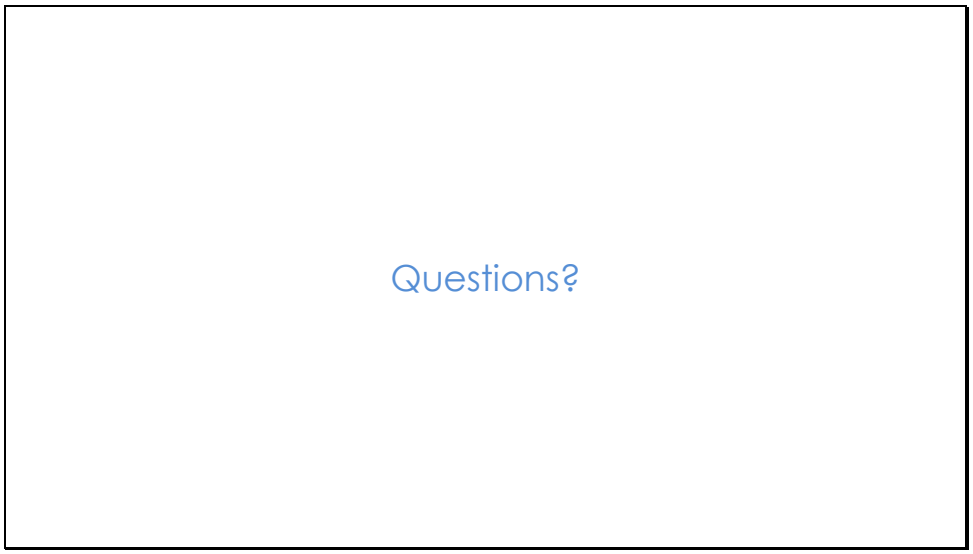
Control
Animation of an urban find

Slide 20



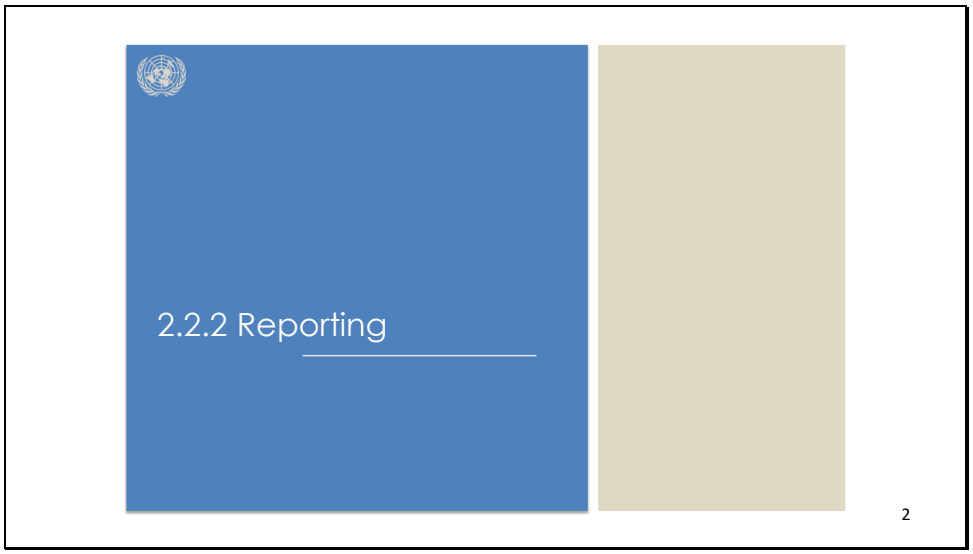
Control
Animation of an urban find

Slide 21

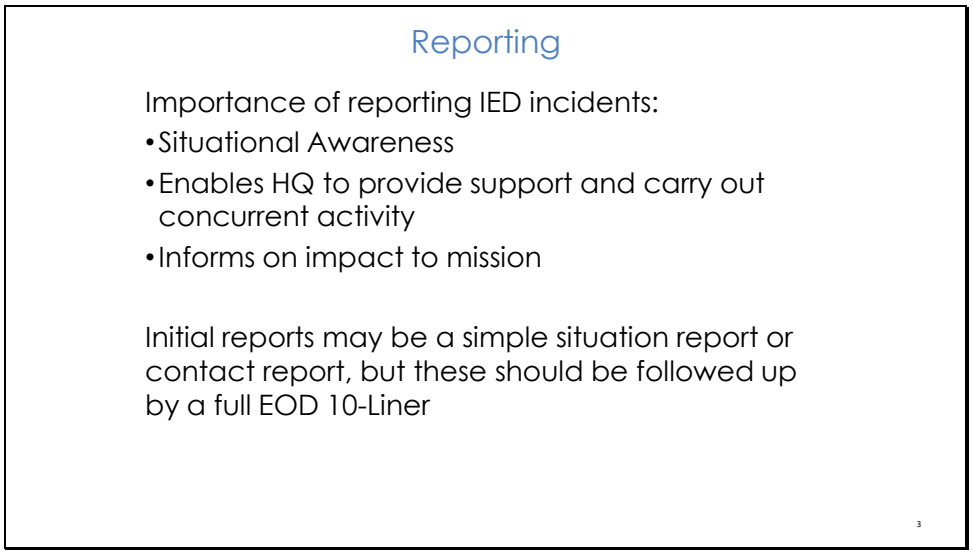


Questions?
Any questions?

Slide 22



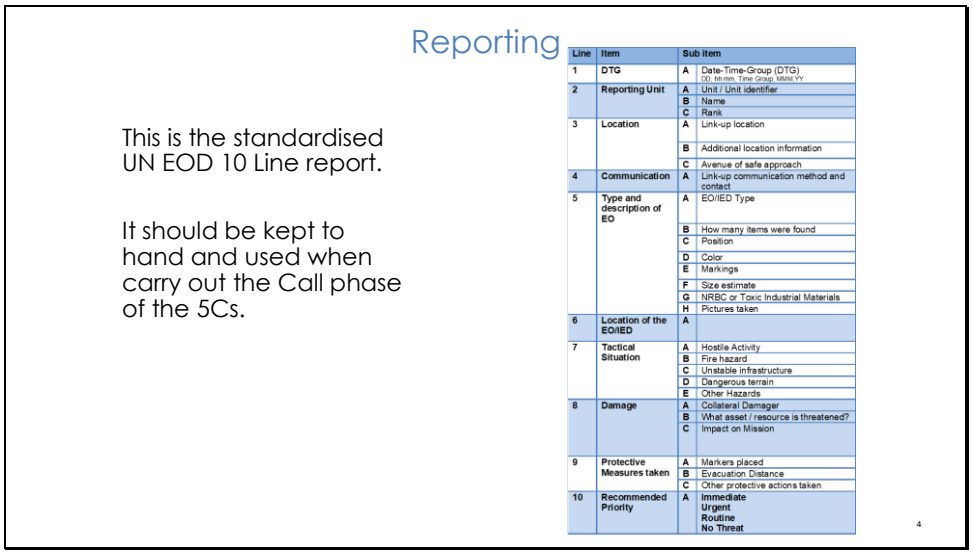
Slide 23



Reporting or communication of IED-related incidents. This allows other Units to be aware of the threat and enables HQ to task support where required. It is also important as it may have an impact on the wider mission and task.

Initial reports may be a simple situation report or contact report. This enables HQ to anticipate the needs of the Unit by redirecting resources or preparing first responders. These initial reports should be followed up by a full EOD 10-Liner

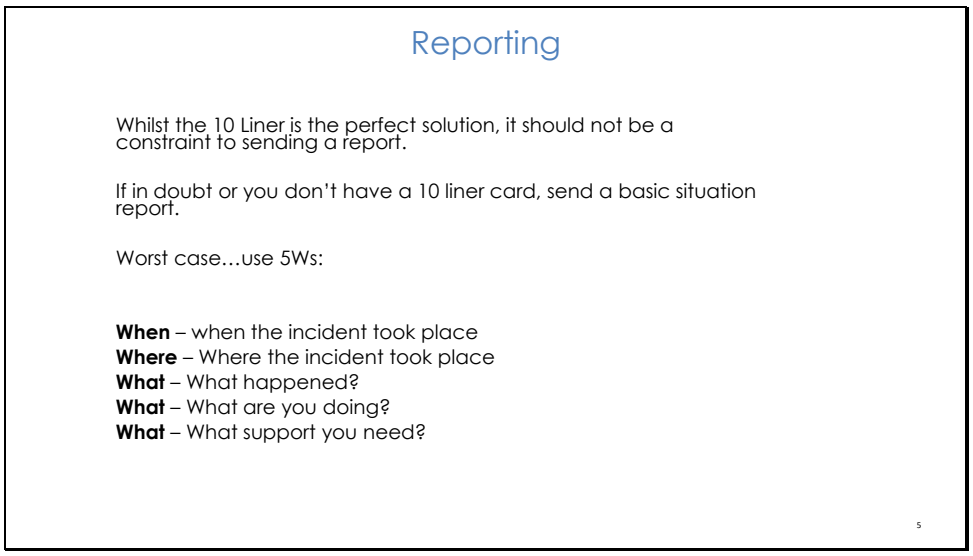
Slide 24



Line	Item	Sub item	
1	DTG	A	Date-Time-Group (DTG) DD. hh:mm. Time Group. MMM.YY
2	Reporting Unit	A	Unit / Unit identifier
		B	Name
		C	Rank
3	Location	A	Link-up location
		B	Additional location information
		C	Avenue of safe approach
4	Communication	A	Link-up communication method and contact
5	Type and description of EO	A	EO/IED Type
		B	How many items were found
		C	Position
		D	Color
		E	Markings
		F	Size estimate
		G	NRBC or Toxic Industrial Materials
		H	Pictures taken
6	Location of the EO/IED	A	
7	Tactical Situation	A	Hostile Activity
		B	Fire hazard
		C	Unstable infrastructure
		D	Dangerous terrain
		E	Other Hazards
8	Damage	A	Collateral Damager
		B	What asset / resource is threatened?
		C	Impact on Mission
9	Protective Measures taken	A	Markers placed
		B	Evacuation Distance
		C	Other protective actions taken
10	Recommended Priority	A	Immediate Urgent Routine No Threat

The Instructor should explain to the student how to use the 10-Liner and what each line means."

Slide 25



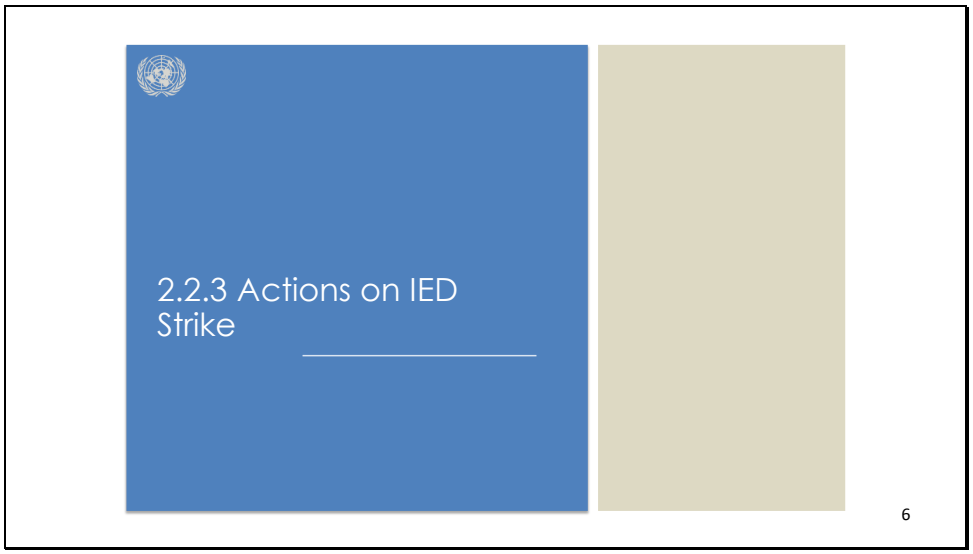
Whilst the 10 Liner is the perfect solution, it should not be a constraint to sending a report.

If in doubt or you don't have a 10-liner card, send a basic situation report.

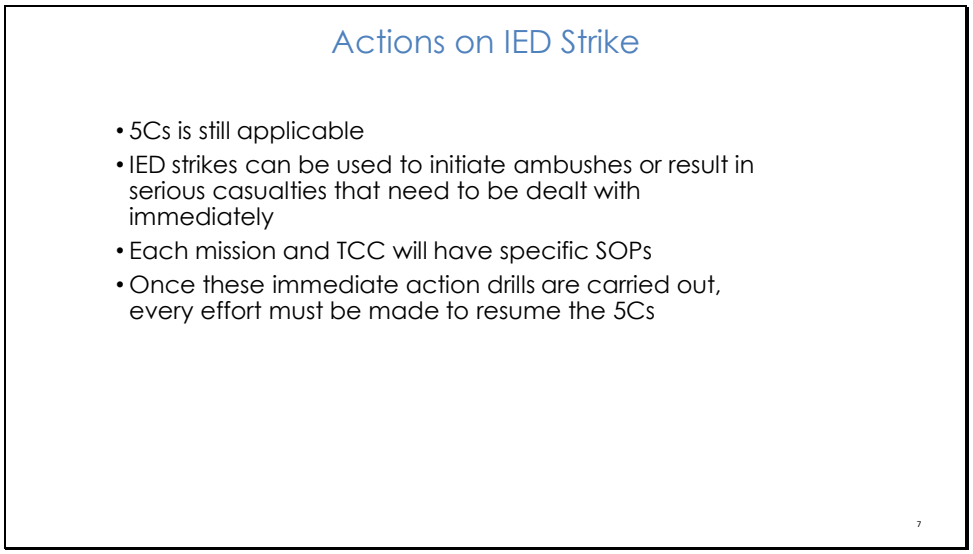
In the worst case, use the 5Ws:

When – when the incident took place
Where – Where the incident took place
What – What happened?
What – What are you doing?
What – What support do you need?

Slide 26

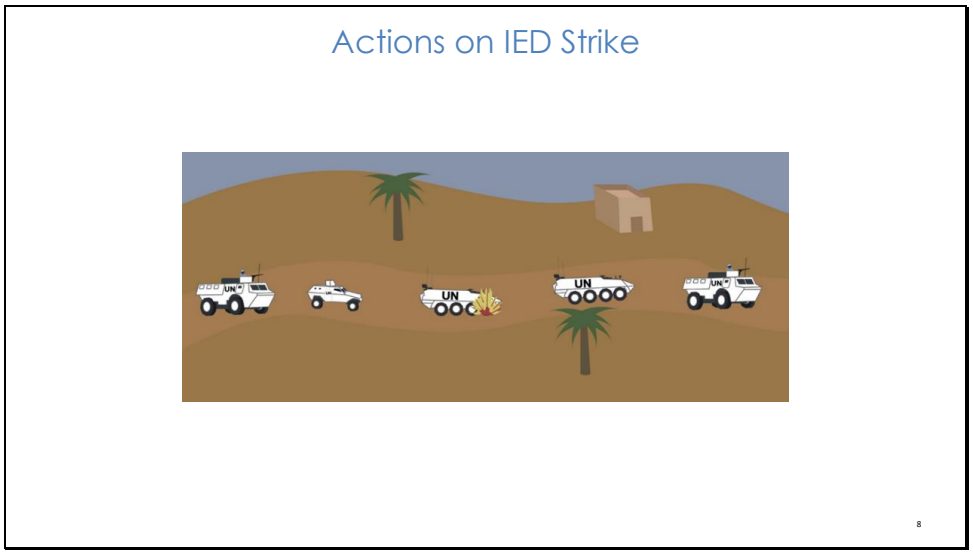


Slide 27



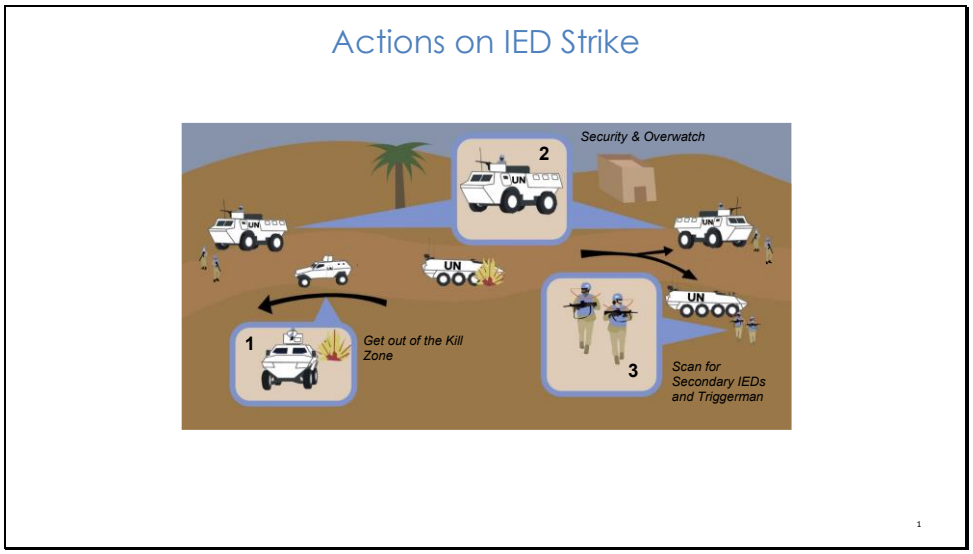
Whilst the 5Cs drill is applicable, there may be immediate risks that need to be dealt with before carrying out the drill. Many IED incidents can be used to initiate ambushes or result in casualties that need to be treated. Each mission will have specific Standard Operating Procedures for an IED strike, this is just to indicate that immediate actions need to be carried out to mitigate any further threats before proceeding with a 5Cs

Slide 28



Let us assume you are part of a convoy on a UN operation and one of the vehicles in the convoy is struck by an IED.

Slide 29

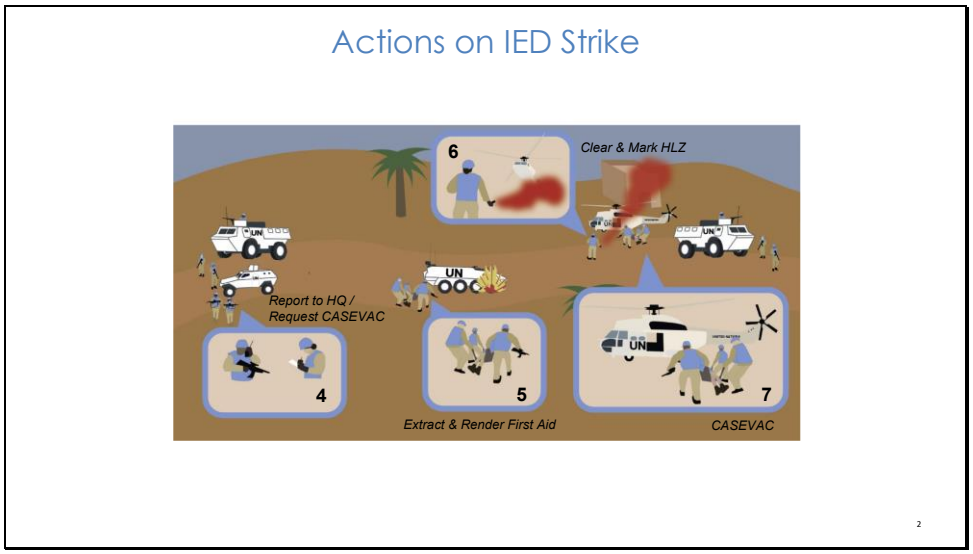


1. The vehicle struck by an IED should make every effort to get out of the potential killing area. If necessary, they must respond aggressively to a follow up attack.
2. Other vehicles in the convoy should also provide overwatch and respond to follow up attacks.
3. Scanning for secondary IED or triggerman should also be conducted.

This should all be done concurrently. The same process will happen regardless of whether mounted or dismounted.

If the IED is not followed up by a secondary attack and no one is injured, go into a 5Cs operation.

Slide 30

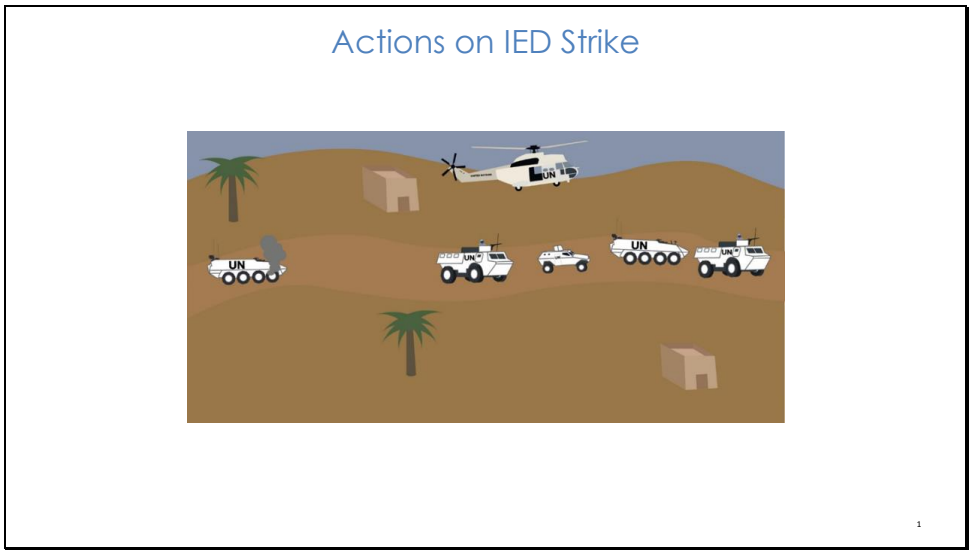


4. Initial contact reports should be sent as early as possible and followed up with a full report as soon as possible.

5. If casualties have been sustained, they should be extracted and administered first aid. Note that this is the same as the Clear phase of the 5Cs.

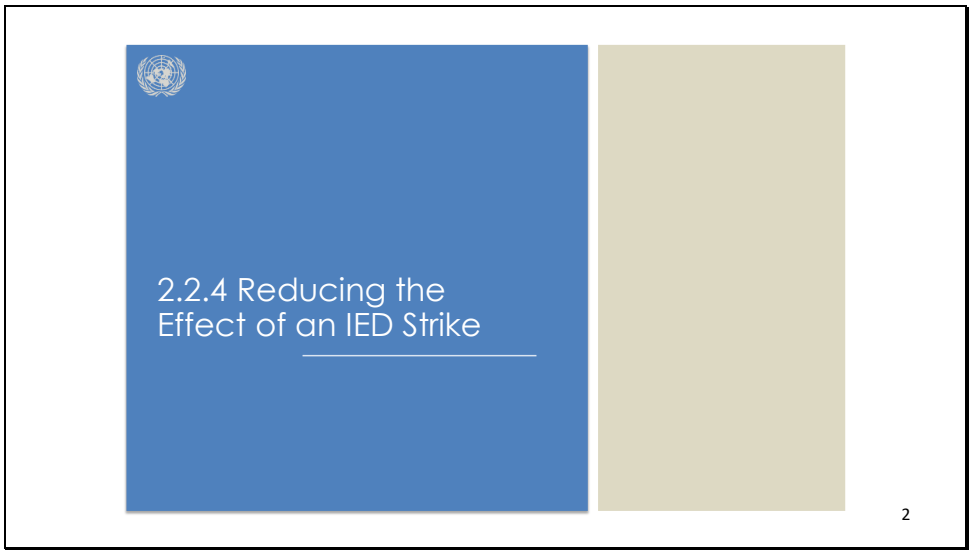
6&7. If casualties require CASEVAC this should be prioritized. This can include the securing of potential helicopter landing zones or ambulance exchange points. Note the similarities of this phase with the Call phase of a 5Cs.

Slide 31

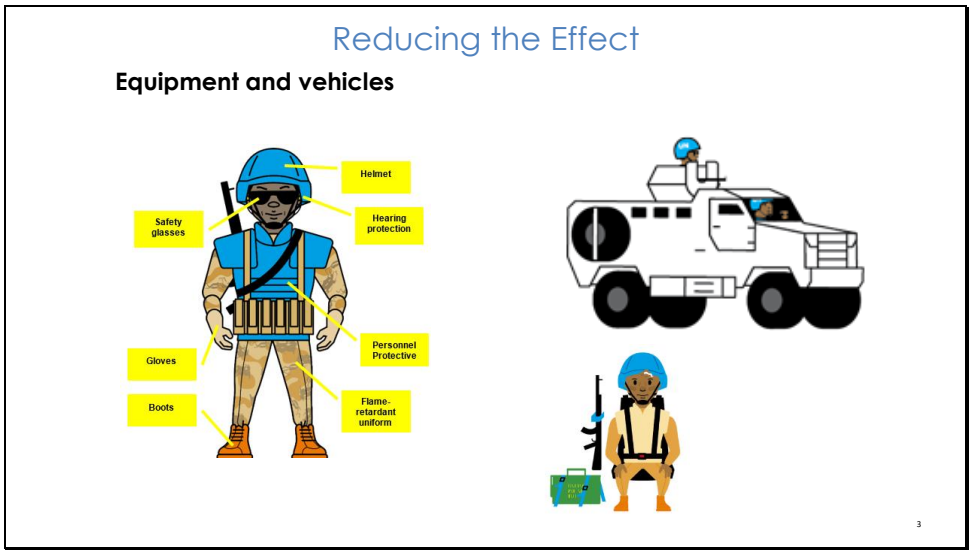


Once the immediate threat of follow up attack and the immediate treatment of casualties has been dealt with, the convoy should complete the 5Cs. Depending on the mission and threat, the convoy may be directed to mark the area and continue with the mission.

Slide 32



Slide 33

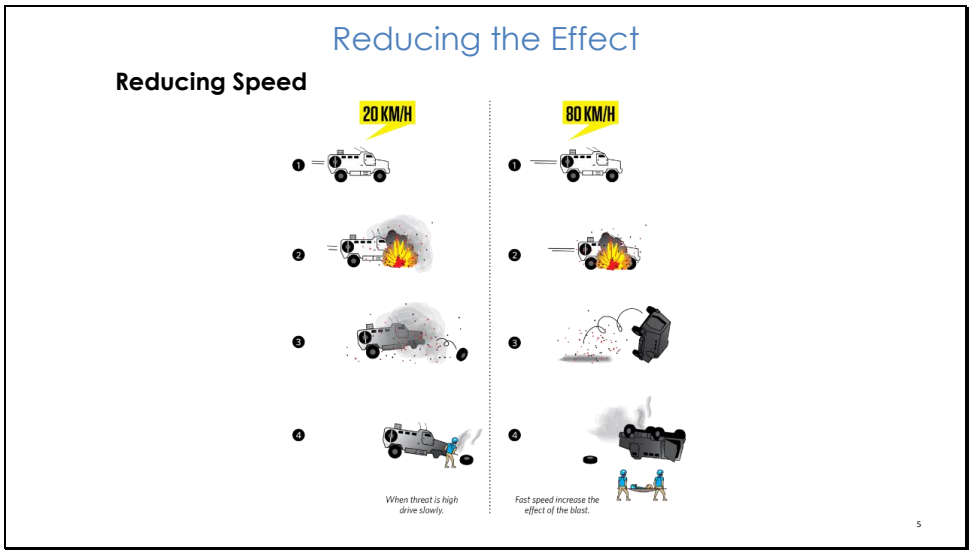


Reducing the effect of an IED can be conducted in a few ways. Use of correct personal protective equipment can significantly reduce the effect of an IED, both while dismounted and while in a vehicle. The use of a vehicle with blast or mine protection can also have a significant impact. It is important to note that the initial blast from a vehicle is not the only hazard to occupants. The subsequent roll over of secondary fragmentation within the vehicle is also a risk. There are numerous cases of occupants within a mine-protected vehicle surviving the blast but only to be killed because of the secondary effect of the blast. This is why the wearing of PPE within the vehicle, using seat belts and tying down loose objects in the vehicle are so important. One area where commanders can have an impact is to educate and ensure all those under command understand these risks. Ensuring that APCs have both air conditioning and seat belts is critical.

Slide 34

Allow the students 2 minutes to study the poster.

Slide 35



Reducing the speed of a vehicle moves can have a significant effect on reducing the effect of an IED strike. There are numerous cases where a vehicle has been struck at high speed by an IED. The strike itself has little effect on the occupants but the subsequent vehicle collision or roll over of the vehicle results in significant injuries or death. This is made worse when not wearing PPE, seatbelts or tying down loose objects.

Slide 36

Reducing the Effect

First Aid Training

Figure 2-10: Buddy First Aid Kit

6

First-aiders play a crucial role in the treatment of a trauma casualty given their proximity and rapid access to the victim. The ability of a First-aider to send an adequate alert message, control bleeding, keep a victim breathing and keep them warm within the Platinum-10minutes makes the difference between life and death for the casualty, potentially reducing mortality up to 30%.

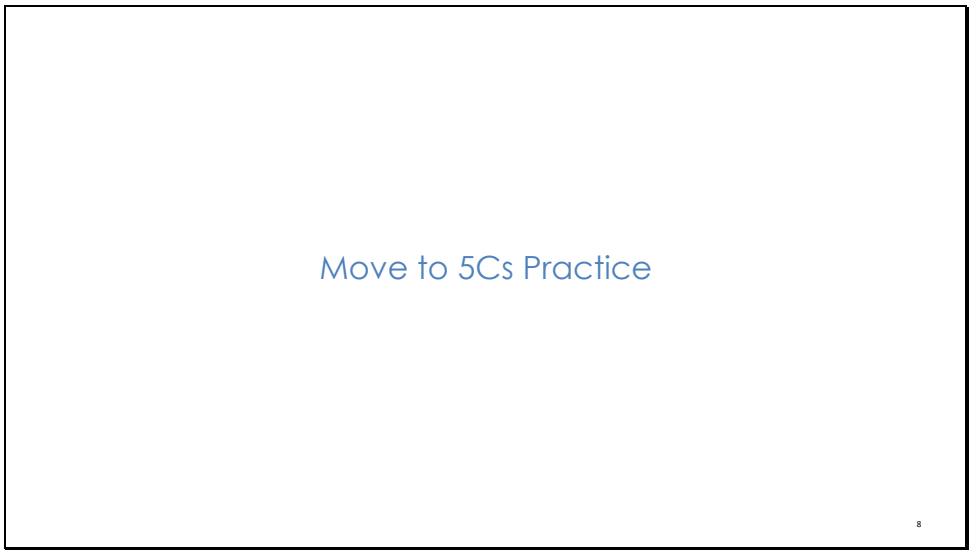
Slide 37

Questions?

UNMAS

7

Slide 38



Lesson

2.3

INTRODUCTION TO GROUND SIGN AWARENESS

The Lesson

Time. This module requires approximately 135 minutes to teach. 45 minutes of classroom theory followed by 90 minutes of practical training. See Annex B.

Performance Statement. At the end of this lesson, the participants will be able to recall the characteristics of sign and understand how recognising ground signs may be used as a tool to identify IEDs.

Key Learning Points. The following main teaching points are contained in the delivery of this module:

(1) Introduction of Ground Sign Awareness (GSA)

(2) Why things are seen.
   a. Shape
   b. Shine
   c. Silhouette
   d. Shadow
   e. Spacing
   f. Sudden Movement

(3) Methods of observation
   a. Scanning
   b. Searching

(4) Definition and characteristics of ground sign
   a. Regularity
   b. Flattening
   c. Transfer
   d. Colour change
   e. Discardable
   f. Disturbance

(5) General principles

Methodology. This Lesson will be introduced through the lecture method combined with participatory approaches and exercises/demonstrations.

Infrastructure. Classroom with projector facilities, accessible outside areas.

Equipment. Inert munitions, inert IEDs, 2 x shovels, 2 x pickaxe, 2 x broom.

Slide 1

EHAT Lesson 2.3: Ground Sign Awareness

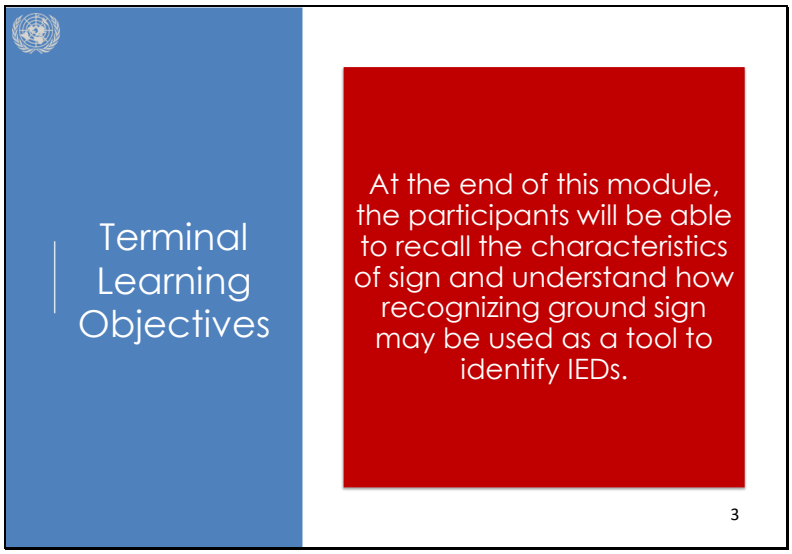
1

Find guidance inserted in the note section of each slide.

Slide 2

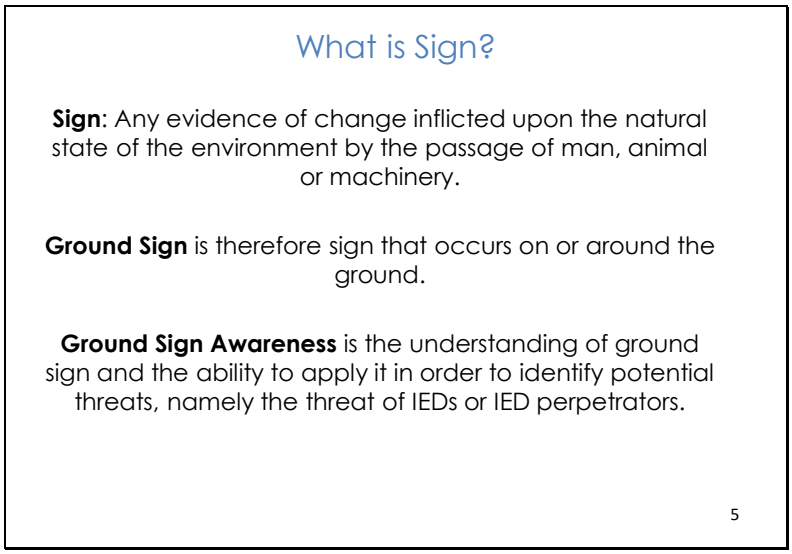

Overview
2.3.1 Introduction to GSA
2.3.2 Why Things are Seen
2.3.3 GSA Characteristics
2

Slide 3


Terminal Learning Objectives
At the end of this module, the participants will be able to recall the characteristics of sign and understand how recognizing ground sign may be used as a tool to identify IEDs.
3

Slide 4

Slide 5

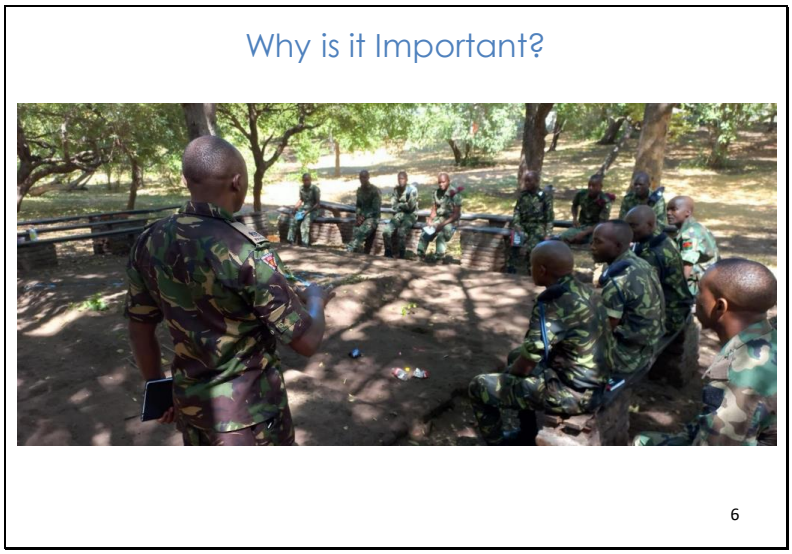


"Sign" is described as any evidence of change inflicted upon the natural state of the environment by the passage of man, animal or machinery.

Ground Sign is, therefore, a sign that occurs on or around the ground.

Ground Sign Awareness is the understanding of ground sign and the ability to apply it to identify potential threats, namely the threat of IEDs or IED perpetrators.

Slide 6

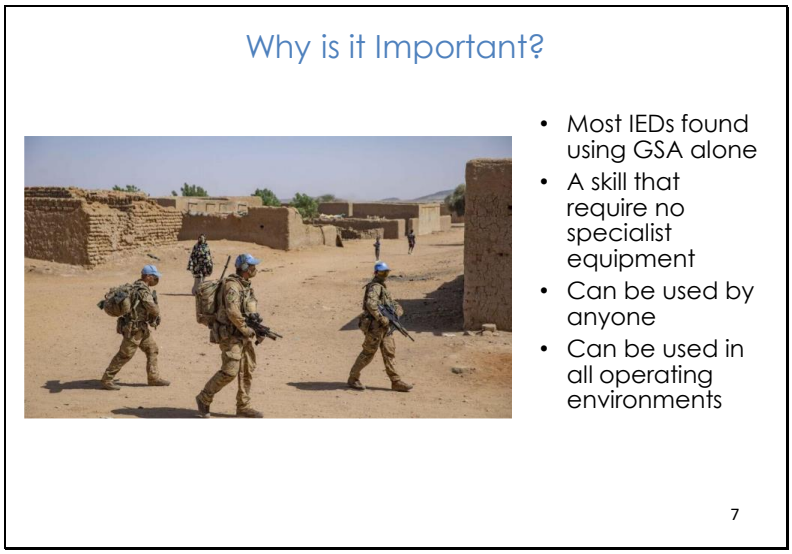


The ability to identify and interpret ground signs is an element of tracking however it is a basic fieldcraft skill that all soldiers should possess. Soldiers should be able to use any means to gain as much information about the threat's methods and where possible identify changes to the environment that can provide a combat indicator to preempt a dangerous situation.

Through the use of Ground Sign Awareness all soldiers should be able to interpret sign left by an threat. It can be adapted for use in any theatre and is especially effective when used in the CIED environment.

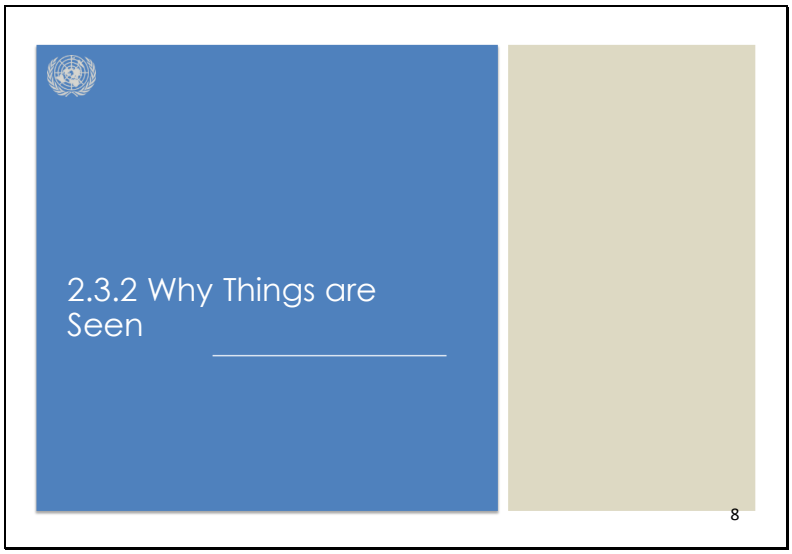
Image courtesy Jordan Sorabjee

Slide 7

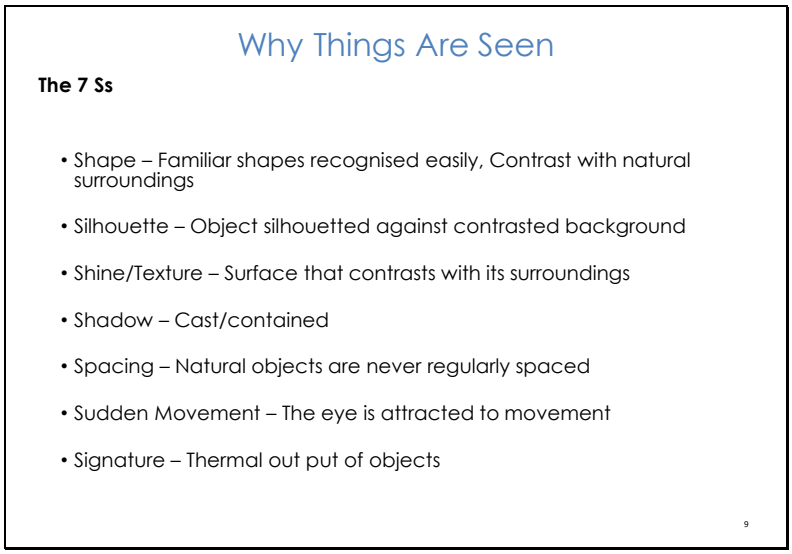


Why is GSA important? The vast majority of IEDs (in some estimates as much as 80%) that are found, are discovered not using specialist equipment, but through sight alone. It is not the sighting of the IED itself, but the change it imposes on the environment resulting in the ground sign being visible. So why is this important? This means the single greatest tool for finding IEDs is using GSA. More importantly, it is a tool that does not require any specialist equipment, and it can be easily taught to all troops and police personnel.

Slide 8



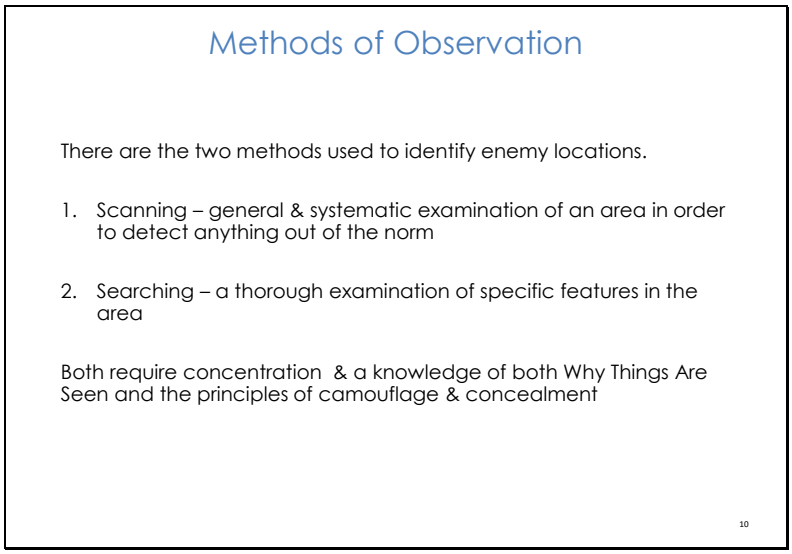
Slide 9



Ground Sign Awareness is built upon basic military skills. As soldiers we learn how to camouflage ourselves and our equipment by understanding why things are seen in the environment. Knowing why things are seen helps us to know how to conceal ourselves better. It also helps us to find things in the environment. The 7 S's is a useful way to understand why things are seen. The 7 S's are:

- Shape – Familiar shapes recognised easily, contrast with natural surroundings
- Silhouette – Object silhouetted against contrasted background
- Shine/Texture – Surface that contrasts with its surroundings
- Shadow – Cast/contained
- Spacing – Natural objects are never regularly spaced
- Sudden Movement – The eye is attracted to movement
- Signature – Thermal output of objects

Slide 10



As well as knowing why things are seen, we can use practical methods to help us find things in the environment.

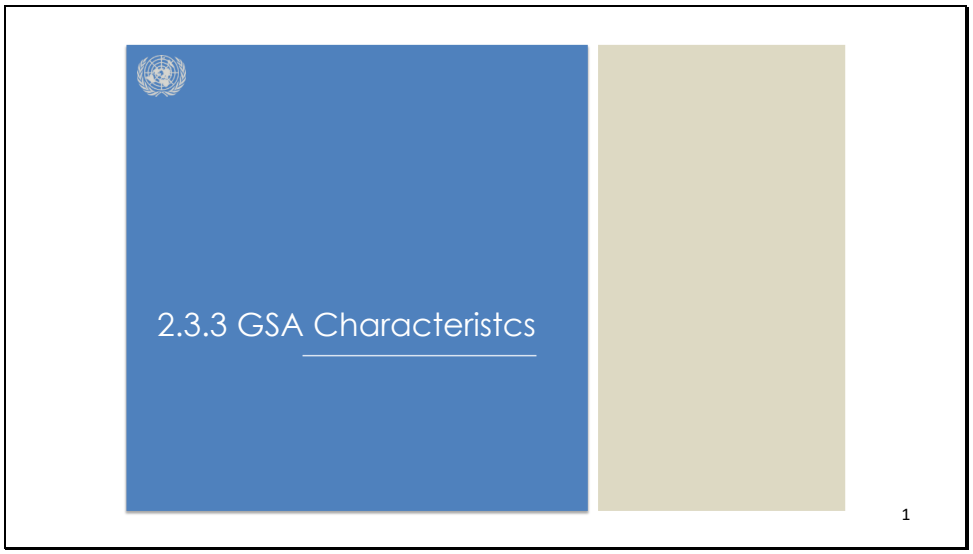
There are two methods used to identify threat locations.

- Scanning – general & systematic examination of an area in order to detect anything out of the norm

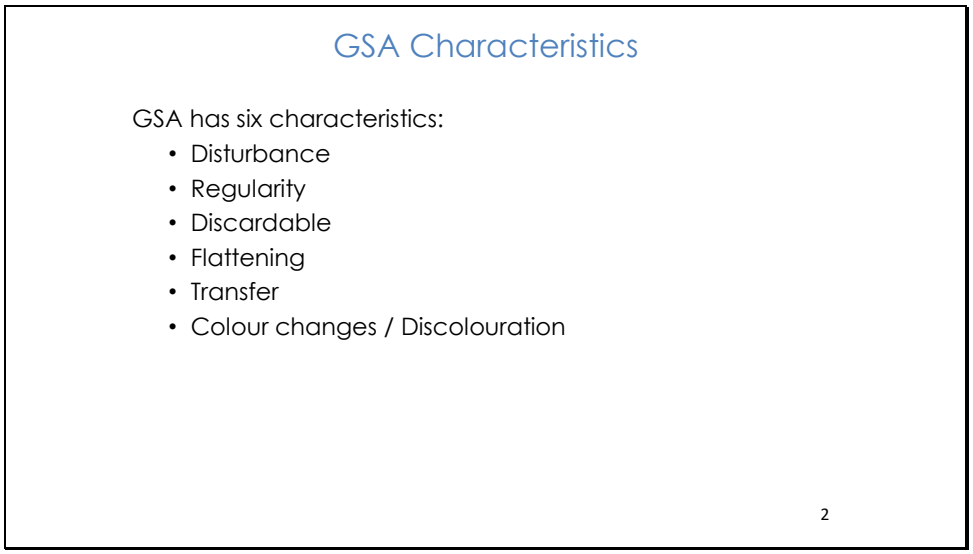
- Searching – a thorough examination of specific features in the area

Both require concentration & knowledge of both Why Things Are Seen and the principles of camouflage & concealment.

Slide 11



Slide 12



GSA generally has six characteristics. These are:
Disturbance
Regularity
Discardable
Flattening
Transference
Colour changes / Discolouration

We will now look at each characteristic in some more detail.

Slide 13

GSA Characteristics

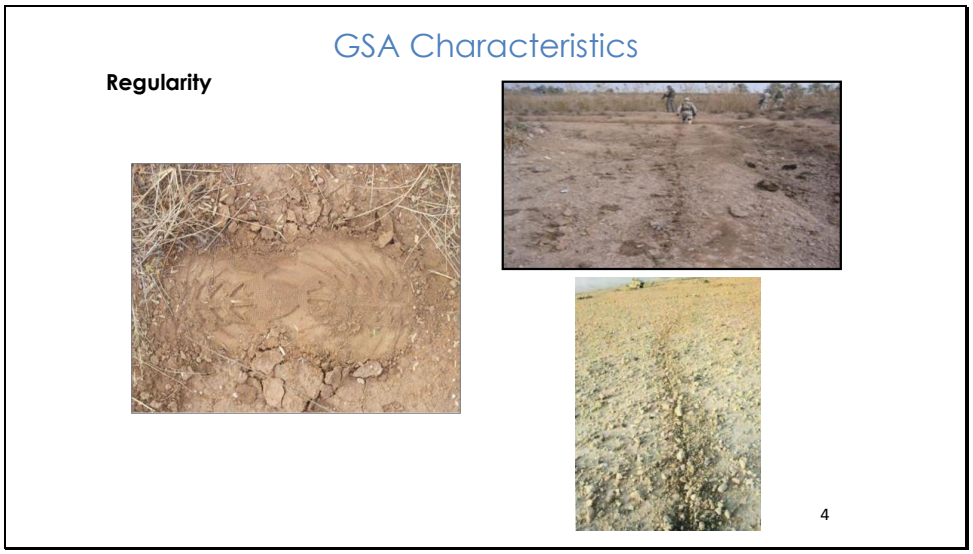
Disturbance

3

Disturbance is any evidence of change or rearrangement from the natural state caused by passage of target. When an IED has been emplaced by digging, it causes a disturbance to the natural pattern of the earth.

Image – Disturbed soil at the base of electricity pole. Courtesy UK MOD.

Slide 14



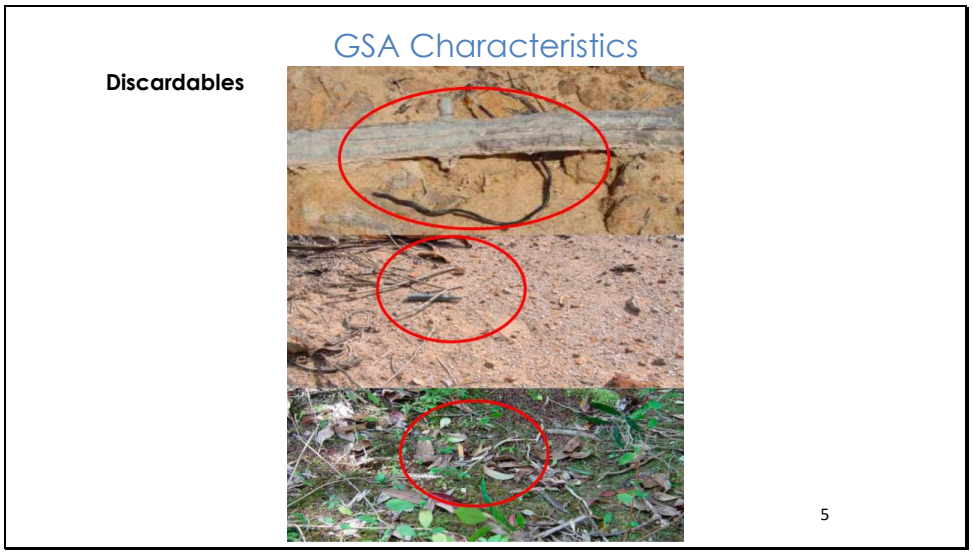
Regularity is an effect caused by straight lines, arches and other geometric shapes. It's hard to find straight lines occurring naturally.

When the IED emplacer emplaces and tries to conceal an IED some things will look out of place compared to the surrounding area.

These lines may not necessarily appear to be only straight but could also be circular rectangular or square shaped which may reveal the outline of the IED.

Image Left – Regular patterns of a shoe print. Courtesy UK MOD
Images Right – straight line caused by digging in of command wire. Courtesy UK MOD

Slide 15



These items maybe intentionally or unintentionally left behind at the emplacement site of an IED. Common items left behind are wire ends, or bits of tape when connecting the power source of the IED.

Images Courtesy UK MOD

Slide 16

Flattening is the general levelling or depression, identified by comparison with immediate surrounding.

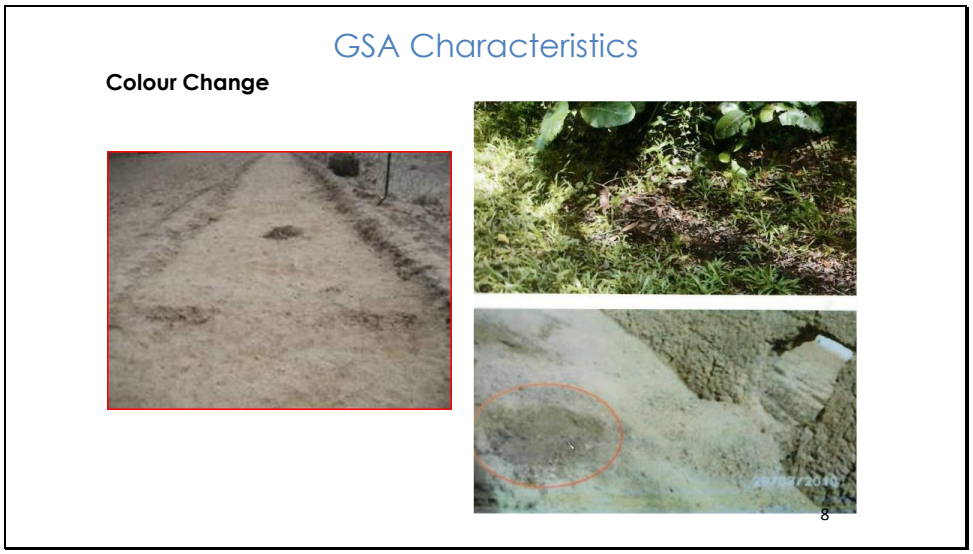
Images Courtesy UK MOD

Slide 17

Transfer is the transit of material from one environment to another.

Image source unknown

Slide 18



Difference in colour or texture from an area that surrounds it.

Images Courtesy UK MOD

Slide 19

GSA Considerations

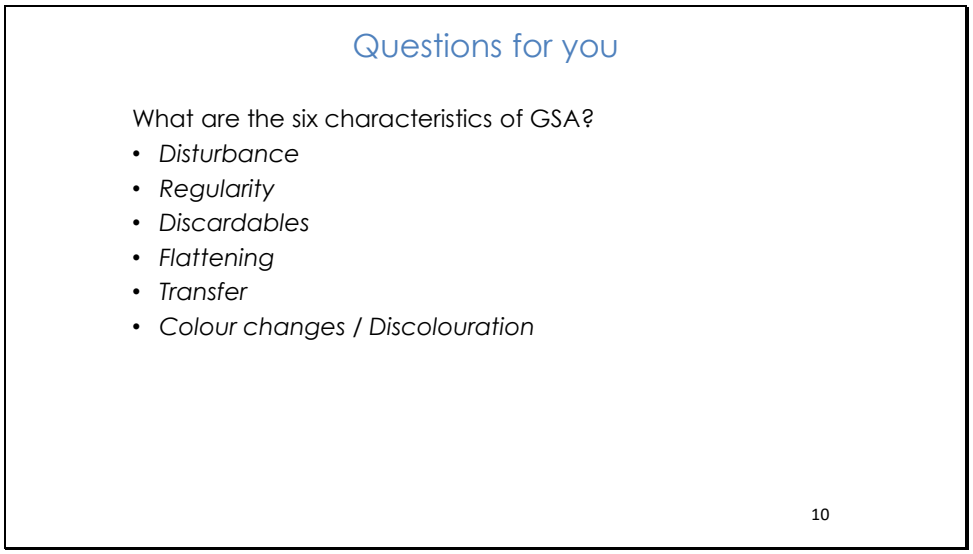
General Considerations for GSA:

- GSA is a skill that requires practice and needs to be maintained.
- Environment specific
- "Tuning In"

9

There are some general considerations for GSA. Firstly, GSA is a skill. It can be practiced and improved but it needs to be practiced being maintained. If you are in an environment in which you only deploy onto the ground once a week or there have been a long gap since last patrol, GSA needs to be refreshed. Luckily it is a skill that can be trained using very little resources. Secondly, developing GSA in one environment won't make that skill applicable in another. You need to practice in the environment in which you are operating in. this is because everything including the soil and vegetation will vary and show GSA in a different way. Furthermore, the types and ways IEDs are employed will vary and so the way the sign will indicate will vary too. This is why we say there is a bit of time required to tune into a new environment. This is to say it will take a few days or weeks to start to fully understand the environment and be able to identify ground sign.

Slide 20



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Slide 21

Questions?

UNMAS

11

Lesson

2.4

VULNERABLE POINTS AND VULNERABLE AREAS

The Lesson

Time. This module requires approximately 135 minutes to teach. 60-70 minutes of classroom theory followed by 60-70 minutes of practical training. See Annex B.

Performance Statement. At the end of this lesson, the participants will be able to describe and recognize Vulnerable Points and Vulnerable Areas as well as apply the use of CAGES to dynamically assess vulnerable points.

Key Learning Points. The following main teaching points are contained in the delivery of this module:

(1) General principles
(2) Definitions:
   a. Vulnerable Points
   b. Vulnerable Areas

(3) Types of Vulnerable Points:
   a. Terrain orientated VP
   b. Situationally orientated VP

(4) Examples of VP and VA.

(5) Personal Threat Assessment – CAGES

Methodology. This Lesson will be introduced through the lecture method combined with the participatory approaches and exercises/demonstrations.

Infrastructure. Classroom with projector facilities, sandpit, and accessible outside areas.

Equipment. 2 x shovels, 2 x pickaxe, 2 x bass broom, model making equipment

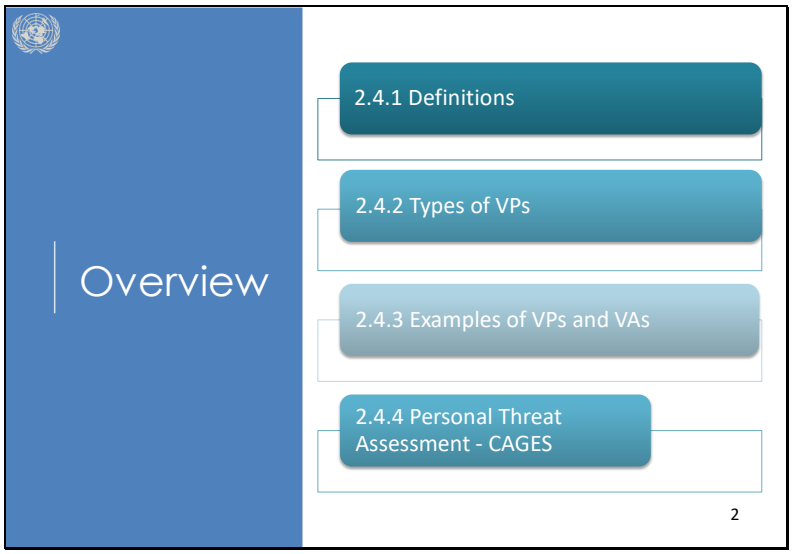
Slide 1

EHAT Lesson 2.4: Vulnerable Points and Vulnerable Areas

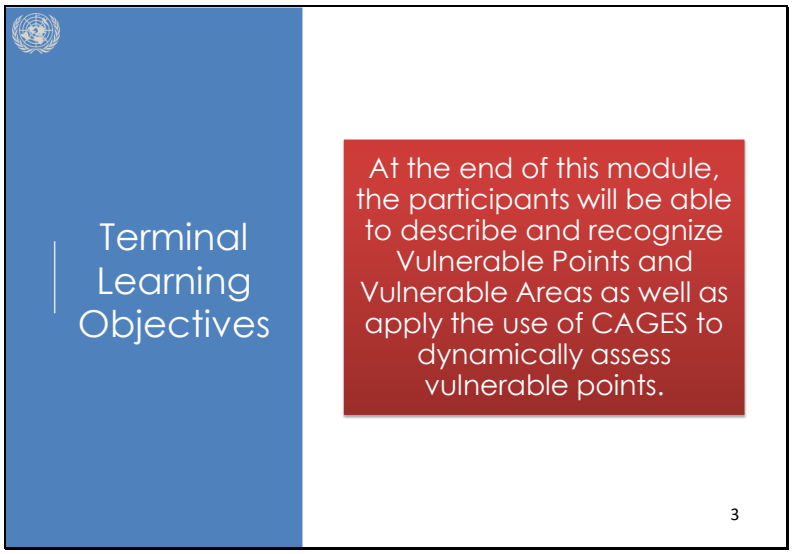
1

Find guidance inserted in the note section of each slide.

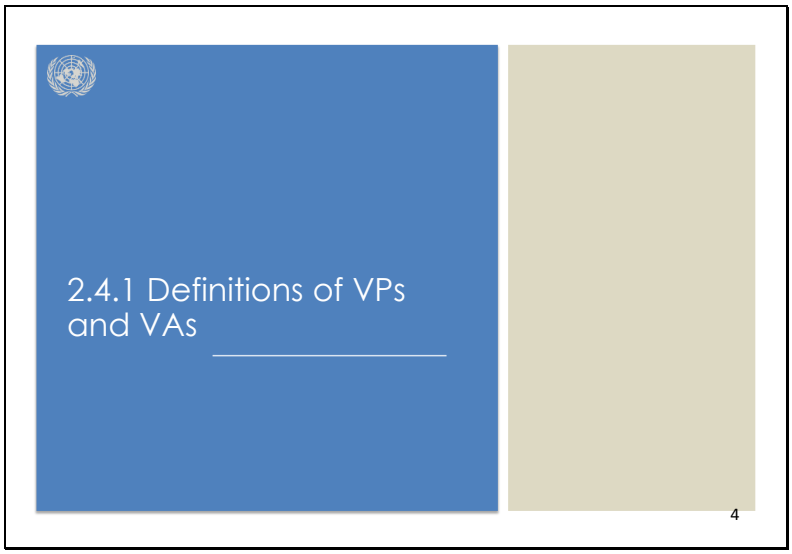
Slide 2


Overview
2.4.1 Definitions
2.4.2 Types of VPs
2.4.3 Examples of VPs and VAs
2.4.4 Personal Threat Assessment - CAGES
2

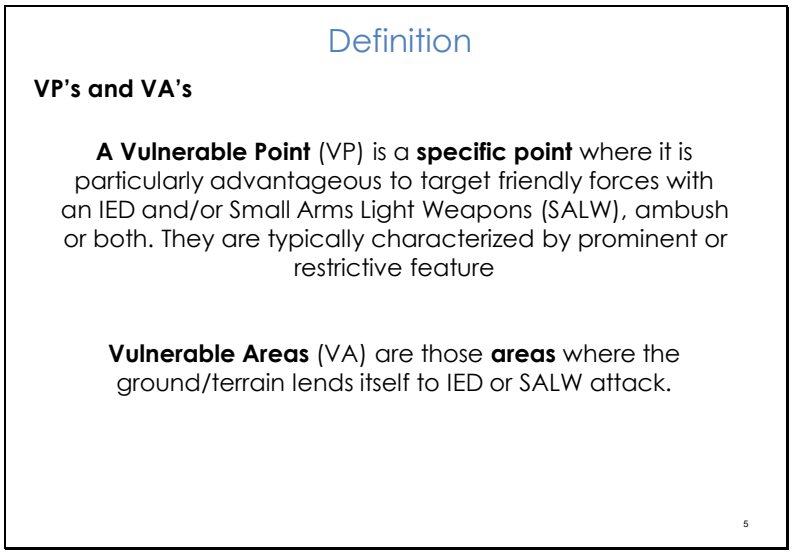
Slide 3


Terminal Learning Objectives
At the end of this module, the participants will be able to describe and recognize Vulnerable Points and Vulnerable Areas as well as apply the use of CAGES to dynamically assess vulnerable points.
3

Slide 4



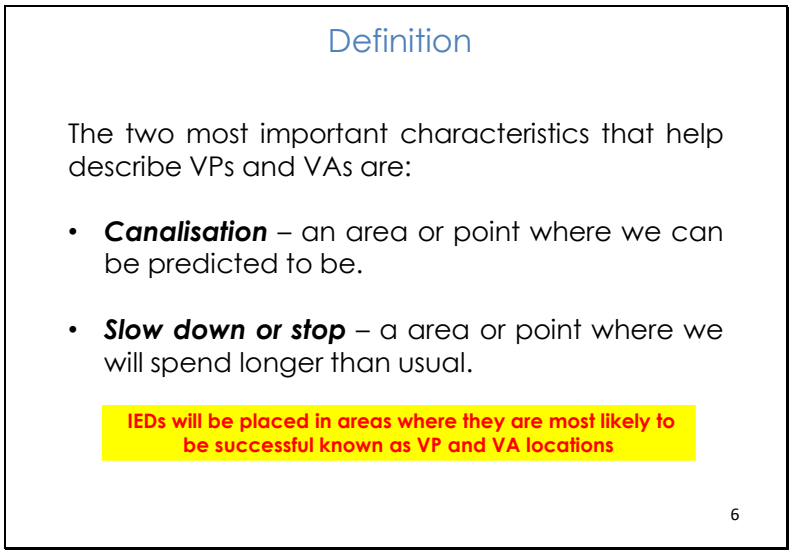
Slide 5



A Vulnerable Point (VP) is a specific point where it is particularly advantageous to target friendly forces with an IED and/or Small Arms Light Weapons (SALW), ambush or both. They are typically characterized by prominent or restrictive feature, as e.g., limitation of speed, movement, or visibility due to terrain, or choke point on the ground. They could as well be based on patterns established by Peacekeepers, using the same entry to camps, patrolling the same roads and villages, using the same lookout, etc.

Vulnerable Areas (VA) are those areas where the ground lends itself to IED or SALW attack.

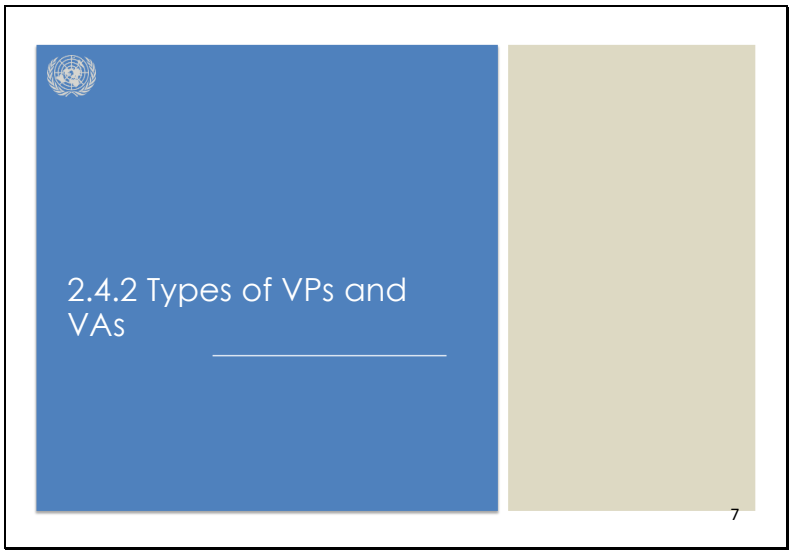
Slide 6



While there are various locations that are VPs and VAs, the two most important characteristics are locations where a target is canalized into a particular route of location and / or forced to slow down or stop.

- Canalization – allows an aggressor to know the path a target will travel.
- Slow down or stop – allows an aggressor to initiate an IED at the optimal moment to maximize target effects

Slide 7



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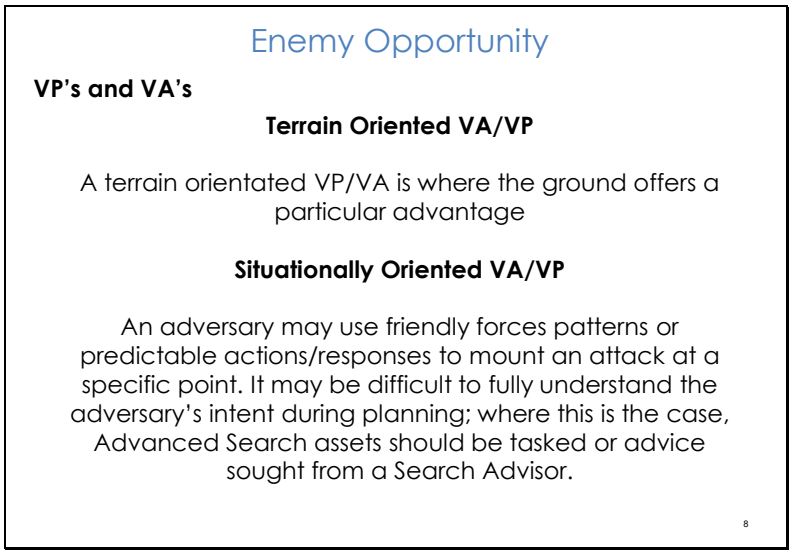
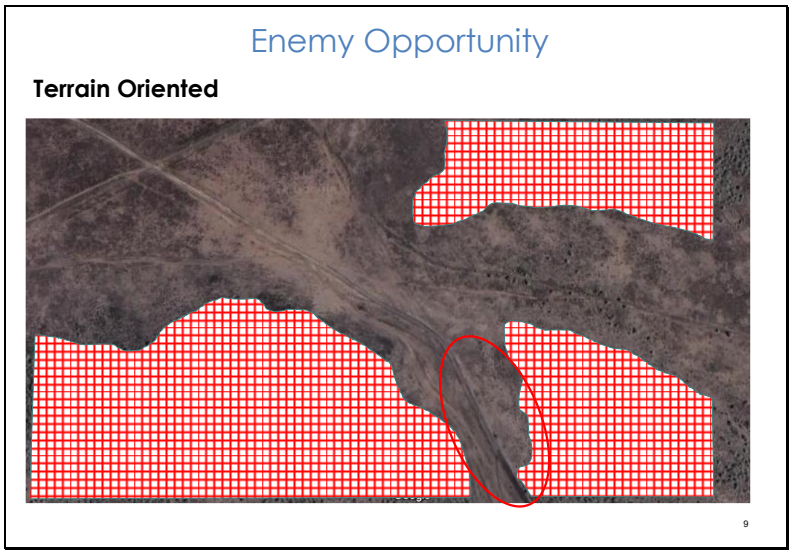


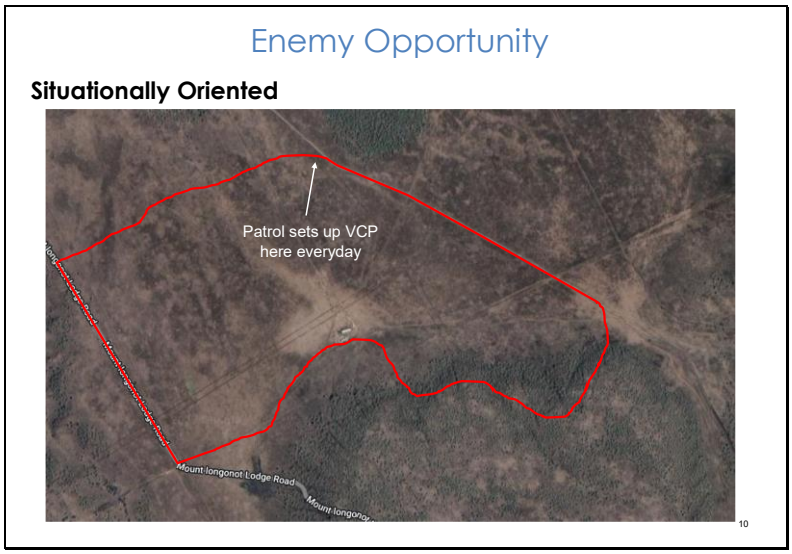
It is important to note the VAs, and VPs may be further categorized as Terrain or Situationally oriented VA/VPs. This is to say that VA/VPs may be determined both by the physical terrain or by or actions. The definitions of both are:

Slide 9



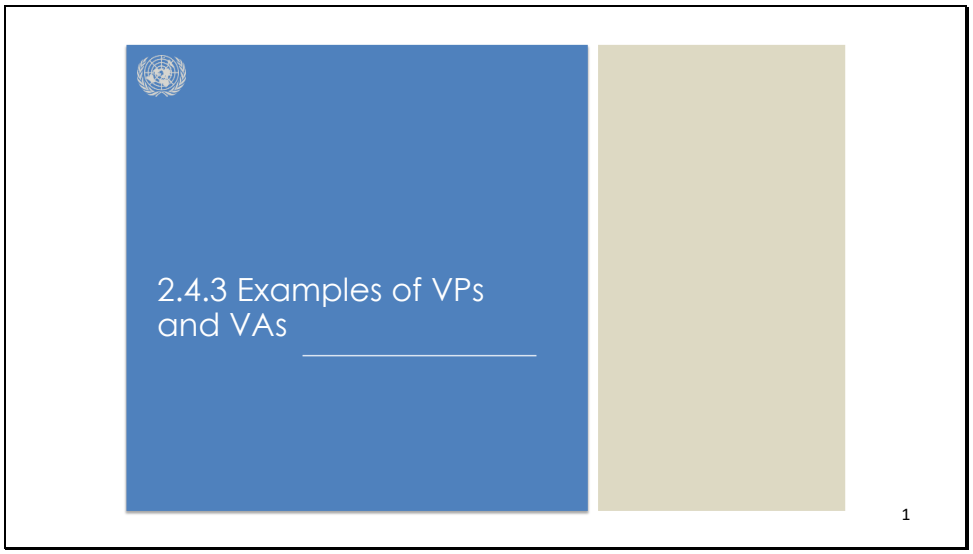
This is an example of a Terrain Oriented VP. **Instructor Notes**: Build the slide describing the hashed areas as restrictive terrain. This leaves a specific area which is channelled that would be classed as a VP. It is a VP because the terrain has forced us to be channelled.

Slide 10



Red line is an example of a patrol route. The patrol goes out at the same time every day, follows the same route and sets up a VCP at the same place everyday. This route is now a situational VA, and the checkpoint is a situational VP.

Slide 11



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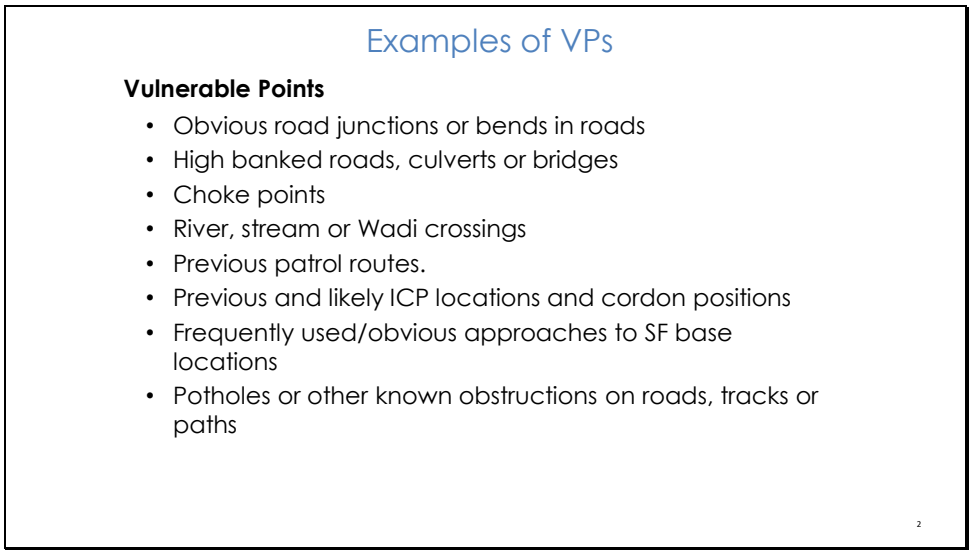


When deciding where to place an IED to target you, the Threat will consider the location where he thinks he will have the greatest chance of success. Points where your movement is forced to slow down or is channelled by the environment will increase the Threat's chance of success and therefore it is more likely that you will be targeted in these locations.

When identifying where you might be targeted (VPs) consider the following.

•Obvious road junctions or bends in roads – i.e. obvious slow down points.
•High banked roads, culverts or bridges.
•All evident channels/choke points, e.g. alleyways, cul-de-sacs, routes flanked by walls, buildings or water etc.
•River, stream or Wadi crossings.
•Previous patrol routes. (Check honesty traces).
•Previous and likely future ICP locations and cordon positions.
•Frequently used/obvious approaches to SF base locations.
•Potholes or other known obstructions on roads, tracks or paths.

Slide 13

Examples of VPs

Vulnerable Points – Previous Attack Sites

3

A previous IED attack at a particular location is evidence that all necessary conditions were present at that time. This is why aggressors may have chosen and continue to use them.

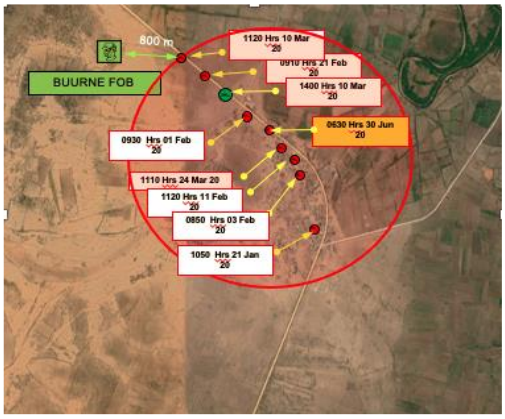
When a number of IED attacks occur at the same location, they are often referred to as "IED Hotspots".

The analysis tool of heat mapping using different colours to visually depict areas of higher IED activity in an area of consideration is very useful.

Slide 14

Examples of VPs

Vulnerable Points – Approach to friendly force locations



4

Whenever a base location is established, it is necessary for logistical resupplies and operational deployment to enter and exit the base.

- There are limited number of approaches to a base.
- Aggressor can emplace an IED on these approaches as they are routes of ***canalization***.
- Increasing the number of approaches and entry points a base has and if their use is varied randomly, the vulnerability of such approaches can be reduced,
- However, additional security requirements as an increased number of entry points require additional assets to protect them from attack.

Slide 15

Examples of VPs

Vulnerable Points – Previously occupied locations

No	Year	Incident in Host Nation FOB	IED
1	2017	25 June, conduct a pre-dawn attack and briefly occupies the FOB	
2	2018	7 June, conduct a pre-dawn attack and briefly occupies the FOB	YES
3	2018	25 August, conduct a pre-dawn attack and briefly occupies the FOB	
4	2018	15 October, conduct a pre-dawn attack and briefly occupies the FOB	YES
5	2018	1 December, Host Nation vacate the FOB due to political issues allowing to occupy the position	
6	2019	17 August, conduct a pre-dawn attack and briefly occupies the FOB	
7	2020	25 March, conduct a pre-dawn attack and briefly occupies the FOB	YES
8	2020	5 August, conduct a pre-dawn attack and briefly occupies the FOB	YES5

Not all positions used by security force personnel are manned continually and are abandoned for periods of time and then reoccupied, e.g.

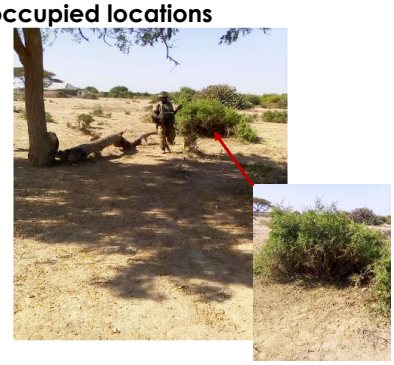
- Defensive positions out from a main base location that is only manned at certain times e.g. first light and last light
- Check Point (CP) only occupied for periods of high security e.g. Vehicle Check Point (VCP) at key urban points.
- A previously occupied position is abandoned due to aggressor action and later retaken. It is common practice to boobytrap such positions by retreating forces i.e. emplace IEDs.

You can see from the table an example where friendly forces continue to re-occupy a disused FOB. Note the number of IED incidents.

Slide 16

Examples of VPs

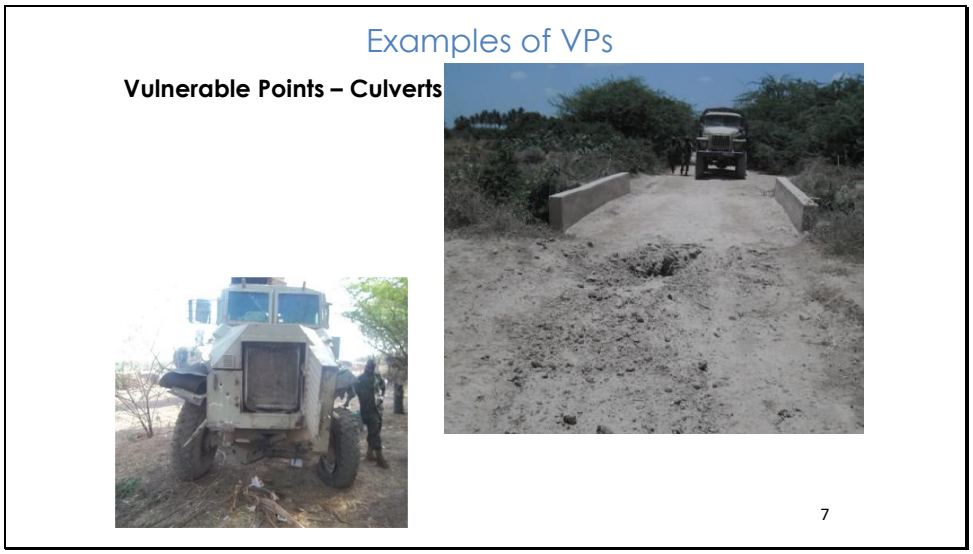
Vulnerable Points – Previously occupied locations



Example of two previously occupied check points, both of which with VO IEDs, to target returning troops

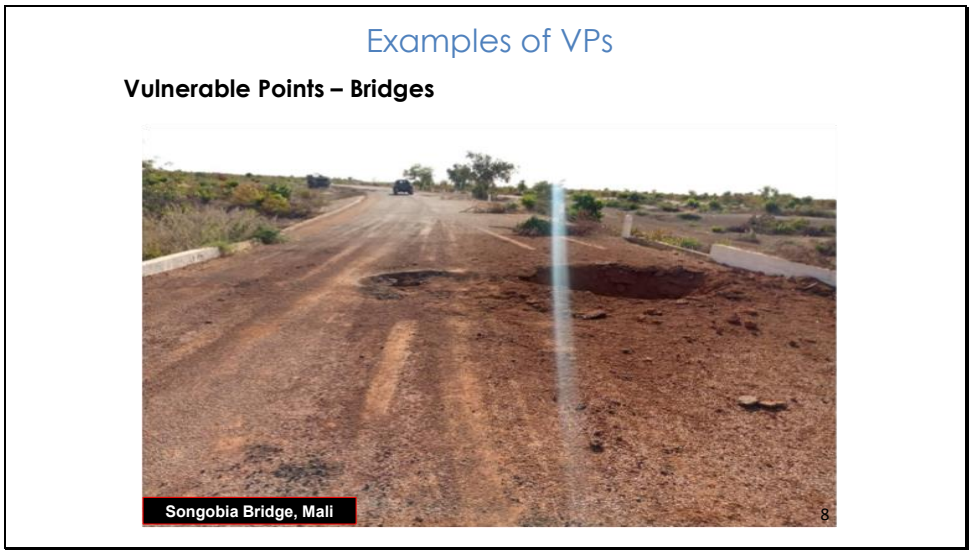
6

Slide 17



Culverts are an example of a VP as they force us to slow down and become canalized.

Slide 18



Bridges are built across rivers because surrounding area is impassable. River crossing points and bridges over rivers, wadis, ditches and valleys force those using them to use pre-defined routes i.e. ***canalized routes.***

At crossing points where there is no solid surface such as non-bridged wadi, stream and river crossing points the surface will be soft making emplacement easier and possibly the wetness allows for lower ground signs of IED emplacement.

Stream beds are good to emplace IEDs in low water or rocky areas.

Slide 19

Examples of VPs

Vulnerable Points – Bridges

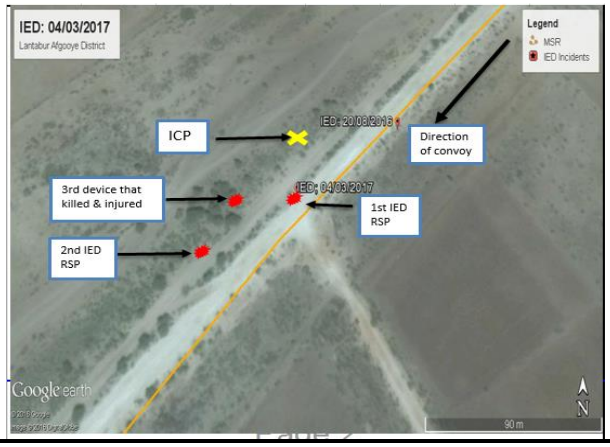
9

This slide shows an example of a bridge across a river. You can see from the incidents the number of times it was targeted by IEDs. This also is an example of sharp bends, see later slide.

Slide 20

Examples of VPs

Vulnerable Points – Intersections and Junctions



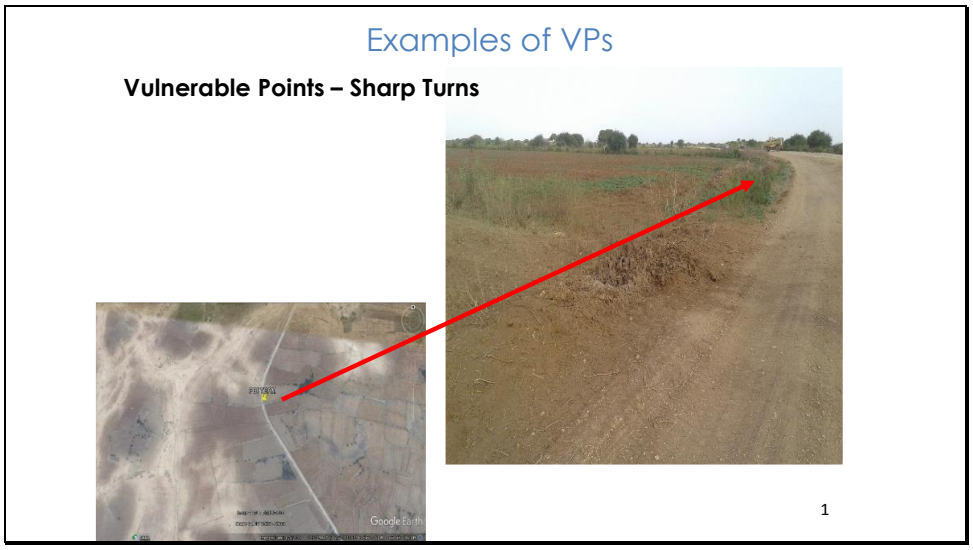
10

Intersections and junctions are points on a route at which vehicles are forced to ***slow down or stop*** due to traffic or to avoid an accident.

Such VP offer an aggressor

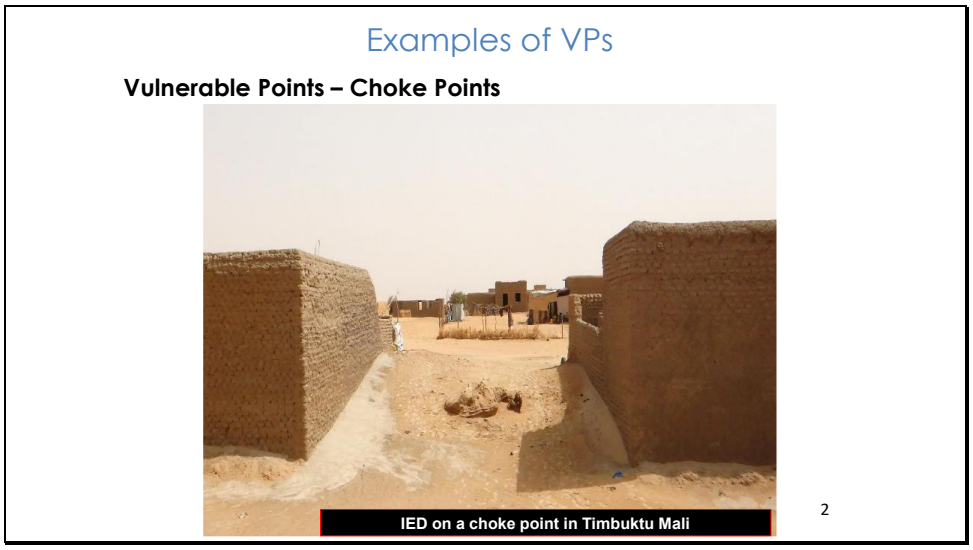
- Slow moving or static target
- Compacted targets
- Predictable target actions at this location

Slide 21



Sharp turns on routes are points where vehicles are forced to ***slow down*** to avoid coming off the road or turning the vehicle over, making target engagement easier for an aggressor.

Slide 22

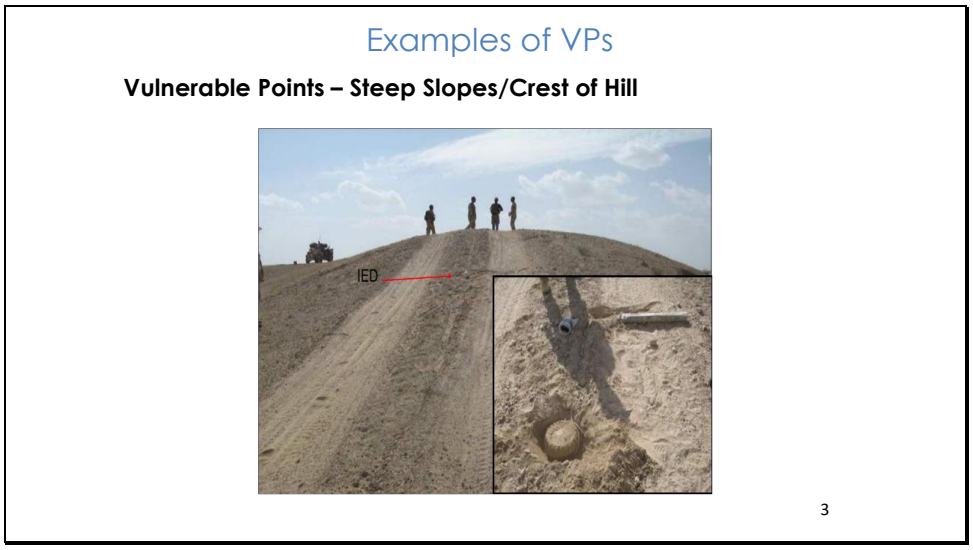


Choke points are locations in which the terrain or an obstacle does not allow the free movement through it and requires the use of pre-defined route i.e. they are points of ***canalization*** which an aggressor can exploit.
Movement being restricted to a specific route through manmade or natural obstacles in your way.

Examples of areas of canalization include:

- Rocks, fallen trees or broken-down vehicles on the route
- The entry / exit to a valley or pass
- A gap in a wall

Slide 23



Steep slopes can be a VP due to the need of a vehicle, particularly travelling up hill to slow down. Similarly, the crest of hills with a steep slope, often means that as a vehicle crests the hill, the road cannot be seen due to the front of the vehicle obscuring the road. This means it is hard to spot GSA.

Slide 24

Examples of VPs

Vulnerable Points – Areas of soft ground or pot holes

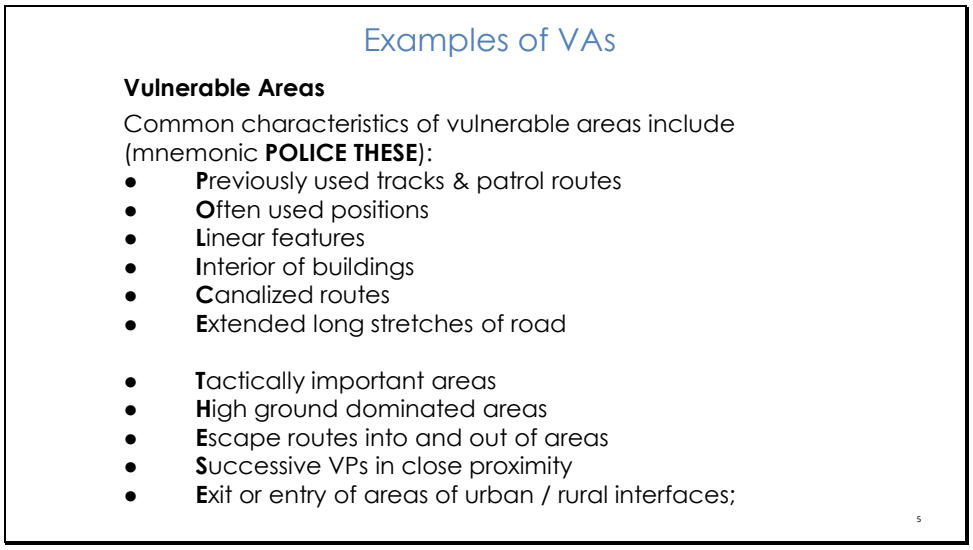
Soft Ground can prove advantageous to the Insurgent:

- It is easier to emplace devices in soft ground.
- Vehicles are forced to slow down.
- Vehicles can become stuck.
- Troops may have to dismount vehicle to help with recovery if they become stuck.

Soft Ground

Soft ground can prove advantageous to the adversary:
It is easier to emplace devices in soft ground,
Vehicles are forced to slow down,
Vehicles can become stuck,
Troops may have to dismount vehicle to help with recovery if they do get stuck.

Slide 25

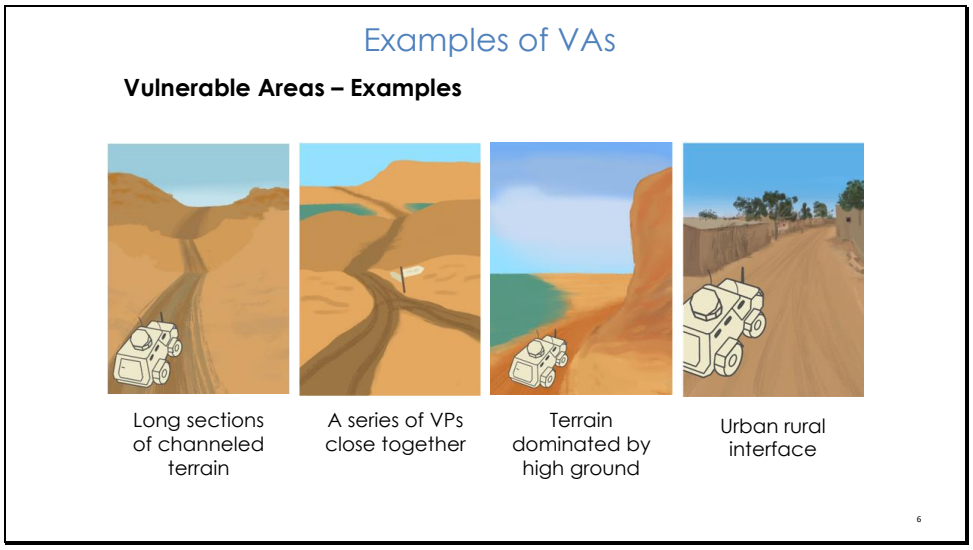


Common characteristics of vulnerable areas include (mnemonic POLICE THESE):

- **P**reviously used tracks & patrol routes
- **O**ften used positions
- **L**inear features
- **I**nterior of buildings
- **C**analized routes
- **E**xtended long stretches of road

- **T**actically important areas
- **H**igh ground dominated areas
- **E**scape routes into and out of areas
- **S**uccessive VPs in proximity
- **E**xit or entry of areas of urban / rural interfaces.

Slide 26



These are examples of VAs.

- Long Sections of Channelled terrain force our travel to become predictable.
- A series of VPs which a close together can be considered as a single VA.
- Terrain dominated by high ground which affords the threat an advantage of attack.
- The rural urban interface is a classic VA as it allows the threat to have freedom of movement in the urban terrain whist our movement into the urban area is predictable.

Slide 27

Examples of VAs

Previously Used Tracks and Patrol Routes

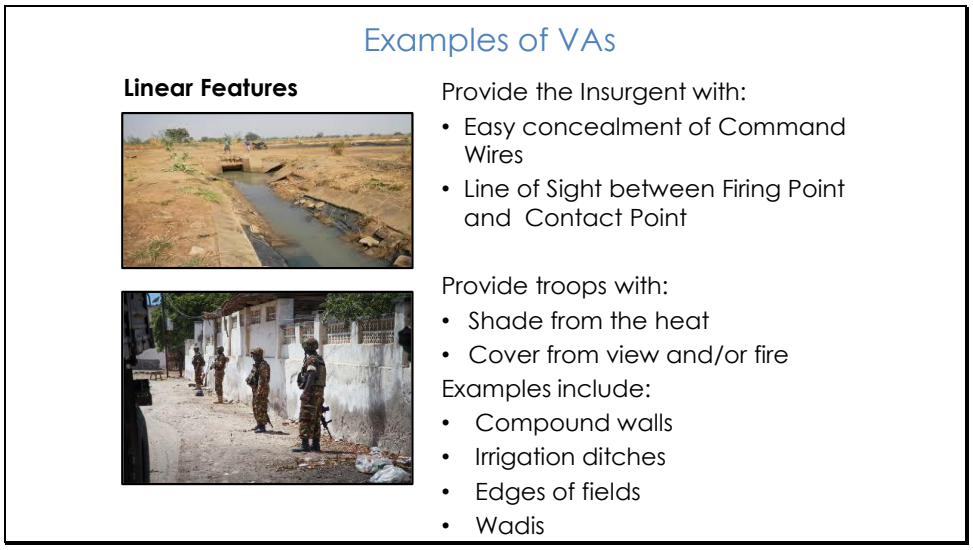
Tracks used by previous Patrols provide a good indicator of future patrol routes. Pattern setting allows Troops to be targeted.

If you are on a route that has been used before or regularly used, you are vulnerable to attack

Previously Used Tracks and Patrol Routes

It is important to know and track previous patrol routes to enable you to understand where you are likely to be targeted. Inevitably there will be tracks which have to be used repeatedly due to being the only route available.

Slide 28



Linear Features

Provide the adversary with:

- Easy concealment of command wires,
- Line of sight between firing point and contact point.

Provide troops with:

- Shade from the heat,
- Cover from fire and/or fire.

Examples include:

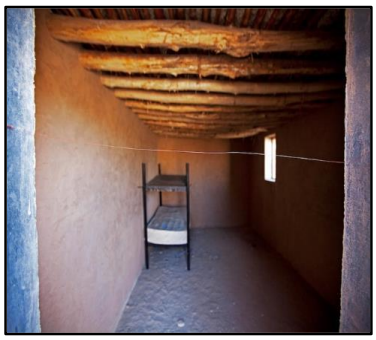
- Compound walls,
- Irrigation ditches,
- Edges of fields,
- Wadis.

Slide 29

Examples of VAs

Linear Features

Interiors of buildings can easily conceal enemy presence as well as offering opportunity for channelling through doorways in which devices may be hidden.



Interiors of Buildings

These provide multiple opportunity for friendly forces to be channelled, which can be taken advantage of. Perpetrators can also conceal themselves from the view of personnel more easily.

Slide 30

Examples of VAs

Canalized Routes

Canalized routes are areas where patrols are channelled by **natural** or **man-made** features such as:

- Banks, ditches.
- Gaps between dense vegetation.
- The base of steep terrain.

Canalized Routes

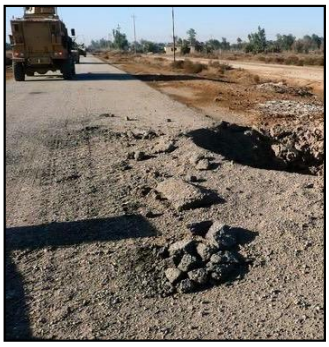
In addition to having movement options restricted, canalised routes can also reduce visibility, making it harder to observe for aggressor approaches, patterns of life, aiming markers, etc.

Slide 31

Examples of VAs

Extended Stretches of Observable Road

- Where insurgents can see Friendly Forces approach from a distance.
- This type of terrain increases potential for CWIED and RCIED threats.



Extended Long Stretches of Road

Perpetrators are able to observe troops movement well in advance and anticipate numbers, capability, etc. It also provides a line of sight (LoS) and is advantageous for the use of CW and RC IEDs.

Slide 32

Examples of VAs

Areas of Tactical Importance

Areas that are tactically important to troops may become a target so that the Insurgent causes disruption to future operations, they include:

- Airfields, Runways and HLSs.
- Communication masts.
- Water re supply points.
- Fuel re-supply points.
- Crossing Points.

Tactically Important Areas

Any location that is necessary for friendly forces or is vital for mission success should be considered tactically important. Frequently targeted Tactically Important Areas may include water points, air strips, MSRs, etc.

Slide 33

Examples of VAs

High Ground Dominated Areas

High ground-dominated areas provide any of the following:

- Good field of view of approaching targets.
- Clear line of sight to a contact point and aiming marker.
- Unobstructed signal from firing point to the receiver of a RCIED.

High Ground Dominated Areas

- Good field of view of approaching targets.
- Clear line of sight to a contact point & aiming marker.
- Unobstructed signal from the firing point to the receiver of an RCIED.

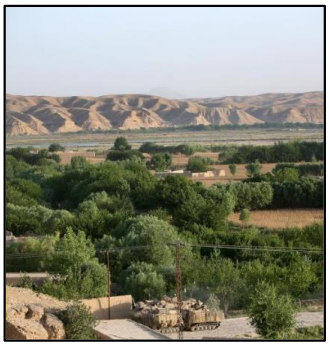
These provide good fields of view of approaching targets and can easily be utilised in conjunction with RC and CW IEDs.

Slide 34

Examples of VAs

Escape Routes

- Escape routes may be littered with IEDs to protect perpetrators withdrawal.
- They can also conceal routes of approach/exit for other potential attacks.



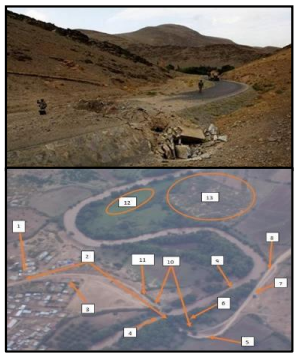
Escape Routes in and out of Areas

Certain pre-determined escape routes from aggressor firing points are likely to have VO IEDs placed around them to target possible pursuers in the event of them being identified. Routes may also provide concealed movement which could be used to enhance the success of SALW attacks.

Slide 35

Examples of VAs

Successive VPs in Close Proximity

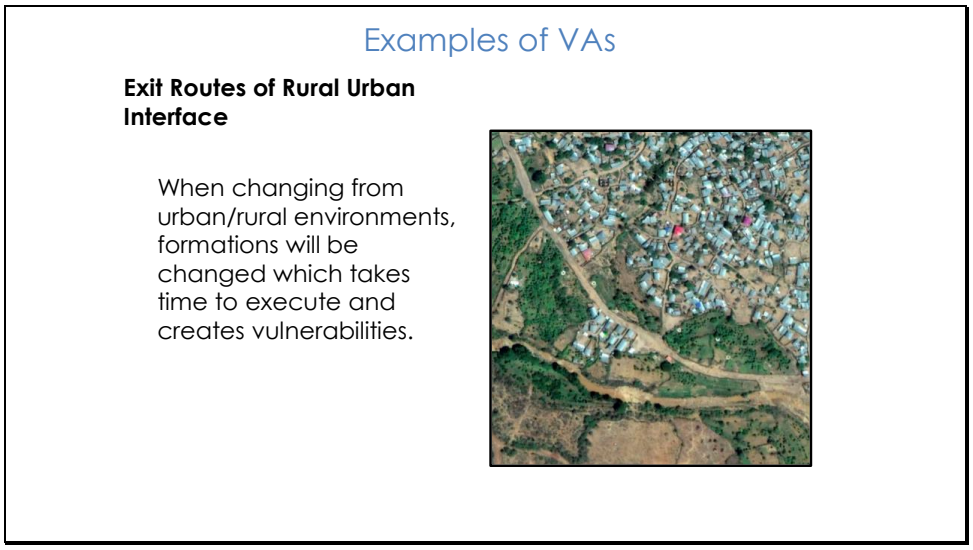


A number of VPs in close proximity which can not be treated separately are treated as a VA.

Successive VPs in Close Proximity

If they are too close to be treated as individual VPs, they will be combined to be considered a VA.

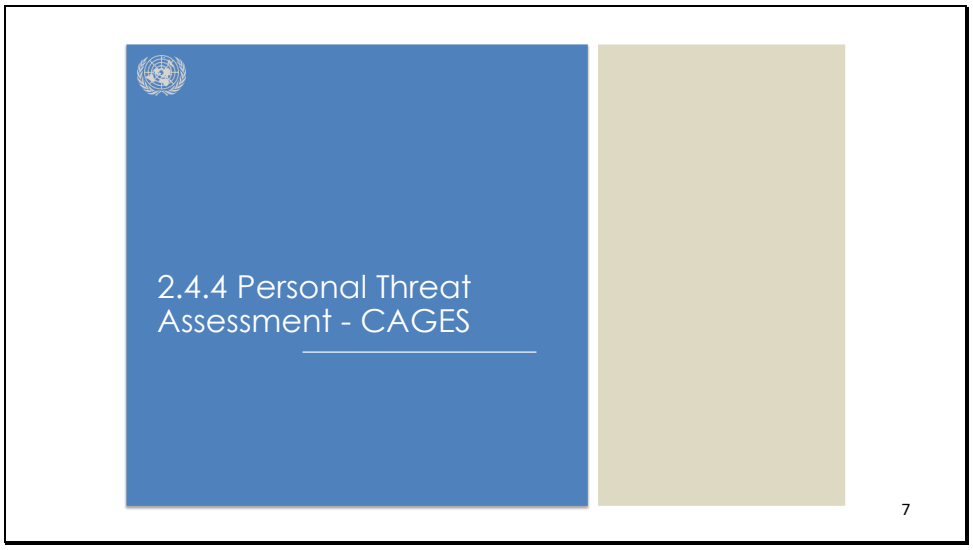
Slide 36



Exit Routes of Urban/Rural Interface

As personnel move from urban to rural surroundings or vice-versa, it will take time to change formations as per desired TTPs. This means being stationary and vulnerable for a time whilst troops are moving into new positions/formations. It will also require different considerations in terms of likely firing points, contact points, visibility, etc.

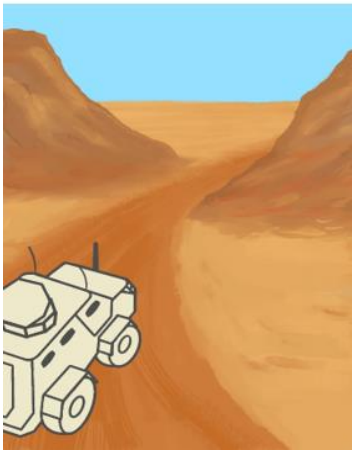
Slide 37



Slide 38

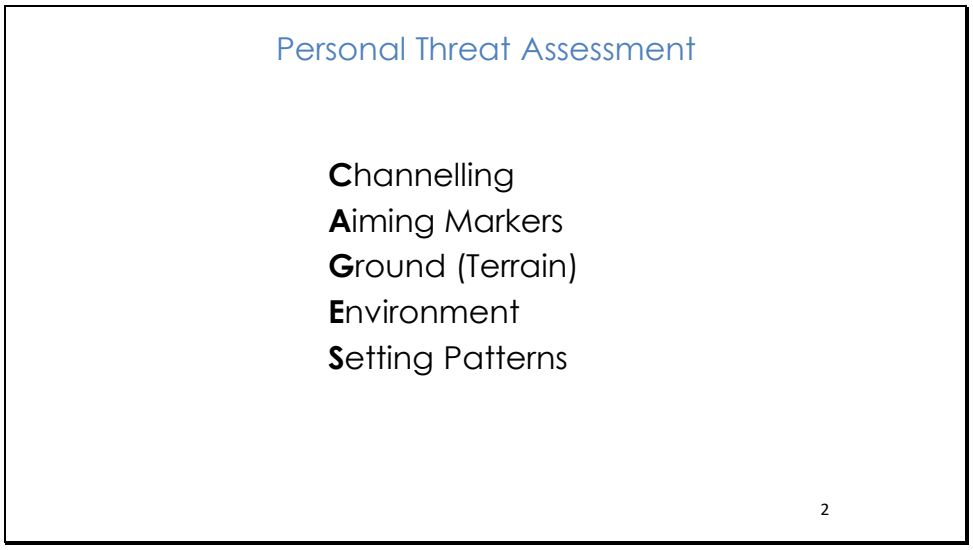
Personal Threat Assessment

- IEDs are not placed at random
- They are placed at points which advantage the adversary
- These are known as **vulnerable points**.
- The use of a personal threat assessment can help to alert that you might be approaching a vulnerable point.



Despite being cheap and easy to manufacture, IEDs are still a limited resource to an adversary. As such, they are not deployed randomly everywhere. They are placed by an insurgent in locations which afford an advantage to the adversary and where the IED can have the best chance of achieving its effect. These locations at which an IED can be effectively employed are known as Vulnerable Points. A personal threat assessment can be used by soldiers on the ground to help them identify Vulnerable Points and alert them to the risk of an IED attack.

Slide 39



There are five key indicators to continually look out for by proactively looking at the surrounding when operating in an IED threat environment. CAGES is a tool that can be used for IED indicators:

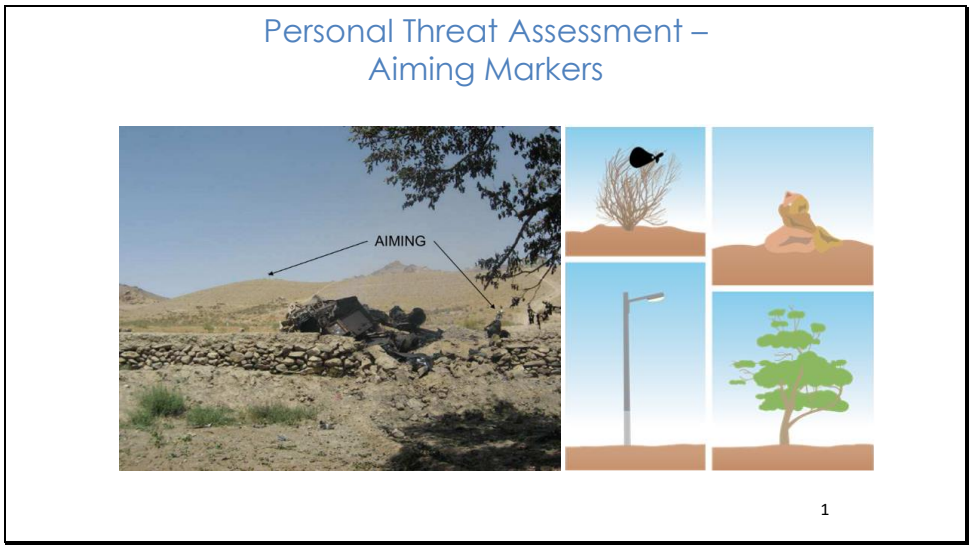
Channelled
Aiming marker
Ground
Environment
Setting Patterns

This is a tool that is taught on the EHAT course. Like GSA, this is a skill that should be held by everyone who deploys, regardless of rank.

Slide 40

While operating in an IED threat environment, it's important to constantly assess whether the ground is channelling you, either by natural or manmade obstacles or features. If freedom of movement is restricted, vulnerability is increased.

Slide 41



An aiming marker is a **local feature** or **artificial item** located between a **firing point** and the **contact point of a command IED** used to **optimise the moment of initiation.**

Aiming markers are used to assist in aiming and initiating a command IED at the optimal moment.

It's positioned in front or behind the location of the IED with respect to the location of the firing point.

Slide 42

Personal Threat Assessment – Ground

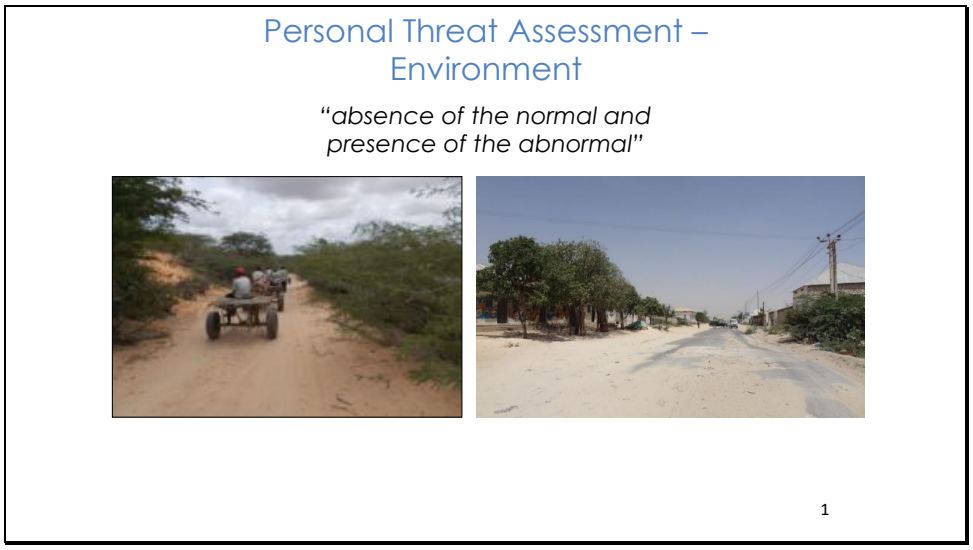
2

Does the ground or terrain lend itself to an attack? If you were the threat is this the kind of place that you would carry out an attack? Ground can also be used to refer to ground signs.

Slide 43

Ground should also be used as a reminder to look for ground signs.

Slide 44

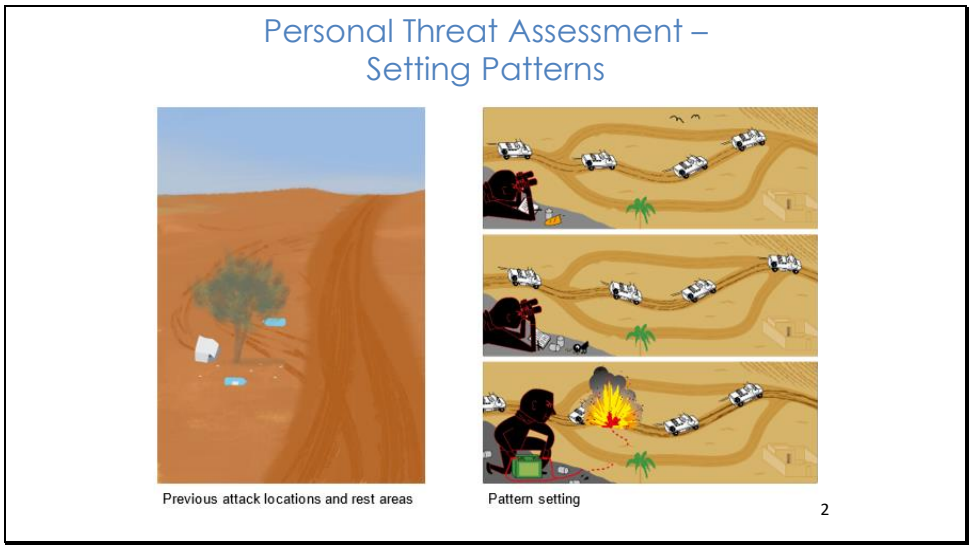


The environment is also referred to as atmospherics. It is a description of the mood or feeling created by awareness of the environment. It's synonymous with the expression "absence of the normal and presence of the abnormal".

Examples

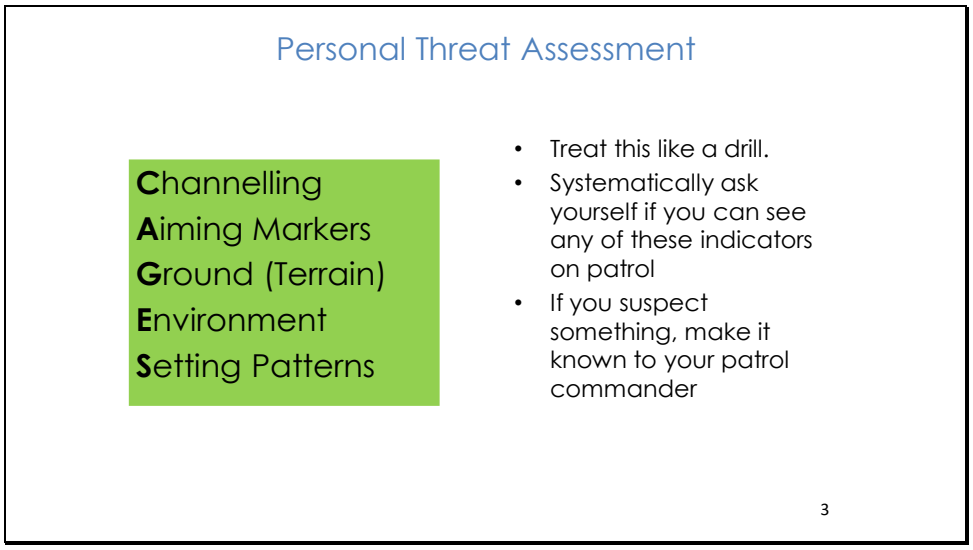
- Presence of fewer people in a locality than normal.
- Presence of more people in a locality than normal.
- People acting suspiciously or paying undue attention.
- Lack of traffic when it would normally be present.
- Sequence of persons, possibly spotters, using mobile phones while watching security forces.

Slide 45



Setting Patterns. Have you or your team been setting patterns? Have you used this route before? Have you been conducting activities at the same time every day? If you have set a pattern, you could be targeted. Two very common examples of pattern setting include using the same routes while patrolling or stopping on patrol in the same locations. In the majority of IED strikes, there has been some kind of targetable pattern that has been set by friendly forces.

Slide 46



CAGES should be used like a drill. Ask yourself systematically if any of the conditions of CAGES are met. If they are, you are almost certainly approaching a VP. This should trigger you to be on the lookout for GSA. If you have identified that you are approaching a VP you should alert your patrol commander.

Slide 47

Questions?

UNMAS

4

Lesson

2.5

C-IED CHECKS

The Lesson

Time. This module requires approximately 180 minutes to teach. 45 minutes of classroom theory followed by 135 minutes of practical training. See Annex B.

Performance Statement. At the end of this lesson, the participants will be able to demonstrate the application of the 5/25m drill in both a mounted and dismounted role.

Key Learning Points. The following main teaching points are contained in the delivery of this module:

(1) Introduction to 5/25s and why it is used.

(2) Demonstration and practice of 5/25s.

Methodology. This Lesson will be introduced through the lecture method combined with the participatory approaches and exercises/demonstrations.

Infrastructure. Classroom with projection facilities, outside areas.

Equipment. Demonstration vehicle.

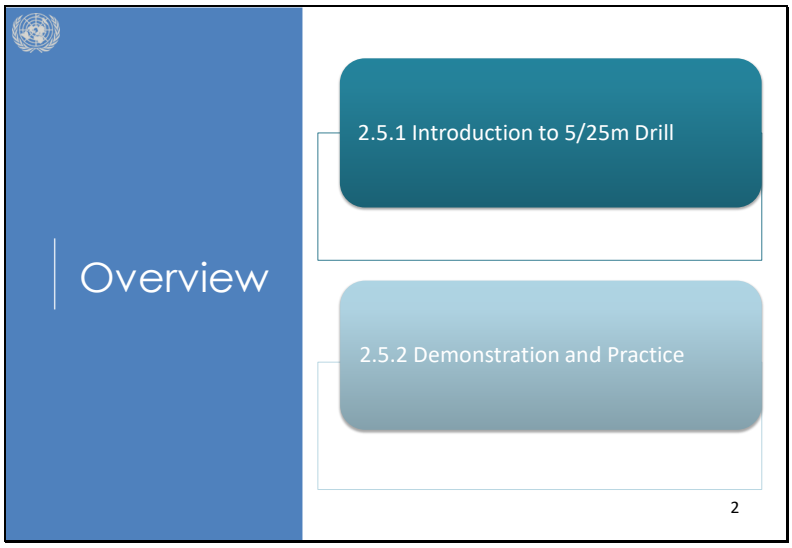
Slide 1

EHAT Lesson 2.5:
CIED Checks: 5/25m Drill

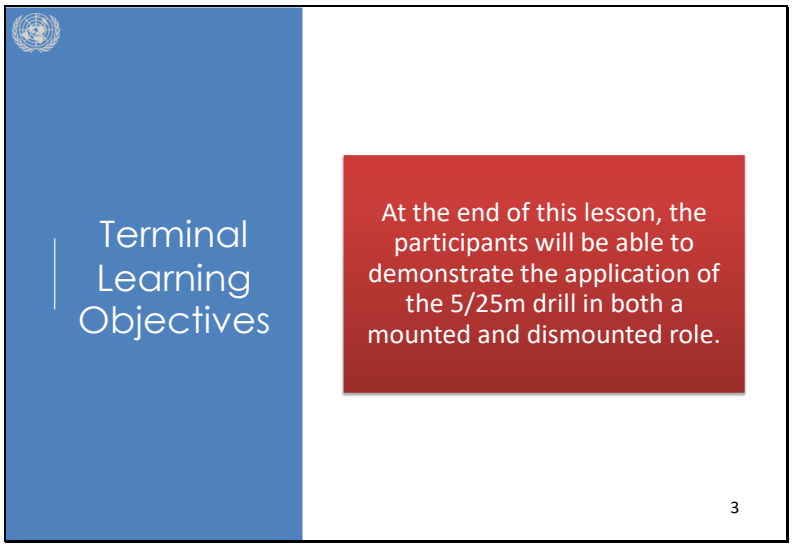
1

Find guidance inserted in the note section of each slide.

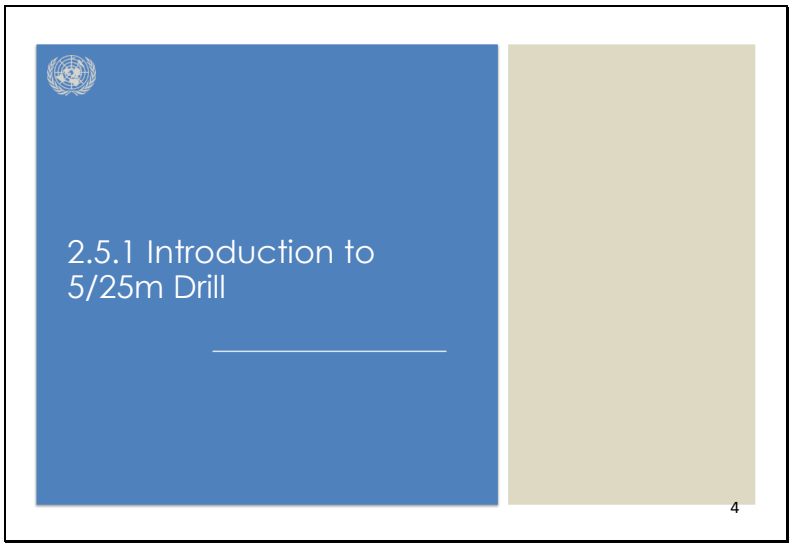
Slide 2


Overview
2.5.1 Introduction to 5/25m Drill
2.5.2 Demonstration and Practice
2

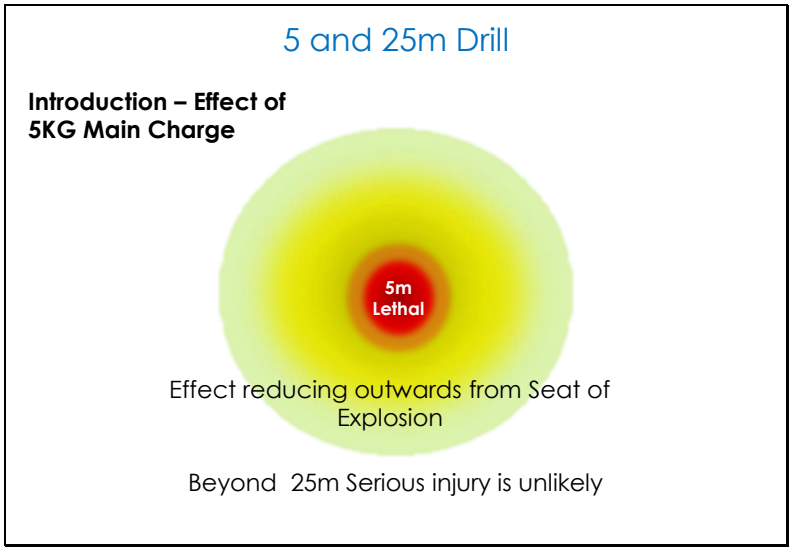
Slide 3


Terminal Learning Objectives
At the end of this lesson, the participants will be able to demonstrate the application of the 5/25m drill in both a mounted and dismounted role.
3

Slide 4



Slide 5



5Kg Blast Main charge

- Within 5 meters of the blast, it will likely be lethal. The further from the seat of the explosion, the less damaging the blast will be, with serious injury unlikely beyond a distance of 25 meters.

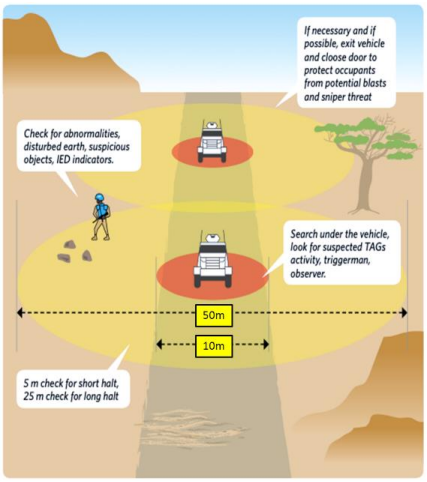
- With this in mind, we maintain a 10-meter spacing between personnel at all times so that if there is a blast, the number of casualties will be minimized.

NOTE: This does not mitigate against the presence of enhancements, so it is advised that PPE is worn during all operations to provide a level of protection against these

Slide 6

Introduction

5 and 25m Drill



Introduction to the 5 and 25 m checks. The purpose of the 5 and 25m checks is to allow the troops to identify a safe area (as illustrated in this slide) in which to either go to ground in a static location or for ensuring that any potential ICP or cordon locations are not being targeted by threat forces.

The 5 and 25-meter individual search is a key Technique, Tactic, and Procedure (TTP) taught to military personnel to perform during any stop or halt. It is arguably the most critical action and skill a soldier applies in operations, significantly increasing their chances of survival.

5/25m Checks – Why? Both explosive science and recent operational experience indicate that an IED detonating within 5 meters of your position is highly likely to be lethal. Therefore, conducting a thorough search within a 5-meter radius at every halt is a life-saving drill. An IED detonating between 5 and 25 meters from your position may still be lethal or cause life-threatening injuries. For this reason, it is essential to extend the search out to 25 meters, although, due to practical constraints, this part of the check is typically less detailed than the 5-meter search. While an IED detonating beyond 25 meters can still be deadly or cause serious injuries, evidence suggests that most severe casualties and fatalities result from explosions occurring within the 25-meter range.

Slide 7

5 and 25m Drill

The 5 and 25m Drill:

- A basic drill that can be used by everyone with no specialist equipment or training
- Builds on GSA skills
- Provides a basic level of assurance any time we stop
- Carried out every time we stop

7

Counter-IED checks are conducted using the 5 and 25-meter drill. This is a tool that can be used by every soldier without requiring specialist equipment or training (although equipment can be used to assist). It builds upon the previous skills learned in Ground Sign Awareness and provides a level of assurance that no IEDs are present when a soldier arrives at an unsecured location. This drill should be treated as a standard operating procedure (SOP) and carried out every time a patrol or convoy halts, regardless of whether it is mounted or dismounted.

Slide 8

5 and 25m Drill

The 5 and 25m Drill:

- Reduce risk
- Promote situational awareness
- Deter insurgents.

8

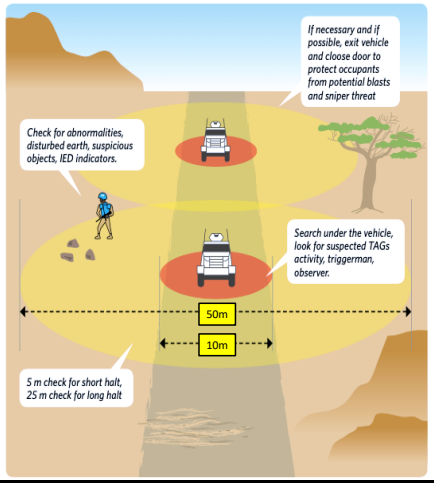
The drill has been designed for 3 main reasons:

- reduce risk from IEDs;
- promote situational awareness;
- demonstrate an alert attitude to discourage insurgents from placing IEDs.

Slide 9

5 and 25m Drill

Overview:
- Select location to stop.
- Post top cover sentry
- Searchers exit the vehicle
- 5 m search.
- 25 m search
- Search completion.



Sequence:

•Select location to stop. If you are a commander or leader, you should ensure your halt is not in VA/VP.

•Post top cover sentry. Ensure vehicle top cover is providing 360-degree security, looking for both GSA and in-depth threats.

•Searchers exit the vehicle. A searcher or pair of searchers will exit the vehicle, looking for GSA before stepping onto the ground.

•**5 m search**. Once out the vehicle the searcher or search pair will carry out a thorough visual and physical search of the 5m radius around and under the vehicle. The key tool here is GSA but if detectors are available and searchers are trained, they should be used.

•**25 m search**. Once the 5m search is complete, a physical but less thorough search should be carried out to 25m radius. Here we are using GSA to identify any abnormalities and indicators of IEDs. This includes receivers for RC IEDs, Command Wires, remoted battery pack or even basic signs of human/terrorist activity. The 25m check phase is generally carried out only if a long halt is being carried out.

•**Search completion**. Once a search is complete security should be maintained.

Slide 10

5 and 25m Drill

General points

- Look for ground sign
- Look up as well as down
- Overlap areas
- Communication
- Spacing
- Overwatch
- Actions on a find

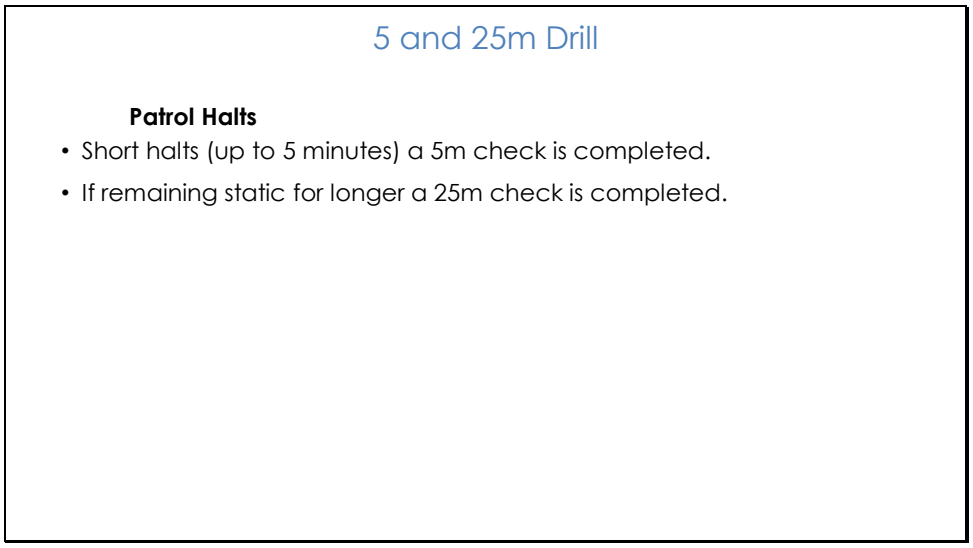
10

5 & 25m Checks

Procedure – General points

- Observe for ground signs and other IED indicators. Revise
- Regularity, Flattening, Transfer, Colour Change, Disturbance, Discardable
- Remember to observe omnidirectional; up, down and all around.
- Overlap areas of responsibility – view the ground from different angles
- Communicate and tell each other what you see – two pairs of eyes are better than one
- Maintain 10m spacing
- Maintain over-watch
- If ground sign or suspicious items are identified conduct a 5Cs operation. The confirmation part of the 5Cs may involve requesting assistance from the S&D team however personnel should move to the correct distance prior to this activity.

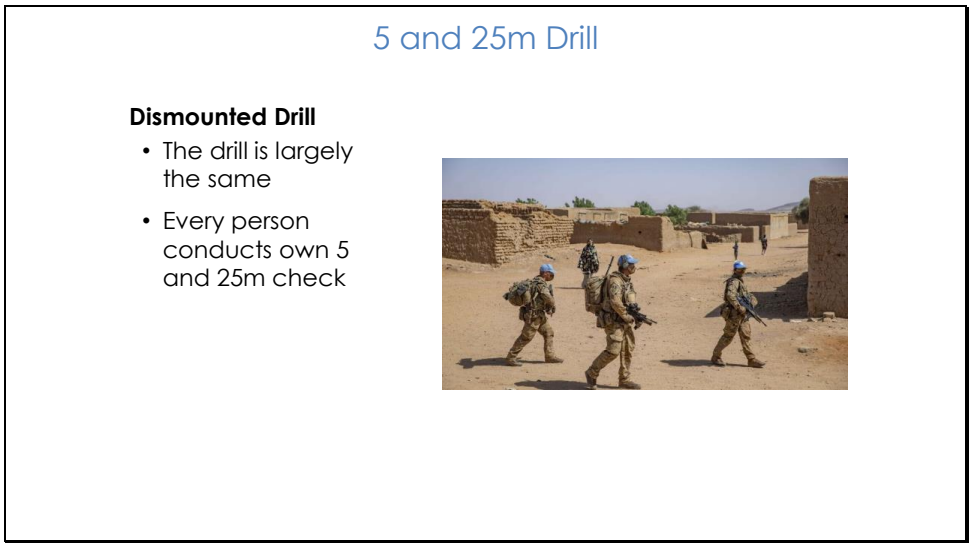
Slide 11



Patrol Halts:

Whenever a patrol or convoy stops, checks must be conducted to provide assurance that the immediate area is safe from IEDs. Short halts of up to 5 minutes require a 5m check to be completed. If staying for longer than 5 minutes, troops will complete the 5m check and move straight into the 25m checks.

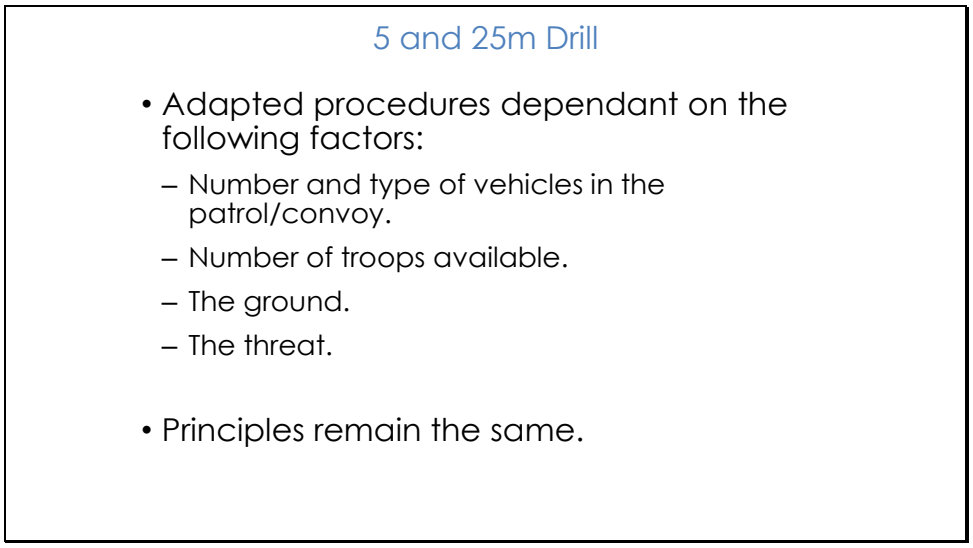
Slide 12



Dismounted Drill:

This lesson will focus on the more complex mounted drill. However, this drill is also carried out when conducting dismounted patrols. The process is largely the same. Unlike with the mounted drill that uses designated searchers, in the dismounted drill, everyone carries out his or her own 5 and 25m check.

Slide 13



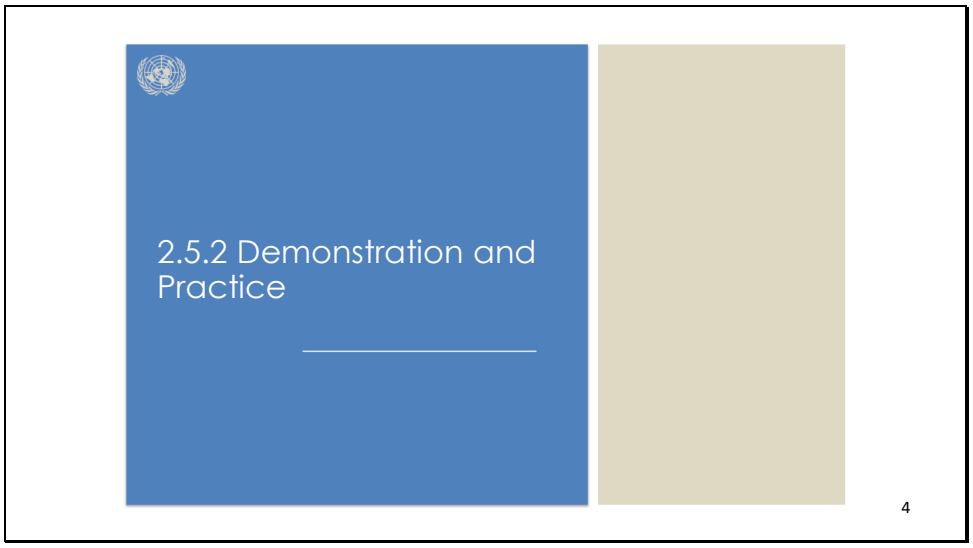
Patrol Halts:

The exact procedure can be adapted dependant on several factors:

- Number and type of vehicles in the patrol/convoy.
- Number of troops available.
- The ground.
- The threat.

The basic principles remain the same.

Slide 14



Slide 15

5 & 25m Checks

Procedure in detail:

- A single vehicle
  - Driver
  - Commander
  - Gunner
  - 4 personnel
- Can be adapted

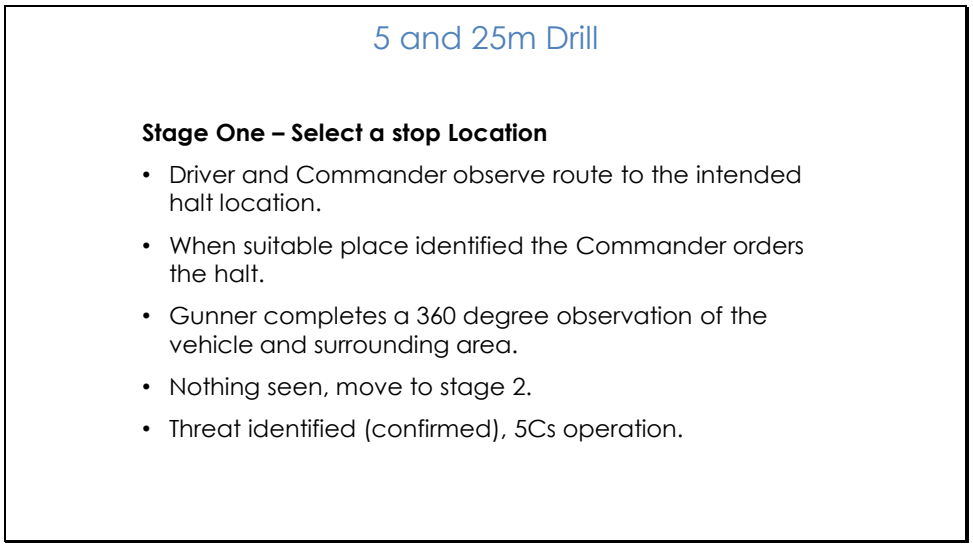
5

5 & 25m Checks Procedure in Detail. We will now go through each of the phases of the mounted 5/25m drill in detail. For this example, we will follow the procedure based upon:

- A single vehicle
- Driver
- Commander
- Gunner
- 4 troops

However, this can be easily adapted for personnel available

Slide 16

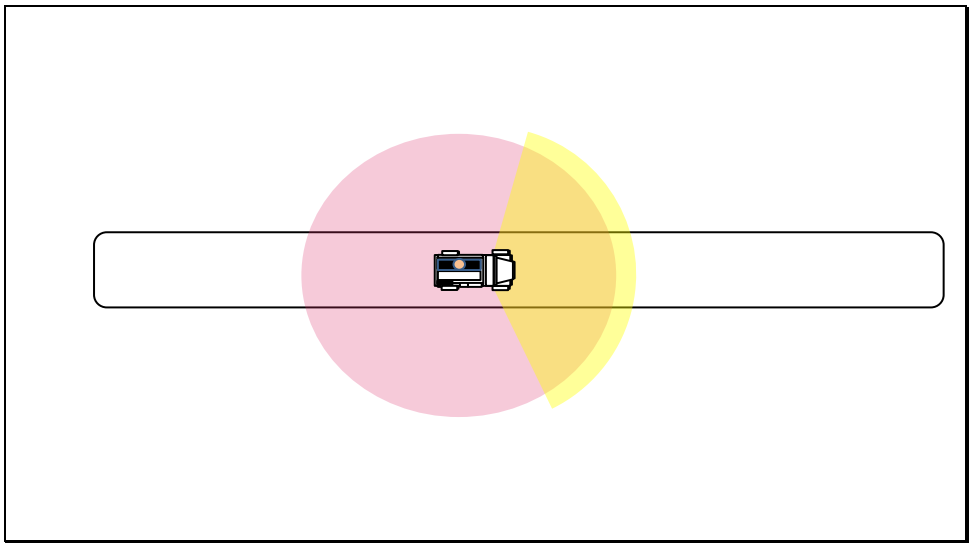


Stage One – Select a stop location:

Once it is identified that there is a requirement to stop, a suitable location will be identified, making sure it is in an unpredictable location. Upon halting, the gunner will carry out a 360-degree scan of the area checking for anything that may pose a risk.

- If nothing is seen, commander will be informed, and the team will move to stage 2.
- If something is identified, 5Cs will take place; this will be taught later.

Slide 17

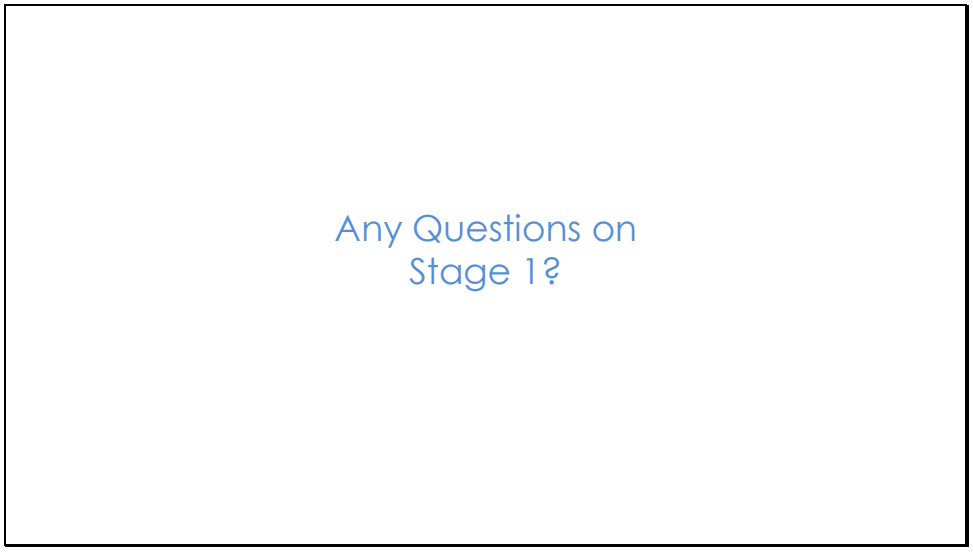


Stage 1 Select a stop location:

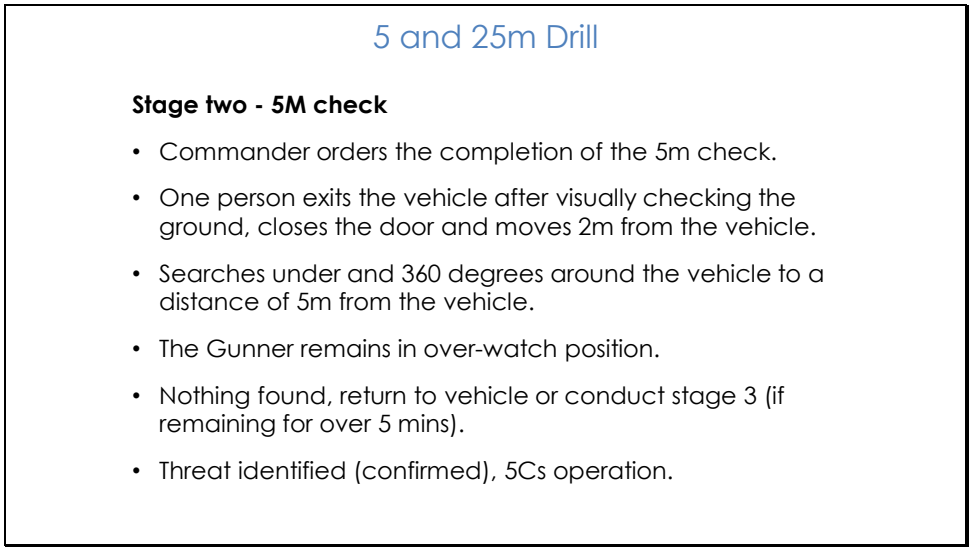
The gunner completes a 360-degree observation of the vehicle. During the observation he needs to look for:

- Ground Sign.
- IED indicators.
- IED component parts.
- Any suspicious movement around the area.

Slide 18



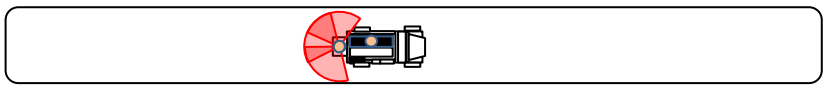
Slide 19



Conduct Stage 2 – 5 metre Check:

- Person will look at the ground before they disembark to ensure it is safe to leave, and close the door
- Immediately look beneath the vehicle to check for possible threats
- Moving around the entirety of vehicle, looking out to 5 metres, and also beneath the vehicle intermittently.
- The 5-metre check will be completed once the person has reached the point at which they exited the vehicle *and gone beyond this to ensure overlap*.
- The gunner will remain in overwatch
- If nothing is seen, commander will be informed.
- If a short stay, the person will get back into the vehicle.
- If something is identified, 5Cs will take place.

Slide 20

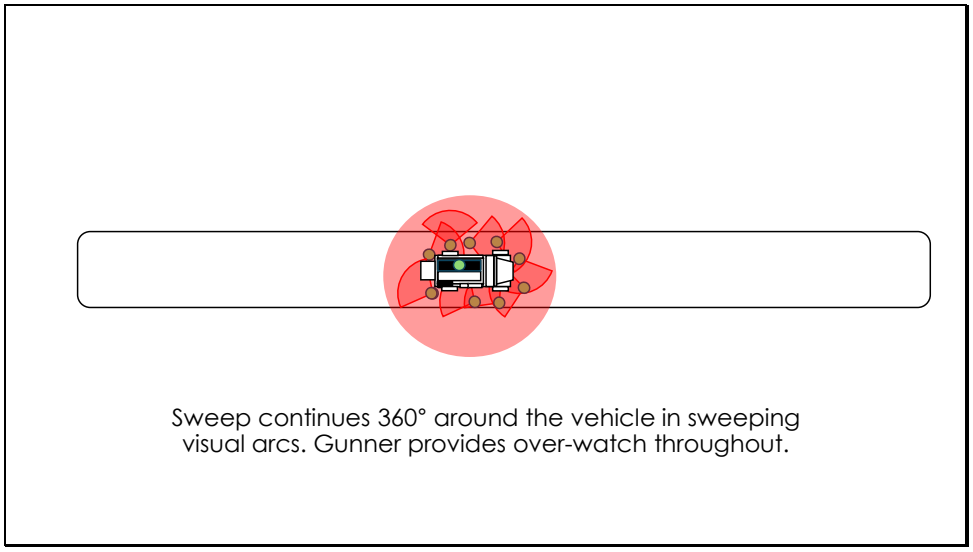


- 1 person prepares to exit the vehicle.
- Visually searches the ground before stepping down.
- Moves 2m from the vehicle.
- Gunner maintains overwatch.

5 metre Checks:

Soldier conducts sweep around and under the rear of the vehicle as shown in the arcs. Gunner provides overwatch.

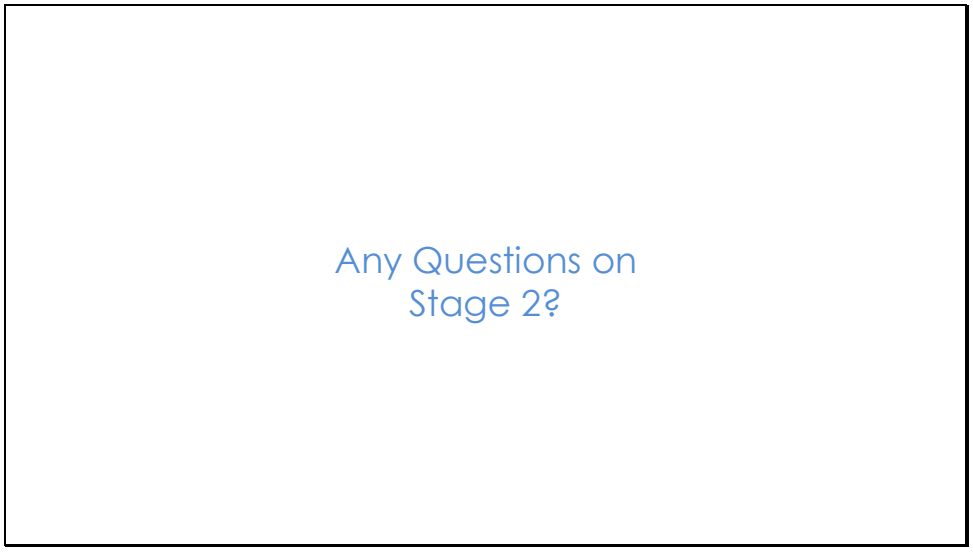
Slide 21



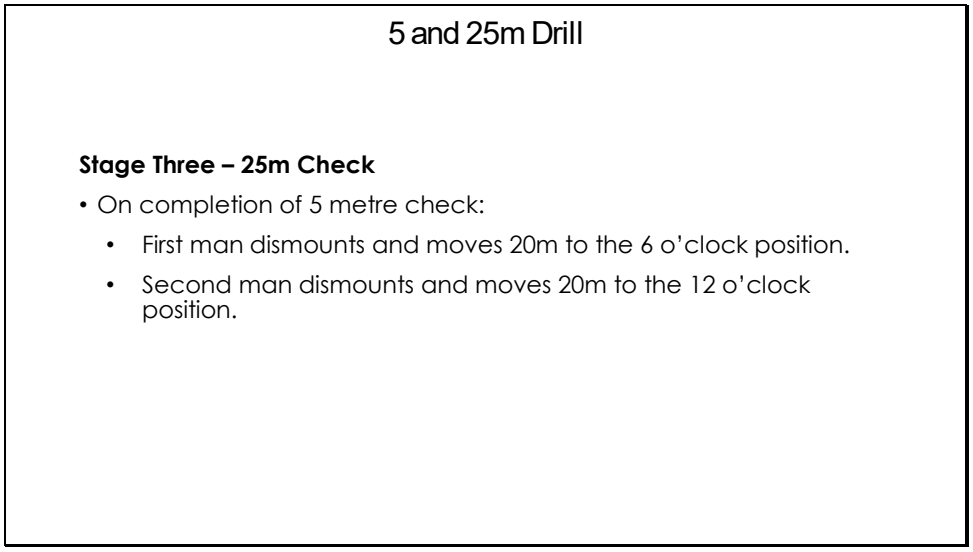
Stage 2 – 5 metre check

Sweep continues 360° around the vehicle in sweeping visual arcs. Gunner provides over-watch throughout.

Slide 22



Slide 23

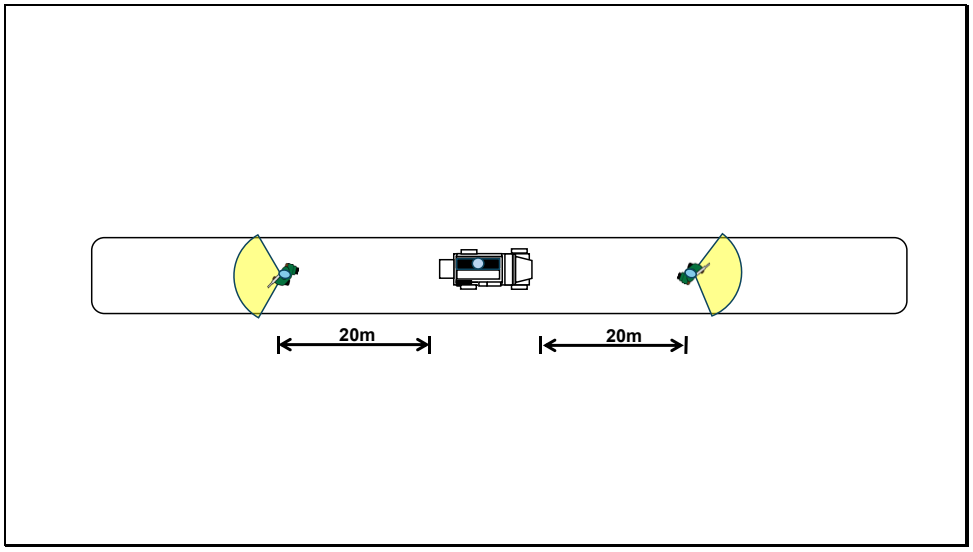


Phase 3: 25 metre Check.

If the stay will be longer than 5 minutes, the team will move into stage three; the 25-metre check.

- The person who completed the 5-metre check will move 20 metres to the 6 o'clock position, searching as they move
- A second searcher will be instructed to move 20 metres to the 12 o'clock position, searching as they move. They must close the door of the vehicle as they exit.

Slide 24



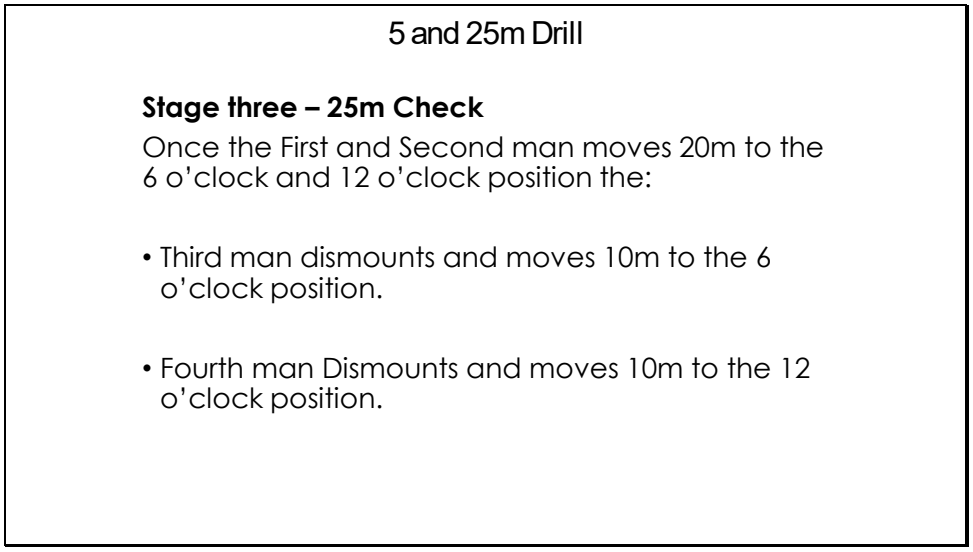
Phase 3: 25 Metre Check:

Once the 5m check is completed:

First man moves 20m to the 6 o'clock position.

Second man dismounts and moves 20m to the 12 o'clock position.

Slide 25

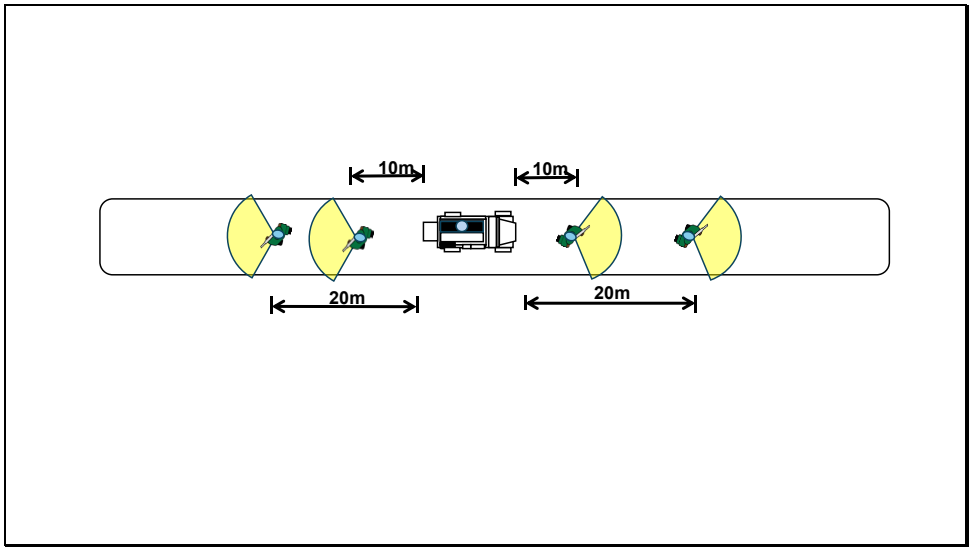


Stage 3 – 25 metre Check;

Once the first two are in position, the next troops will be instructed to move to their relevant positions:

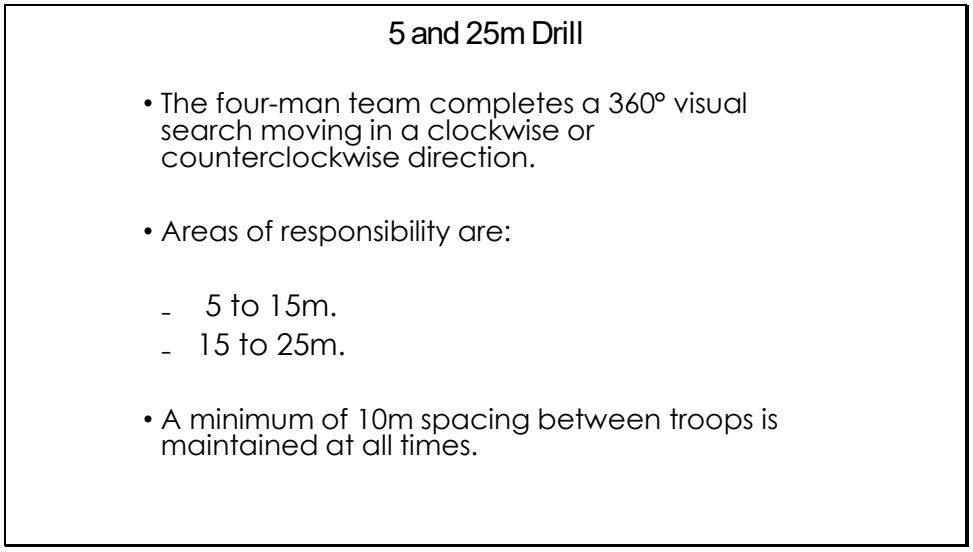
- One will move 10 metres to the 6 o'clock position, searching as they move.
- The final person will move 10 metres to the 12 o'clock position, searching as they move.

Slide 26



Stage 3 – 25 metre check
This slide explains the position of troops before they start the 25-metre search.

Slide 27



Stage 3 – 25 metre Check:

- The four men then complete a 360° visual search moving in a clockwise or counterclockwise direction, under direction of the commander.

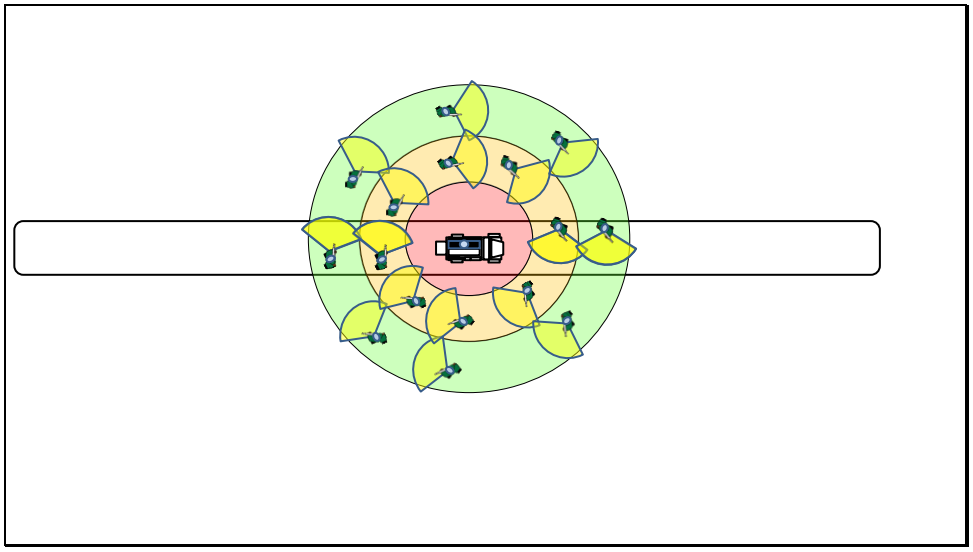
- Areas of responsibility are:

  5 to 15 metres.
  15 to 25 metres.

- A minimum of 10 metre between troops is maintained.

Throughout the gunner will maintain overwatch and provide protection, allowing the rest of the team to concentrate
on their checks.
- If nothing is seen, commander will be informed.
- If something is identified, 5Cs will take place.

Slide 28



Stage 3 – 25 metre Check:

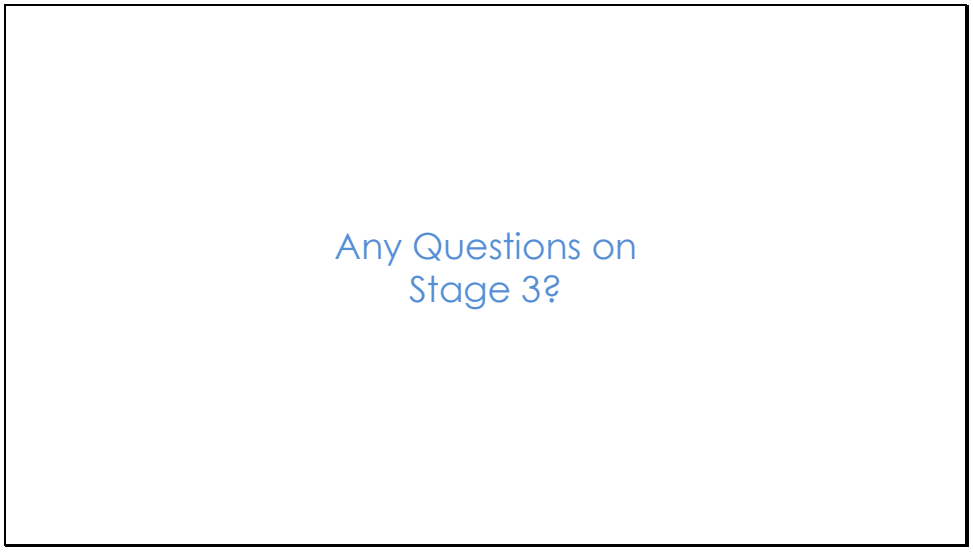
- The four men then complete a 360° visual search moving in a clockwise or counterclockwise direction.

- Areas of responsibility are:

  5 to 15 metres.
  15 to 25 metres.

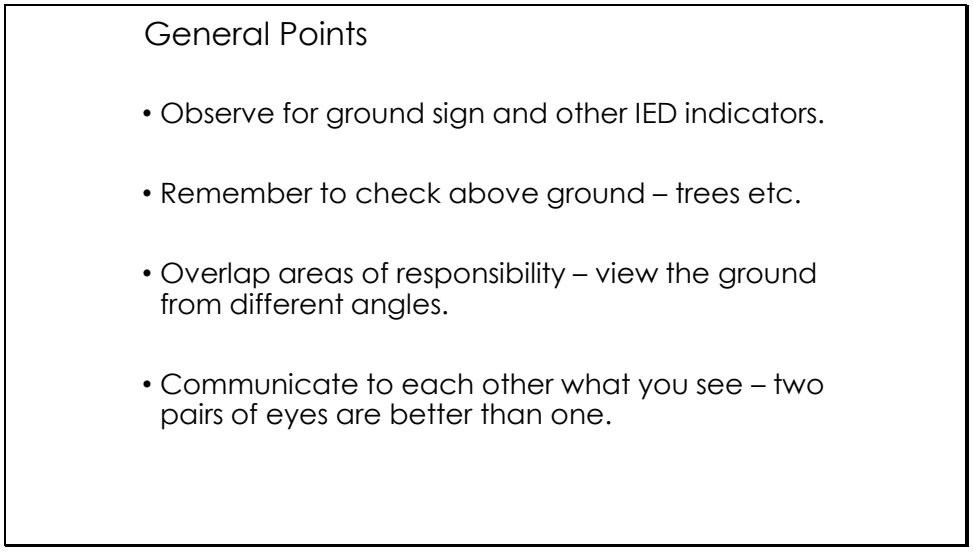
- A minimum of 10 metre between troops is maintained.

Slide 29



Any Questions on Stage 3?

Slide 30



General points:
Communication is key. Partners should always be talking to make sure they do not fall out of alignment as this can lead to someone cutting across and not checking the area sufficiently.

- Observe for ground sign and other IED indicators. If something suspicious is seen it must be investigated before continuing
- Remember to check above ground – trees etc.
- Overlap areas of responsibility – view the ground from different angles
- Communicate to each other what you see – two pairs of eyes are better than one
- Maintain 10 metre spacing at all times
- Overwatch must be maintained at all times

Slide 31

Questions?

UNMAS

11

Lesson

2.6

BASIC SEARCH (PERSON, VEHICLE, VP360)

The Lesson

Time. This module requires approximately 270 minutes to teach. 135 minutes of classroom theory followed by 135 minutes of practical training. See Annex B.

Performance Statement. At the end of this lesson, the participant will be able to conduct person, vehicle and Vulnerable Point (VP) searches in a safe, legal and ethical manner.

Key Learning Points. The following main teaching points are contained in the delivery of this module:

(1) Person Search
   a. Types of person search
   b. Conduct of person search (Initial and Detailed search)
   c. Actions on find
   d. Ethical and Legal considerations

(2) Vehicle Search
   a. Types of vehicle search
   b. Conduct of a vehicle search (Initial and Primary search)
   c. Considerations
   d. Actions on find.

(3) Vulnerable Point Check – Low threat.
   a. Differentiating VP check and Search Operations
   b. Procedures and phases of the VP360:
      i. Arrival and Stop Short
      ii. Dominate the terrain
      iii. Isolation
      iv. Search through

Methodology. This Lesson will be introduced through the lecture method combined with the participatory approaches and exercises/demonstrations.

Infrastructure. Classroom with projection facilities for the lesson. Practical to be conducted using suitable outdoor area to demonstrate the VP drill

Equipment. Demonstration Vehicle, Handheld Metal detector (wand style).

Slide 1

EHAT Lesson 2.6: Basic Search

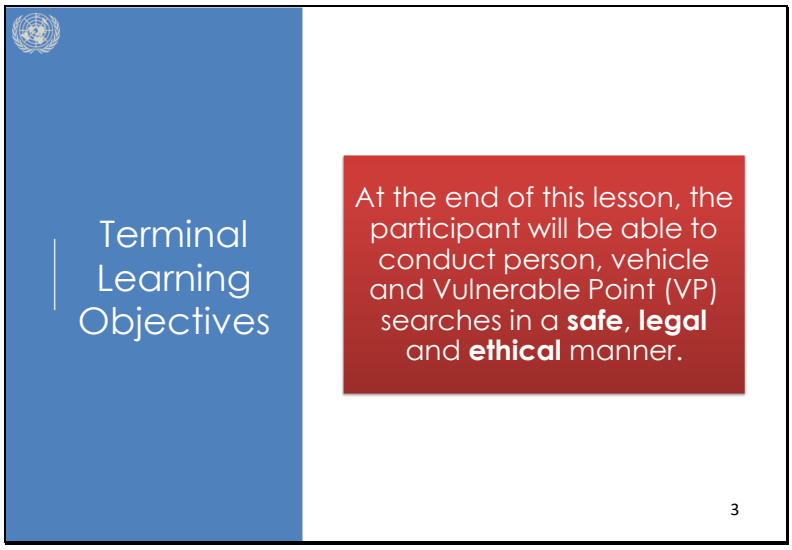
1

Find guidance inserted in the note section of each slide.

Slide 2

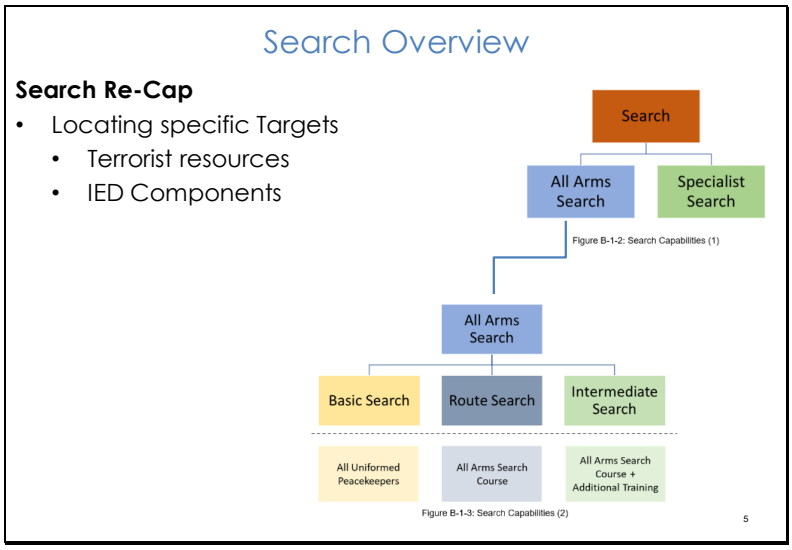

Overview
2.6.1 Person Search
2.6.2 Vehicle Search
2.6.3 VP Check
2

Slide 3


Terminal Learning Objectives
At the end of this lesson, the participant will be able to conduct person, vehicle and Vulnerable Point (VP) searches in a **safe**, **legal** and **ethical** manner.
3

Slide 4

Slide 5



As briefed in the previous lesson, Search is the capability to identify **specific targets** using **intelligence assessment, systematic procedures** and **appropriate detection techniques**. The specific targets can vary but these are usually Terrorist Resources and IED component. Not only are they searched for when deployed but also:

- In manufacture
- In transit
- In storage
- And when deployed.

In its broadest terms search can be broken down into all arms search capabilities and specialist search capabilities.

- **All Arms Search**. Search capabilities employed by non-specialist members of a unit. There are different levels of all arms search capabilities.
- **Specialist Search**. Search capabilities employed by advanced search personnel trained, equipped, and qualified to do so. Information regarding Specialist Search is contained in the UN Military Engineer Unit Manual.

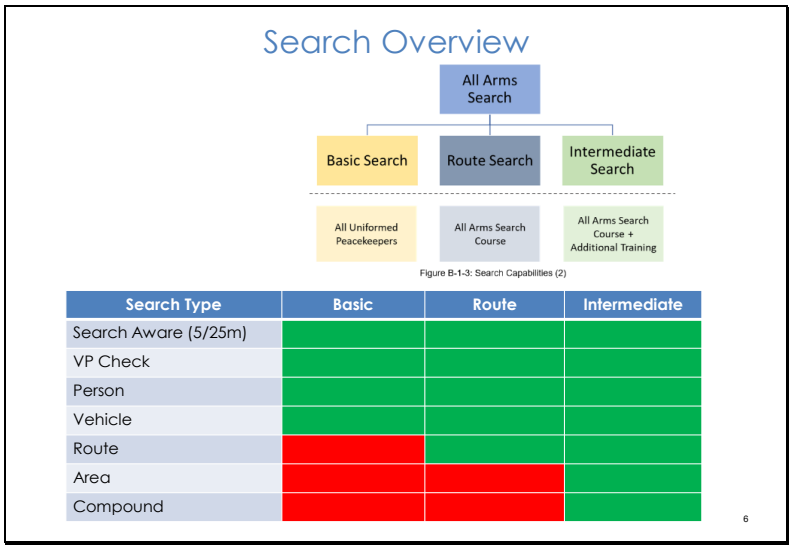
Within All Arms Search there are three levels of search capability, namely:

Basic Search – This is a skill all peacekeepers should have which gives them an awareness of search and basic search TTPs.

Route Search – Route search is a team skill for conducting assessed parts of routes for the presence of EO and IEDs.

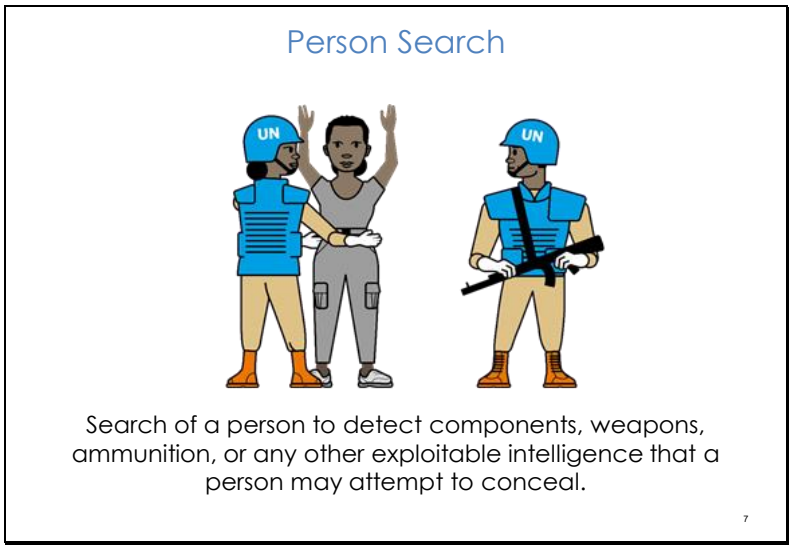
Intermediate Search – Intermediate search includes route search skills with the addition skills such as Area Search, and compound searches.

Slide 6



This slide shows some of the core skills of the different levels of All Arms Search. Of note for this course is the basic search skills. We have already covered the 5/25m drill in the previous lesson. This lesson will cover Person and Vehicle Search as well as VP check.

Slide 7



Definition. Search of a person to detect components, weapons, ammunition, or any other exploitable intelligence that a person may attempt to conceal. The correct person search procedures are taught during the EHAT course.

Slide 8

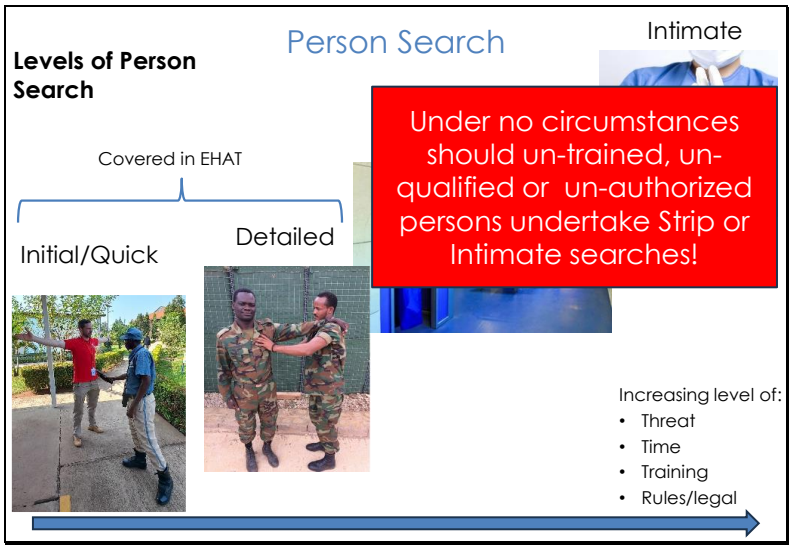
Certain considerations must be considered when those under your command conduct person searches. First and foremost, as commander we must ensure that those conducting persons searches are following the mission specific rules. Regardless of the mission, no search regardless of risk, may be in contradiction with international humanitarian law. The use of restraints while conducting a search must be based on the situation and according to the local directives.

Secondly, searches must be carried out in the view of the public (unless for cultural reasons) and must be conducted with professionalism and respect for the subject. Remember that the vast majority of those who are searched are innocent civilians. Any interaction with them must be a positive engagement. This serves both to improve the image of UN troops but also avoids unnecessary allegations of harassment and violence.

Linked to avoiding harassment, the sex of searchers and subjects must be considered. Wherever possible and subject to the tactical situation, men should search men, and women should search women.

Finally, the safety of UN troops conducting the search must be taken into consideration. Amongst other procedures, any person search should be conducted by a minimum of two; one person to carry out the search, the other to provide protection. Whilst conducting the search, the searcher should never stand between the person providing the protection and the person being searched.

Slide 9



There are four levels of Person Search. Initial, Detailed, Strip and Intimate. Only Initial and Detailed are covered by the EHAT course. An initial search is a very quick search which is used to screen or deter hostile actors from entering a location or carrying components. It is the kind of search you might expect when entering a shopping centre. For speed, it usually entails the use of handheld or fixed scanners. A detailed search is used where suspicion is raised, following an initial search. It should take no longer than 2 minutes. Under no circumstances should un-trained, un-qualified or legally un-authorized persons to undertake Strip or Intimate searches. If after conducting an initial or detail search, there remains suspicion of a person, the person should be handed over to the relevant policing authority. This is subject to mission rules and policy.

Slide 10

Initial/Quick Search

Person Search

- Generally carried out in public view
- Usually for searching large numbers of people
- Done Quickly
- Often uses hand held metal detector or scanners
- Commonly conducted by local police/military or security companies

2

An initial search also called a quick search, which is used to screen or deter hostile actors from entering a location or carrying components. Generally conducted in view of the public and when dealing with large number. To this end it must be done quickly. To allow this, it often uses scanners or handheld metal detectors. Generally, this is done by local security services or contracted security companies. As a peacekeeper you may be tasked with providing security for public venues or even you own operating bases. In this case you should know how to uses a handheld detector and how to conduct this search.

Slide 11

Metal detectors are extremely useful tools that can be used to assist in person Search. A metal detector can detect materials containing ferrous metals including lethal weapons, arms and ammunition. In addition, the detector can be used by a male to Search a female, although this procedure should only be used when no female Searchers
are available. When performing a person Search using a detector, the appropriate safety procedures for the equipment must be followed.
In general:
a. Check the person is not fitted with a medical implant.
b. Do not touch the person's body.
c. Do not contour the body.
d. Ask the person to remove outer clothing only.
e. Where possible, always ask the person to remove any detected metal objects.
f. Where metal is detected, and the person cannot explain its presence to the satisfaction of the Searcher, it is necessary to perform a hands-on Search by a Searcher of the same sex.

Slide 12

Initial/Quick Search

Person Search

Likely areas of concealment

- Investigate likely areas of concealment:
- Small of the back
- Under arms
- Crotch/groin area

2

Slide 13

Person Search

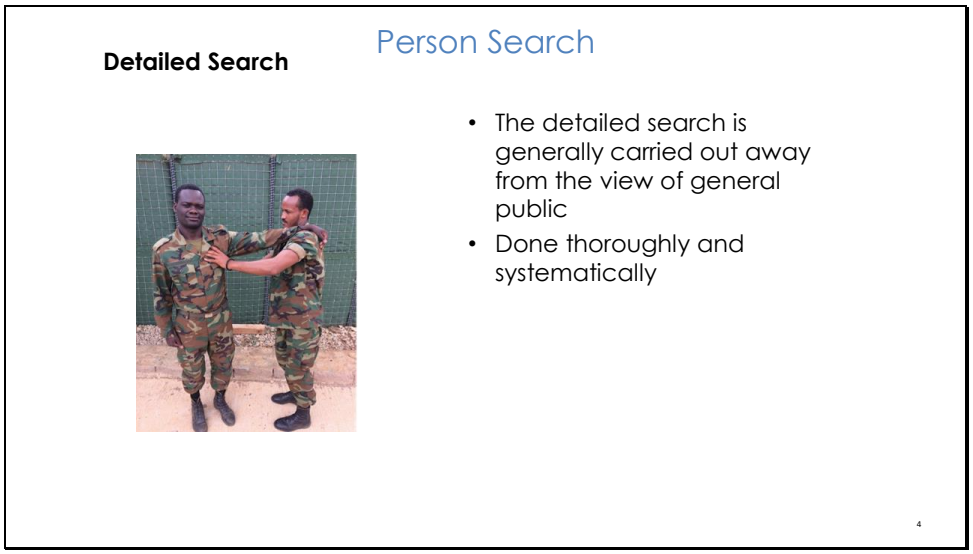
Initial/Quick Search

Response:

- If satisfied with the initial search, no further investigation.
- If suspicion is aroused, the next step is a **detailed** search.

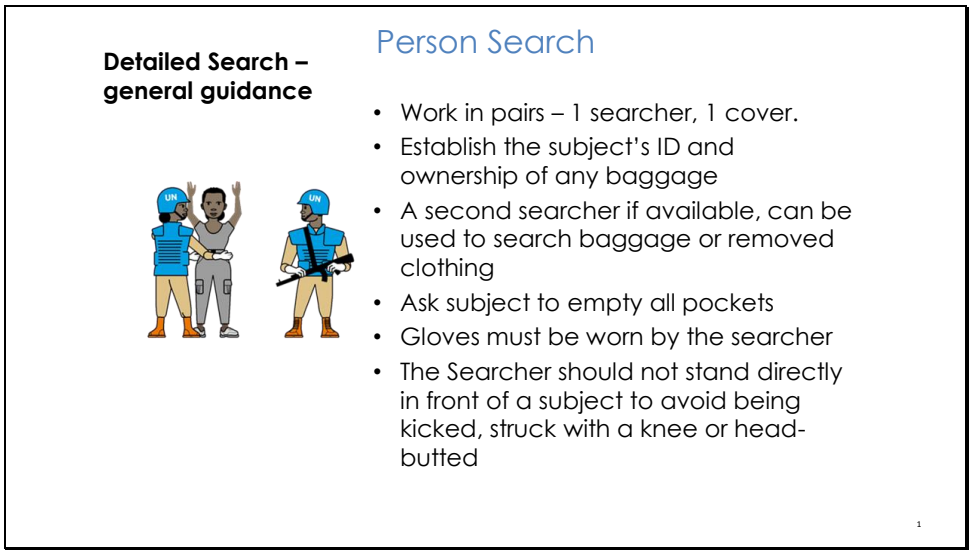
3

Slide 14



If a detailed search is required, we will generally move the person away from the general view of the public. The initial search area can then continue to function normally, to protect the general public if there is an explosive incident and to preserve the dignity of the person being searched. This search is conducted systematically not randomly, ensure it is done thoroughly.

Slide 15



- Detailed search should be carried out in pairs with a searcher and a cover.
- The subjects identity should be established.
- All subjects must be treated with respect, the same applies to their belongings – All property, baggage or removed clothing.
- The subject is to be invited to empty their pockets – again this property is to be treated with respect. Where possible, if a suitable table or tray is not available, lay out some cloth / plastic / sandbag to place items on. Items should remain separated from the subject but be within the subject's line of sight.
- It is important that the searcher asks the subject if there are any sharp / dangerous items on their person, searcher to remain mindful of possible dangerous items throughout the search.
- Gloves should be worn by the searcher, although forensic evidence is not currently being utilized in country, this may always change. Gloves also offer a layer of protection to the searcher.
- The searcher should not position themselves such that they can be struck by the person being searched.

Slide 16

Detailed Search – general guidance

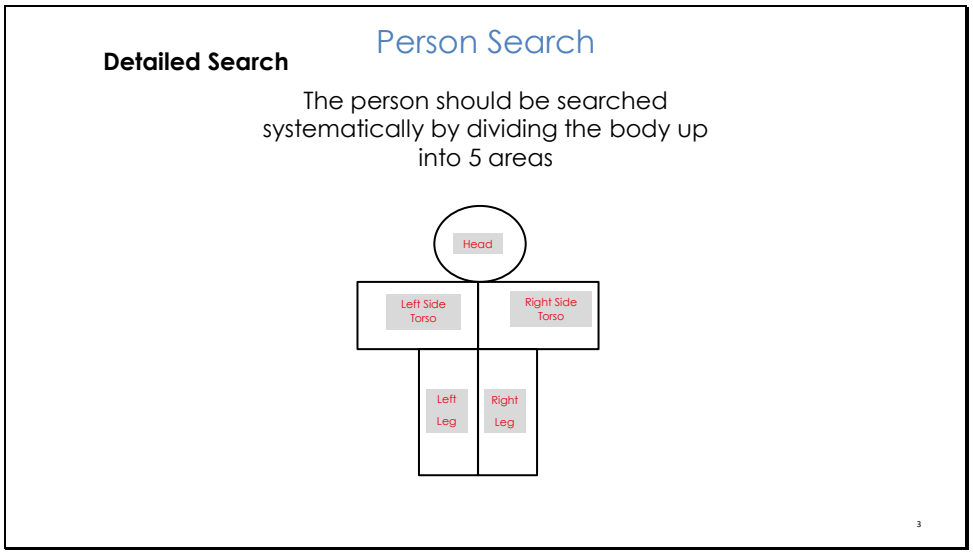
Person Search

- The searcher should not cross the line of fire
- Subject should stand with legs slightly apart and arms naturally at the side
- Search efficiently and systematically from head to foot, covering all parts of the body
- Don't pat. Use a stroking/squeezing movement

2

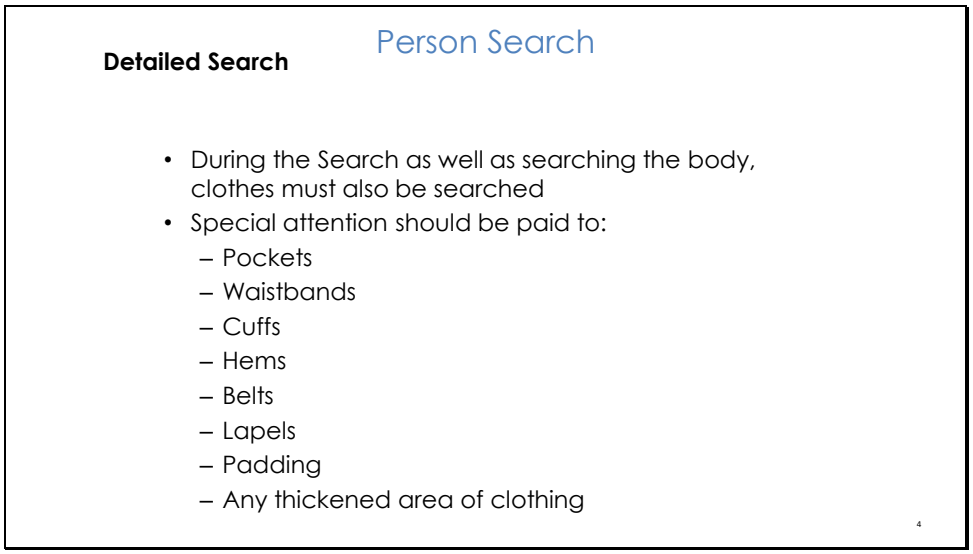
The searcher should not cross the line of fire. The searcher should never be directly between the cover or protection and the person being searched. This is in case the cover person needs to use lethal force and the searcher being caught in the crossfire.
Subject should stand with legs slightly apart and arms naturally at the side.
Search efficiently and systematically from head to foot, covering all parts of the body
Don't pat. Use a stroking/squeezing movement.

Slide 17



- The body is quartered plus the head – giving us our 5 distinct areas.
- As with all searches we, also have to ensure every part of the body is searched by undertaking overlap between all neighbouring sections.

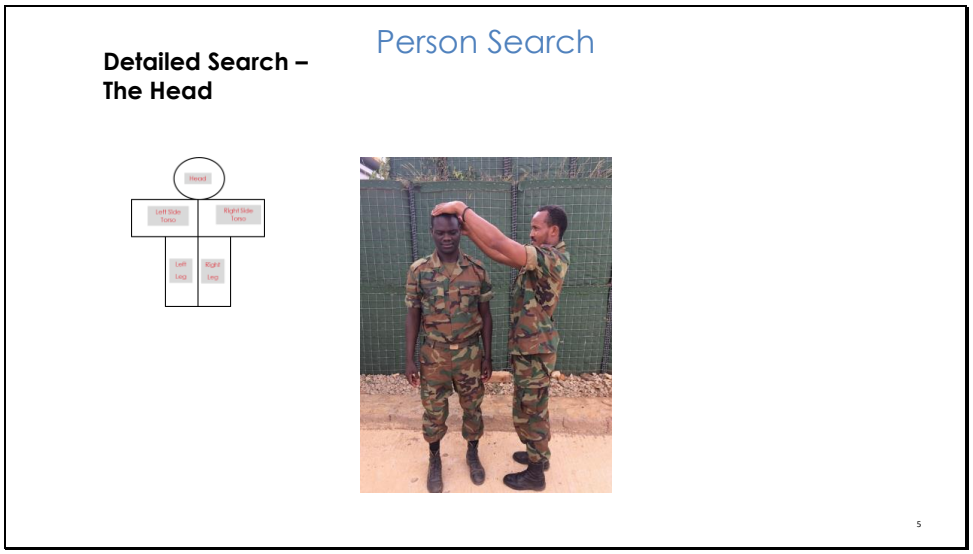
Slide 18



During the Search as well as searching the body, clothes must also be searched
Special attention should be paid to:

- Pockets
- Waistbands
- Cuffs
- Hems
- Belts
- Lapels
- Padding
- Any thickened area of clothing

Slide 19

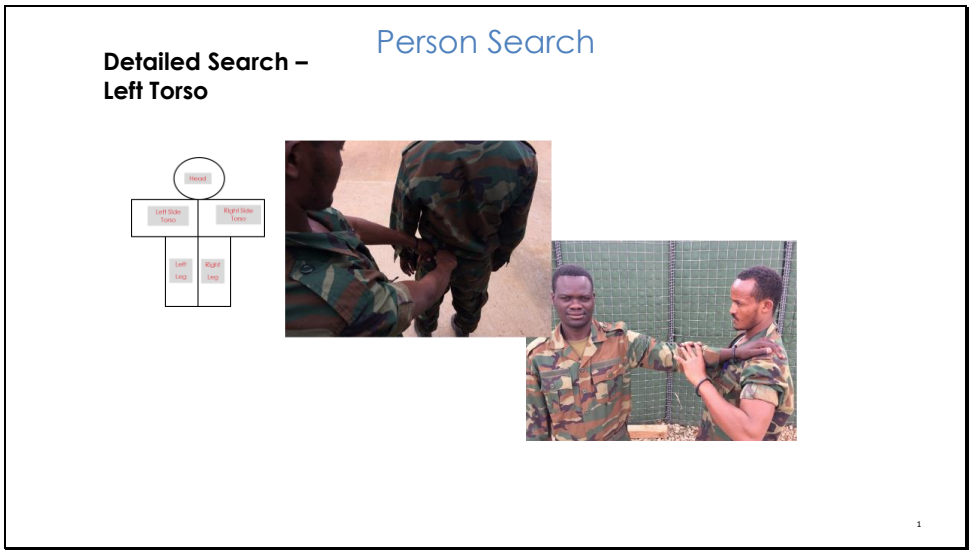


- The search starts at the head (the first of our 5 sections).
- If necessary, the searcher would ask the subject to remove any head dress (the removed head dress must also be searched – following the same procedure as any outer garments). If head dress is worn for religious reasons, the subject may be permitted to be searched out of the public eye.
- Searcher to move on to searching the head of the subject. I f the subject has thick or tied up hair, the searcher must use fingers to search the hair thoroughly.
- The searcher must then look in subjects' ears, nose and mouth (asking subject to open mouth).
- Once the whole head has been searched, the searcher can move to the collar, searching as demonstrated earlier for thickened clothing.
- As soon as the searcher is happy, he/she can move onto the next section of the body.

Slide 20

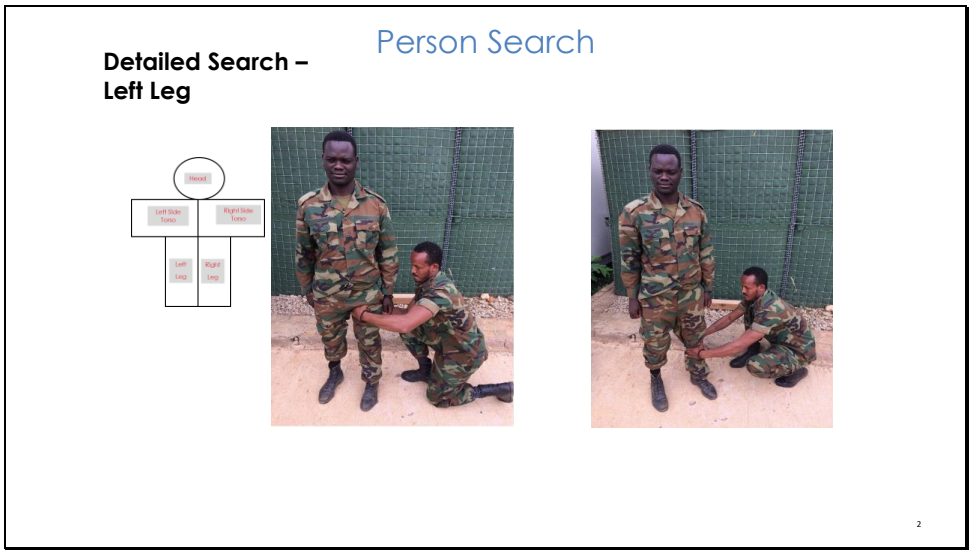
- The second section, searcher next logically moves down the body to the left torso (to include the left arm).
- The searcher uses the squeezing / stroking motion to search the whole of the left torso including left arm.
- REMEMBER overlap with all neighbouring sections:
    - Overlap with – Right Side Torso.
    - Overlap with – Collar Section.
    - Overlap with – Left leg section (belt area).
- Searcher to cover whole section incorporating the thorough check of the belt area (as demonstrated earlier for thickened material areas).

Slide 21



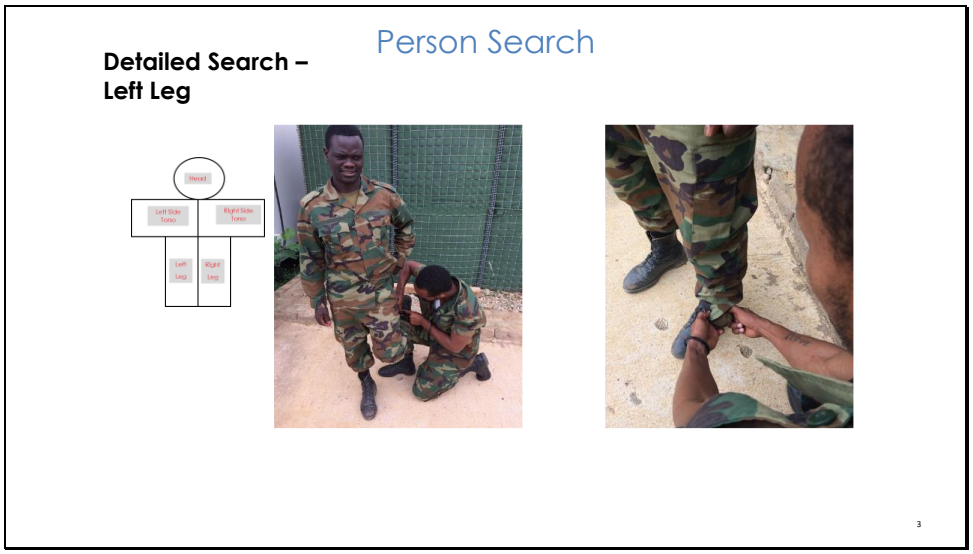
- The searcher must then search the arm.
- Ensuring to go right into the armpit (which provides a good place to hide items).
- Moving down the arm using the same squeezing / stroking method. Making sure that the searchers hands meet and therefore cover the entire arm.
- It is important to search down to and include the hand.
- As per all clothing checks, ensure the cuff is searched as demonstrated.
- If the subject is wearing a watch or jewellery, make sure to check behind these.

Slide 22



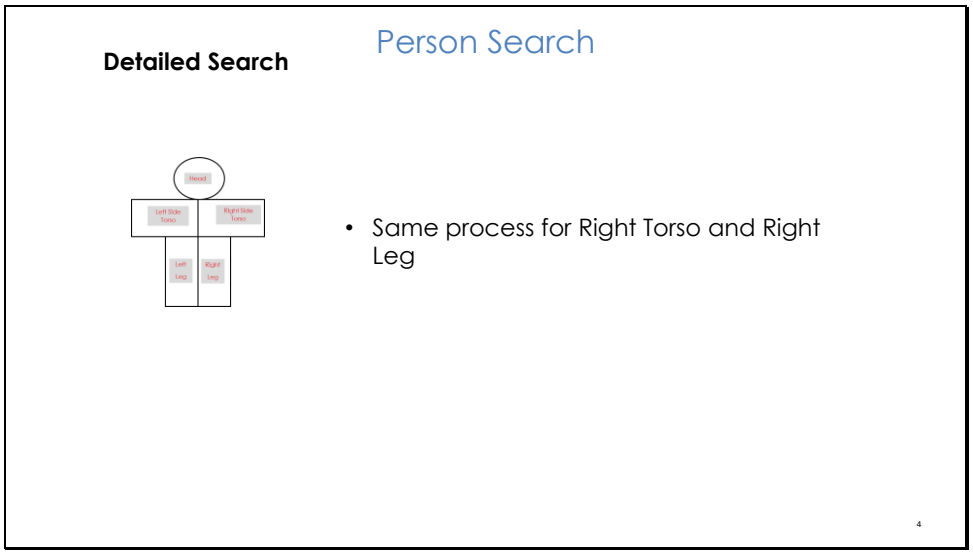
- The searcher moves down the left leg of the subject.
- Searcher to ensure to search right into the groin area (similar to the armpit). SEARCHER MUST WARN SUBJECT WHEN ABOUT TO DO THIS.
- Squeezing motion used to cover entire leg. Ensure that area covered by hands overlaps, all the way down the leg.
- Searcher to make sure to pay attention to any pockets.

Slide 23



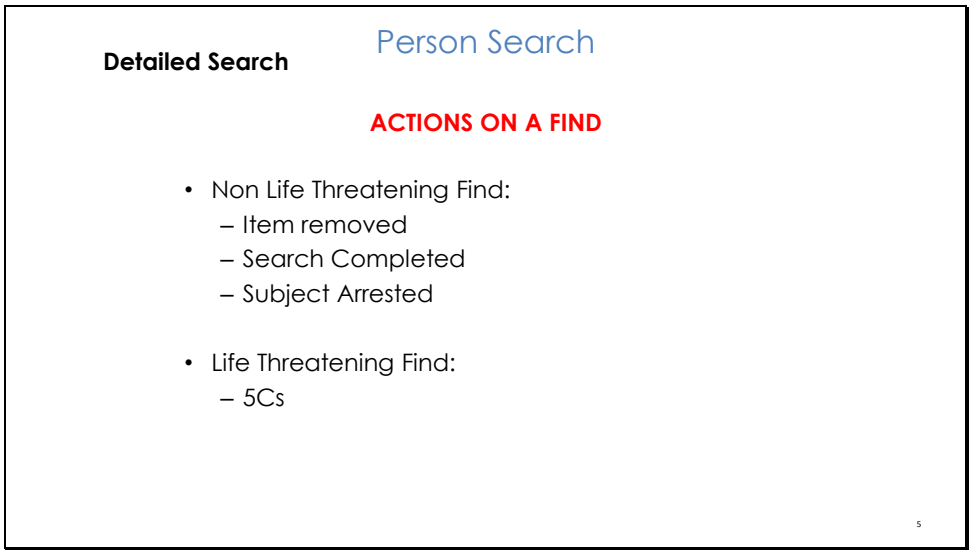
- On reaching the bottom of the leg, searcher is to check hem of trousers (thickened cloth check).
- Searcher can ask the subject to remove their shoe.
- To check the underside of the foot / shoe, searcher can kneel down and rest subjects raised foot on their own knee.

Slide 24



The same process should be followed for the right-hand side of the body.

Slide 25



Non-Life Threatening Find:

- Something which is or maybe evidence of a criminal offence / component part / suspicious documentation / unreasonable quantity of items (sim cards etc.)

- The item is to be removed out of reach of the subject, while the search is completed.

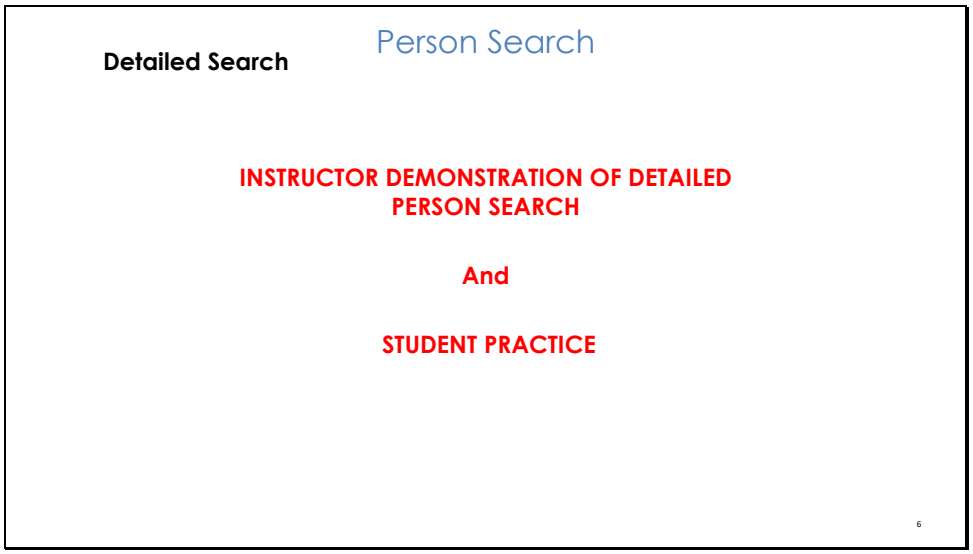
- At the end of the search, the subject may be asked for an explanation, if not satisfactory or suitable suspicion, FOR NON-LIFE THREATENING FINDS THE SEARCH MUST BE COMPLETED.

- On completion of the search the subject is to be arrested.

Life threatening Find:

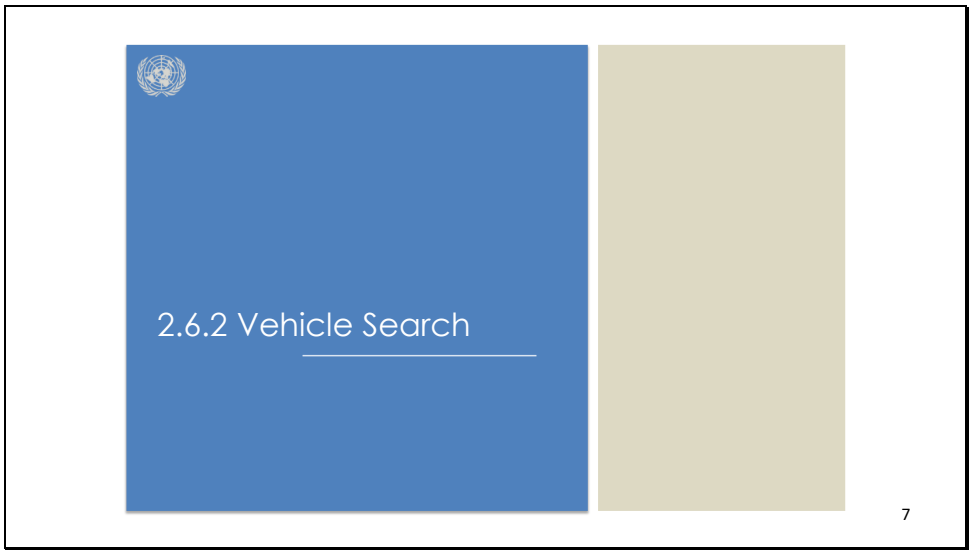
- Confirm-Clear-Call-Cordon-Control

Slide 26

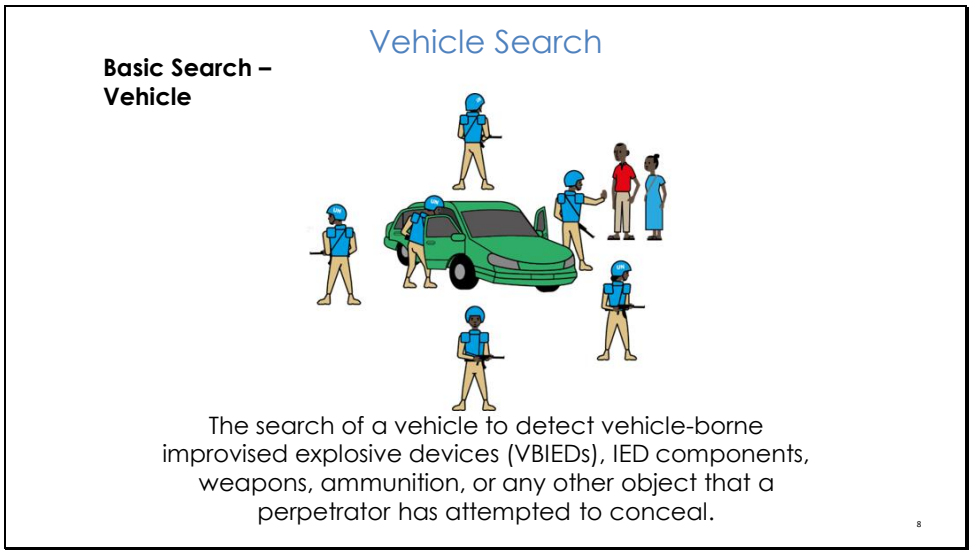


Instructor to carry a full demonstration of a detailed person search.

Slide 27

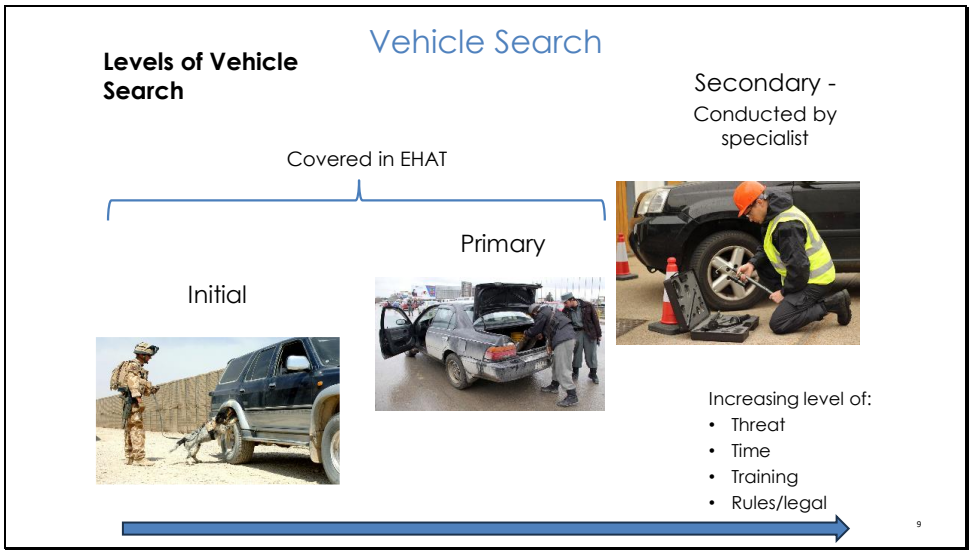


Slide 28



The search of a vehicle to detect vehicle-borne improvised explosive devices (VBIEDs), IED components, weapons, ammunition, or any other object that a perpetrator has attempted to conceal. A vehicle search involves an initial check of persons and their vehicle, from which an assessment can be made as to whether any further search is required. Vehicle search within basic search involves initial checks and can involve primary searches.

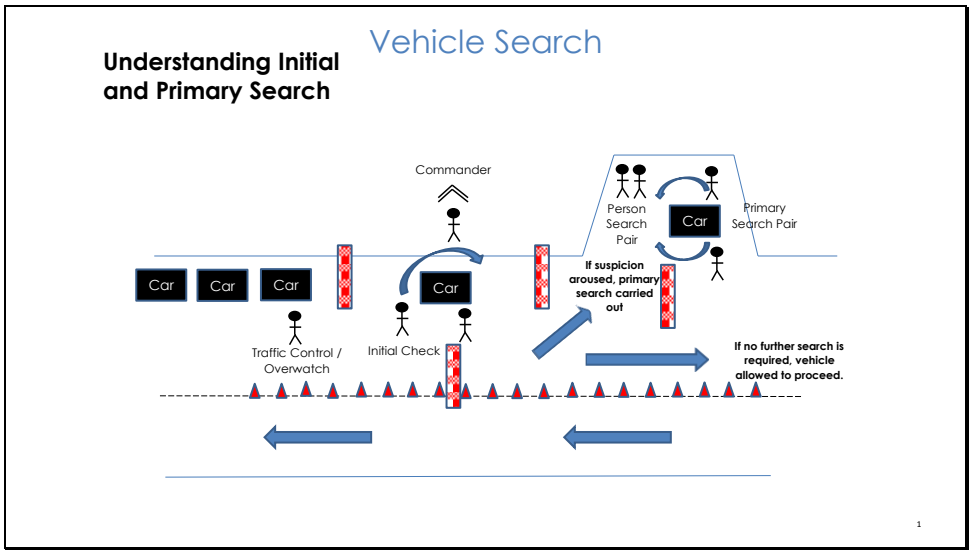
Slide 29



There are three levels of vehicle search. Initial, Primary and Secondary. An initial search is usually conducted at entry to venues or at checkpoints. This is a very quick search which does not require the occupants to get out the vehicle. It is done to screen other vehicles for further search and to deter potential threats. If after an initial search, suspicion is raised a primary search will normally take place. This will involve the occupants getting out the vehicle and being searched. This usually takes about 10 minutes. If something is found or there is further suspicion a secondary search could be conducted, but this is done by a trained specialist – usually the police.

Image Left – Initial searches involving the use of explosive detection dogs. Image courtesy UK MOD.
Image Centre – Afghan National Police conducting a primary search. This type of search is normally done in pairs. Image courtesy of UK MOD.
Image Right – Specialist conducting vehicle search. Image courtesy NIC Equipment.

Slide 30



This slide shows examples of a possible vehicle check point. In this example, we have:

•A commander responsible for command and control.

•Overwatch, Traffic Control. Traffic will initially be met by a Traffic Control point. This solder is responsible for holding traffic and looking out for early indications of threats in queueing traffic.

•We then have two soldiers carrying out the Initial Check. If there is nothing suspicious, the vehicle is released to carry on its journey. If there is requirement for further search, the vehicle will be directed to the search area.

•In the Search Area, two soldiers will carry out a Primary Search.

•We also have 2 soldiers for conducting a person search.

In this scenario you can see that the initial check is a deterrence and screening process. The vehicles requiring further primary search are moved to another area to allow for minimum disruption to the civilian traffic.

Slide 31

Vehicle Search

Initial Check

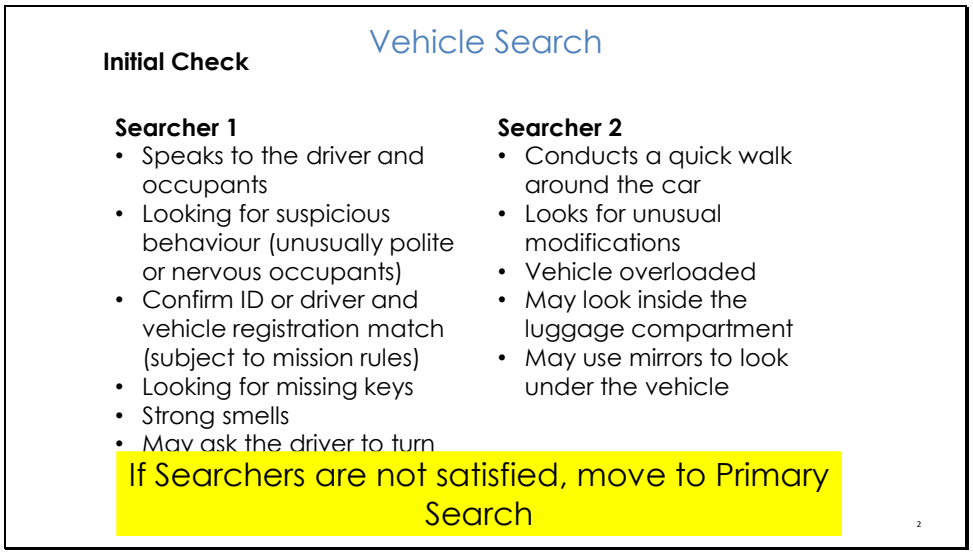
- Normally a search pair will perform the checks
- Normally requires about one minutes per vehicle
- One searcher to question driver
- One searcher checks the vehicle
- Occupants generally remain in the vehicle

1

An initial check is a very basic check. It is used as a deterrence and to help screen vehicles which require further searching. Generally, it does not require occupants to get out the vehicle and can be conducted by 2 persons; 1 who questions the driver and occupants and the other who looks around the vehicle for anything that seems suspicious. This usually takes less than two minutes.

Image Courtesy Getty Images

Slide 32



The two searchers will have distinct roles. Searcher 1 will talk to the driver and occupants while searcher 2 carries out a quick walk around the vehicle to look for indicators of potential IED threat, components, weapons etc.

The list shows some of the functions that each searcher should carry out and some of the indicators that might arouse suspicion. Remember, the vast majority of vehicle occupants will be civilians trying to go about their normal lives, treat them with respect and always act within the rules of the mission.

Notes for the Instructor

Searcher 1

- Speaks to the driver and occupants
- Looking for suspicious behaviour (unusually polite or nervous occupants). People who have something to hide are often overly polite, this could raise suspicion. The same applies for nervous occupants.
- Confirm ID or driver and vehicle registration match (subject to mission rules). Often illegal activities are conducted using stollen vehicles.
- Looking for missing keys. When a car is stolen it will often be missing its keys and needs to be started by other means.
- Strong smells. The movement of chemical precursors or home-made explosives often has strong chemical smell. This should raise suspicion.
- May ask the driver to turn off the engine. Often components are hidden in empty batteries, if the car cannot be re-started after turning of the engine, this too could be grounds for a primary search.

Searcher 2

- Conducts a quick walk around the car. This is general inspection for anything suspicious. The searcher should look through the windows to the interior of the vehicle.
- Looks for unusual modifications. To hide components often modifications, need to be made.
- Vehicle overloaded. IED components can often be very heavy, signs of overloading but no obvious cargo could be an indicator of something being concealed.
- May look inside the luggage compartment. The searcher may look in the luggage compartment to inspect cargo. (subject to mission rules)
- May use mirrors to look under the vehicle. This is to look for anything hidden under the vehicle.

Slide 33

Vehicle Search

Primary Search

- Carried out on vehicles that have been selected during the initial check
- Search should be as detailed as time and conditions allow
- Search must be systematic
- Takes approximately 10 minutes
- Ideally carried out by 4 pax. (2 searchers, a pair for searching occupants)

3

If, during the initial checks, a vehicle is marked for further searching due to something suspicious, a primary check will be carried out. A primary check may also be carried out where a higher degree of security is required and where there is a low number of vehicles that need checking. This check needs to be as detailed as the time or tactical situation will allow and it must be done systematically by trained persons. This search can take up to 10 minutes and is usually carried out by a team of 4. 2 of whom will search the vehicle while the other pair are required to carry out a person search of the occupants or provide security.

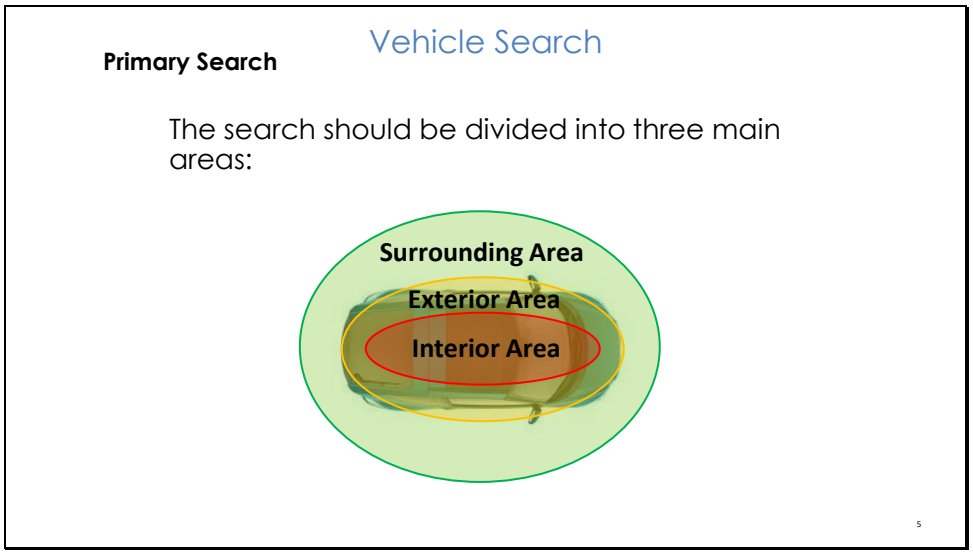
Vehicle Search

Primary Search

- Occupants and their baggage should be removed.
- Occupants search separately by another pair, in view of their vehicle and possessions
- Vehicle must be switched off.
- All doors and compartments should be opened.

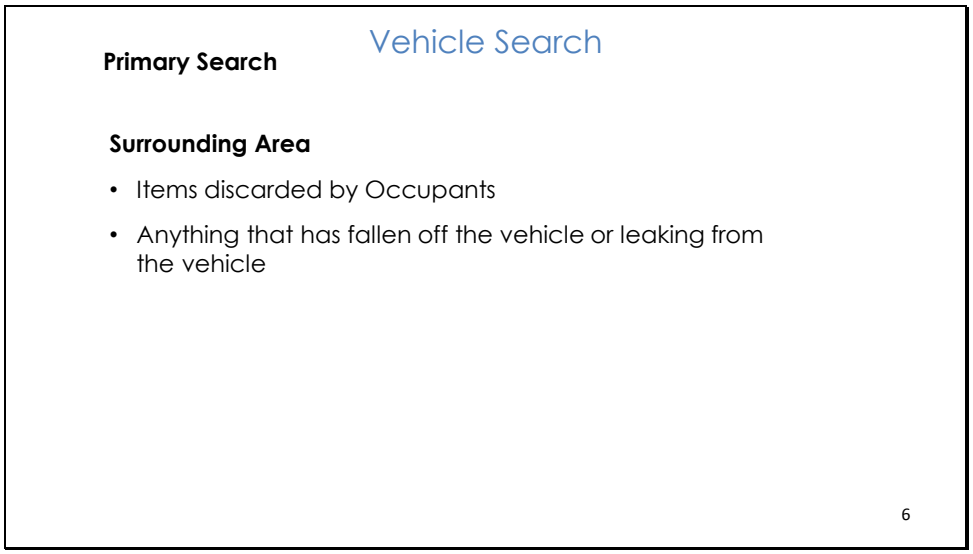
4

Slide 35



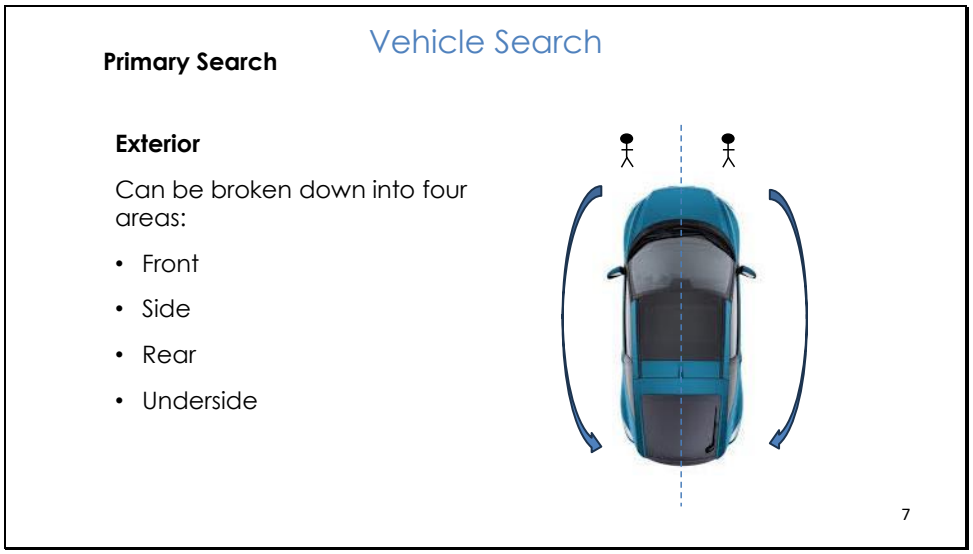
A vehicle search can be conducted in many ways, but it must be systematic. One way of conducting a search is to divide into areas. Surrounding area, Exterior and Interior.

Slide 36



The surrounding area should be very briefly checked for any items that have been discarded by the occupants. This could be weapons, illegal contraband or documentation. Additionally, anything that has leaked from the vehicle fallen off the vehicle should be investigated.

Slide 37



The exterior of the vehicle is broken down into four areas while doing a vehicle search.

Front, side, rear, underside.

The searcher should start with exterior, working as a pair moving in a sequential manner across all areas of the exterior. This can be done by splitting the vehicle in half with one searcher either side. The searcher should continuously be talking to each other to communicate what they can see.

Slide 38

Once the exterior has been inspected, a thorough investigation of all internal compartments should be carried out. Again, this should be carried out in pairs in a systematic way. This includes:

- Engine Compartment. Paying particular attention to areas where items can be stored such as the air filter box or battery.

- Boot Trunk. Both the compartment and spare wheel area should be checked. The spare wheel itself should also be checked to see if items have need concealed inside.

- Inside the vehicle. Both searchers should work from front to back as a pair. Particular attention should be paid to storage compartments, door panels, upholstery and the seats. The underside of the seats should be checked but the seat itself should be inspected to see if it has been altered to conceal items inside.

Image left to right
A police officer inspecting the interior of a vehicle – Courtesy UK West midlands Police.
A soldier inspecting the boot of a vehicle – Courtesy US DoD.
A pair of soldiers inspecting the engine compartment – Courtesy US DoD.

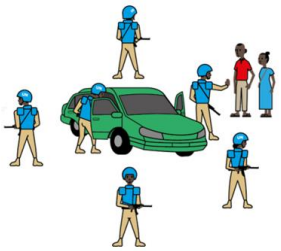
Slide 39

Vehicle Search

Primary Search

Considerations

- Mission specific rules
- Person search considerations apply
- Sex
- Technical knowledge



2

Remember that mission rules will vary. No vehicle inspection should be carried out unless authorized. The considerations covered earlier regarding person search also apply. Remember that as occupants also need to be searched, consideration should be made for searching of the women and children. Finally, soldiers with some technical knowledge of how vehicle work will be helpful in carrying out vehicle search as they will be better placed for identifying anything out of place.

Slide 40

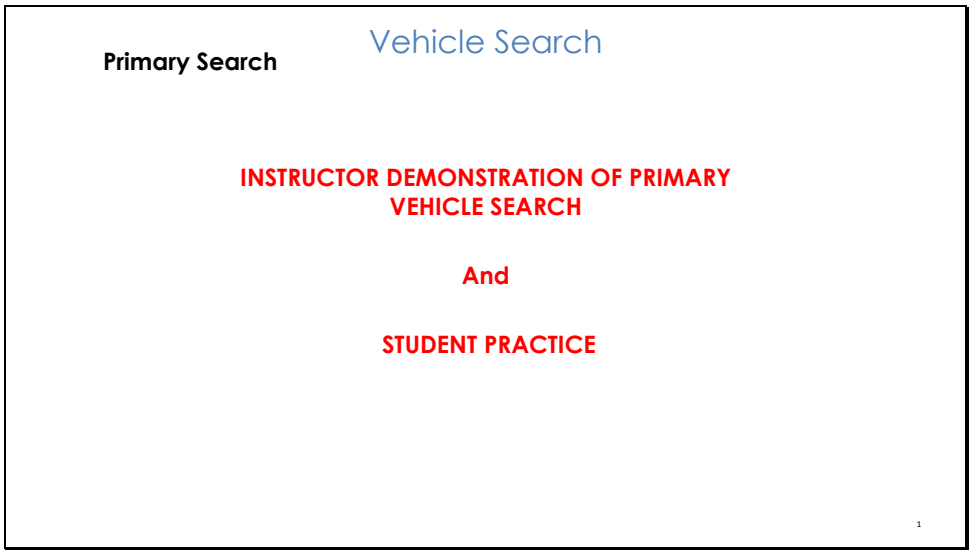
Non-Life Threatening Find:

- •Something which is or maybe evidence of a criminal offence / component part / suspicious documentation / unreasonable quantity of items (sim cards etc.)
- •The item is to be removed out of reach of the subject, while the search is completed.
- •At the end of the search, the subject may be asked for an explanation, if not satisfactory or suitable suspicion, FOR NON-LIFE THREATENING FINDS THE SEARCH MUST BE COMPLETED.
- •On completion of the search the subject is to be arrested.

Life threatening Find:

- •Confirm-Clear-Call-Cordon-Control

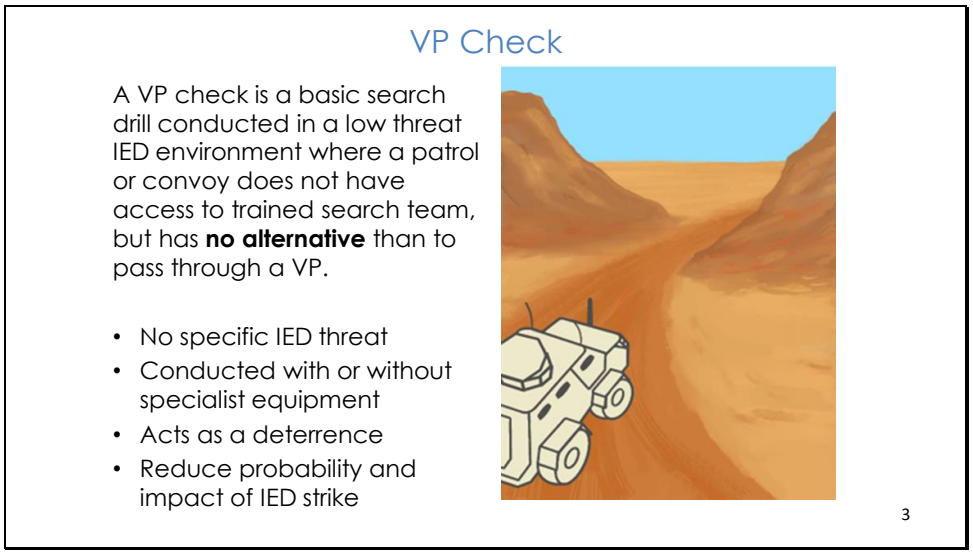
Slide 41



Instructor to carry a full demonstration of a detailed person search.

Slide 42

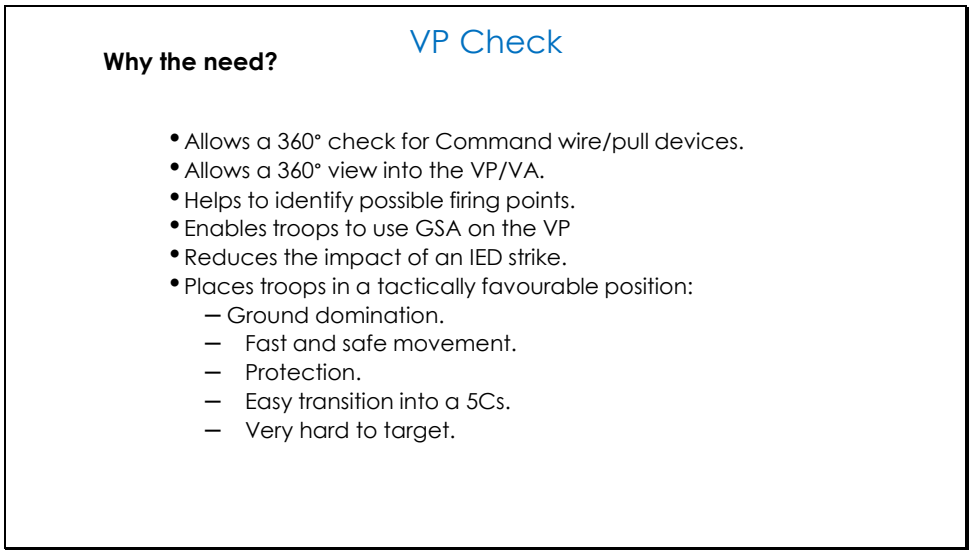
Slide 43



A VP check is a basic search drill conducted in a low threat IED environment where a patrol or convoy does not have access to trained search team but has no alternative that to pass through a VP. The drill is sometimes referred to as a VP 360 domination drill.

The drill is generally conducted in areas where there is no specific IED threat. If you are operating in a high threat IED environment, VPs must be searched by trained teams. Generally, this drill is conducted without specialist equipment such as detectors, but if they are available, they may be used. The main purpose of this drill is to act as a deterrence for IED emplacers/triggermen and to reduce the likelihood and impact of IED strikes.

Slide 44



Why the need for VP Check?

The VP Check procedure allows for the following:

- Locating and mitigation of Command wire/pull devices.

This will be done to negate the threat of any command wire/pull devices running into the VP via the sides or even running parallel with the route (linear features).

- Allows a 360 view into the VP/VA.

Not just looking out for triggermen, also looking into VP from many different perspectives to increase the chance of being able to identify GSA or a threat from distance.

- Identifying potential firing points.

Secure area with a cordon around the VP/VA.

- Enables troops to use GSA on the VP

Troops inside a vehicle cannot employ GSA.

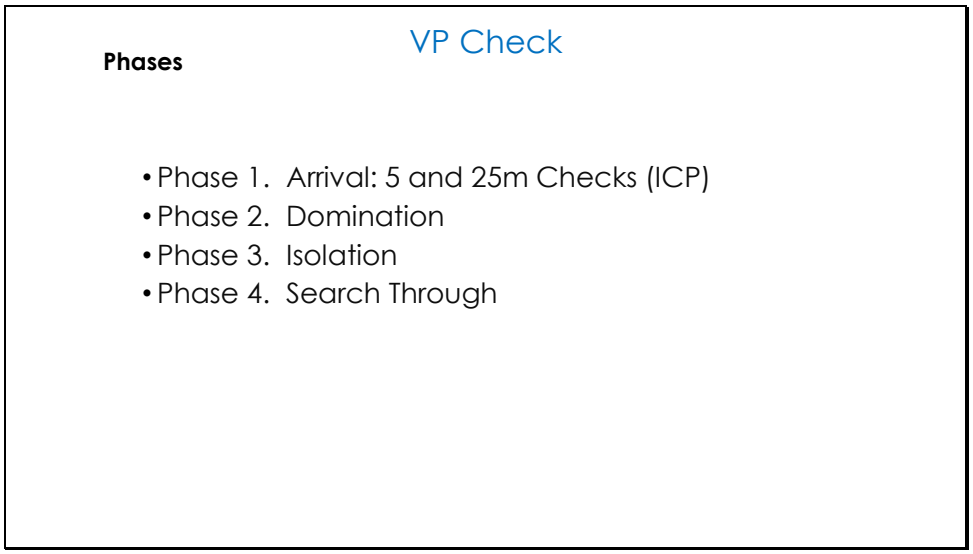
- Reduces the impact of an IED strike.

The dismounting of troops and creating spaces between them mitigates the impact if there is an IED strike, particularly if travelling in soft skin or lightly armoured vehicles.

- *Tactically Favourable Position when entering a VP*
    - Ground domination - Troops are deployed to protect the patrol/convoy. These forces can push any potential trigger men out of the area and protect against SALW attack.
    - Fast and safe movement – An effective, well-practiced, team provides a safe and rapid negotiation of VP/VAs.
    - Protection (cordon) – the drill requires an effective cordon for the protection of patrols/convoys.

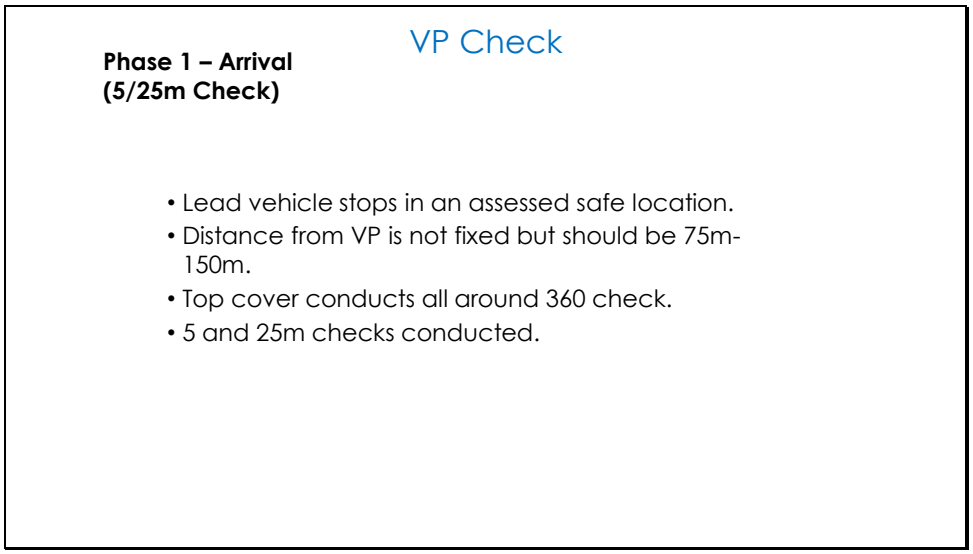
- Easy transition into a 5Cs as troops are already securing the area, making a 5Cs operation much quicker and smoother.
- Very hard to target - Distances are always varied making it very hard to target as patterns are not set and potential trigger men/scouts are flushed out of the area.

Slide 45



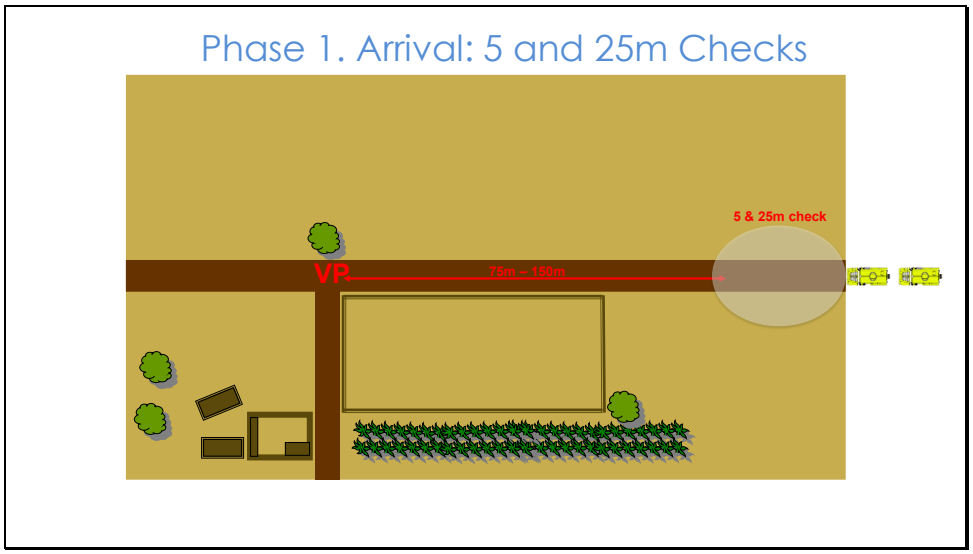
VP 360 Domination Procedure Phases
1 – Arrivals and 5 and 25m checks
2 – Domination
3 – Isolation
4 – VP Search
We will now discuss these in more depth.

Slide 46



Phase 1. Arrival 5 and 25m checks.
The VP 360 Domination Procedure can be executed by any different number of troops, as long as adequate protection is in place for the situation and ground.
At the selected ICP location 5 and 25m checks are conducted. Domination troops are also deployed at this stage. Once in position the Isolation parties can form up.

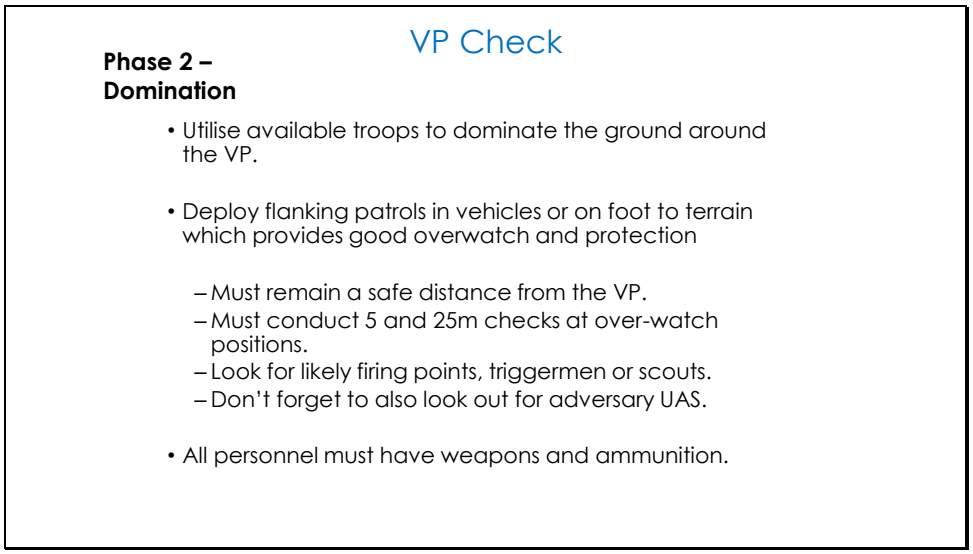
Slide 47



Phase 1. Arrival: 5 and 25 metre checks

The slide shows the stop short location selection with the lead vehicle 75-150 metres from the assessed VP. Key here is to ensure that the site is not a previously used location to avoid setting patterns. Additionally, the lead vehicle should be able to see the VP to enable command and control. Furthermore, the site selected should ideally be in a tactically favourable location and ensure that it is also not a VP. 5 and 25m checks conducted once the location is selected.

Slide 48

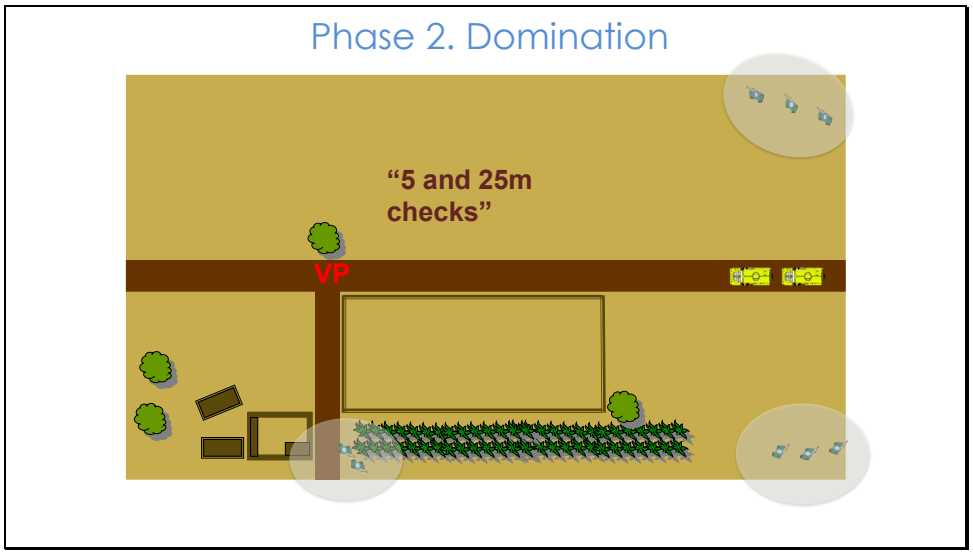


Phase 2. Domination

Available troops should be deployed to dominate the ground, high ground and lines of sight to the VP.

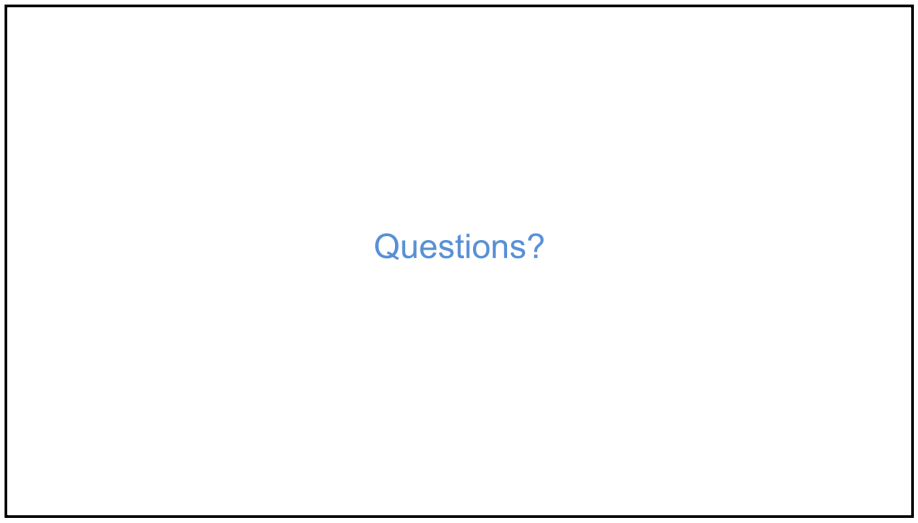
Depending on available manpower Flanking troops in vehicles or on foot can deploy to likely firing points for command IEDs. However, they must remain at a safe distance from the VP and conduct 5 and 25 metres at their overwatch position. It's important to remember that troops should not move to previously occupied positions to avoid setting patters. At the over watch positions, the domination troops should be looking for likely firing points and triggermen as well as adversary scouts which could be an indicator of a potential IED threat. Remember to also look out for the adversary using UAS which could also be an indicator. Additionally, as these troops are moving to these locations, there is a probability of encountering the aggressor and so they should be prepared for a tactical engagement. If terrain or thick vegetation does not allow domination of the VP, this should be achieved using the vehicle top gunner. Furthermore, if friendly UAS are available, they should also be used to support at this stage.

Slide 49



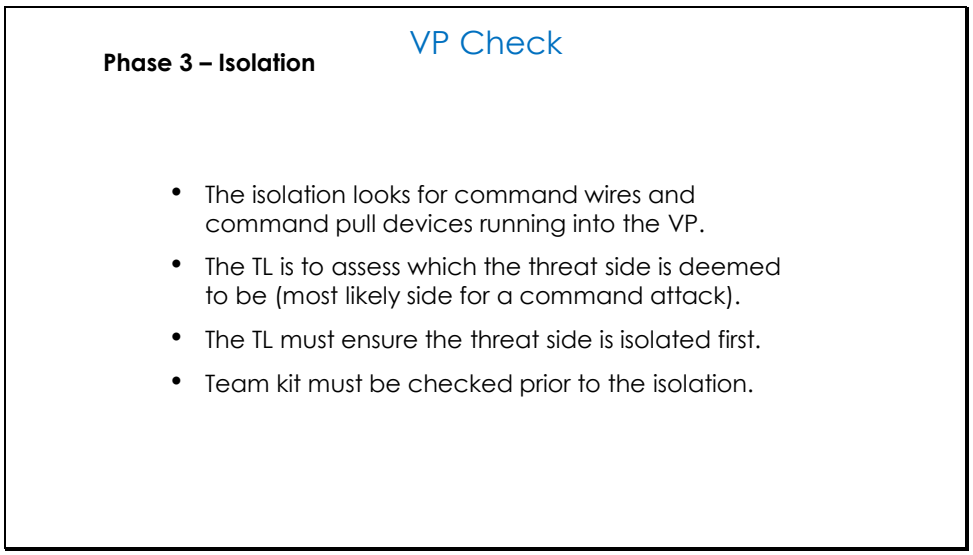
Phase 2. Domination
The slide shows troops moving into position to dominate the ground. This will possibly deter/flush-out triggermen. 5 and 25 metres checks must be carried out when in position.

Slide 50



Are there any questions?
Pose questions to confirm the lesson stage since the last confirmation.

Slide 51



Phase 3. Isolation

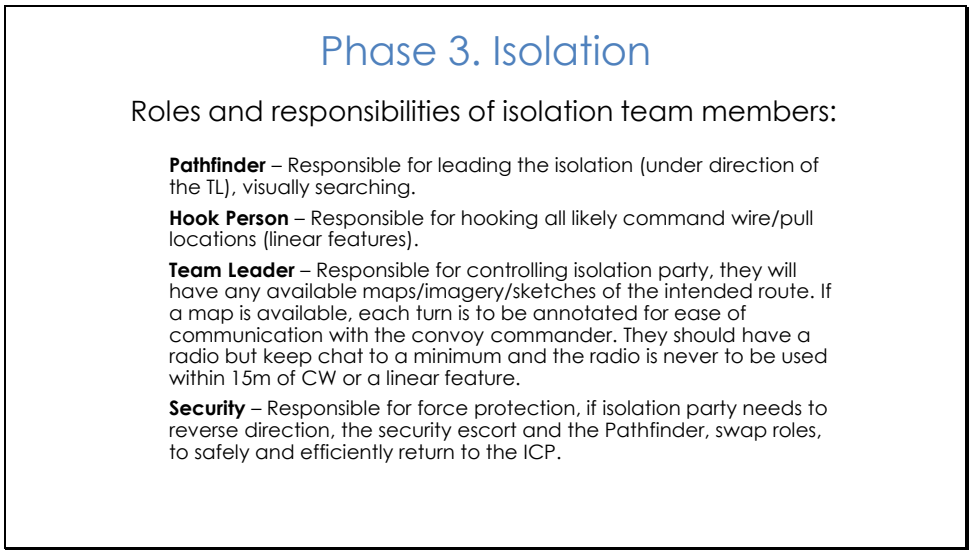
The isolation is used to ensure there are no Command wire/pull devices running into the VP.

Composition of the team can vary. A five-person team is recommended, however, no fewer than two with armed escorts.

The team should have available:

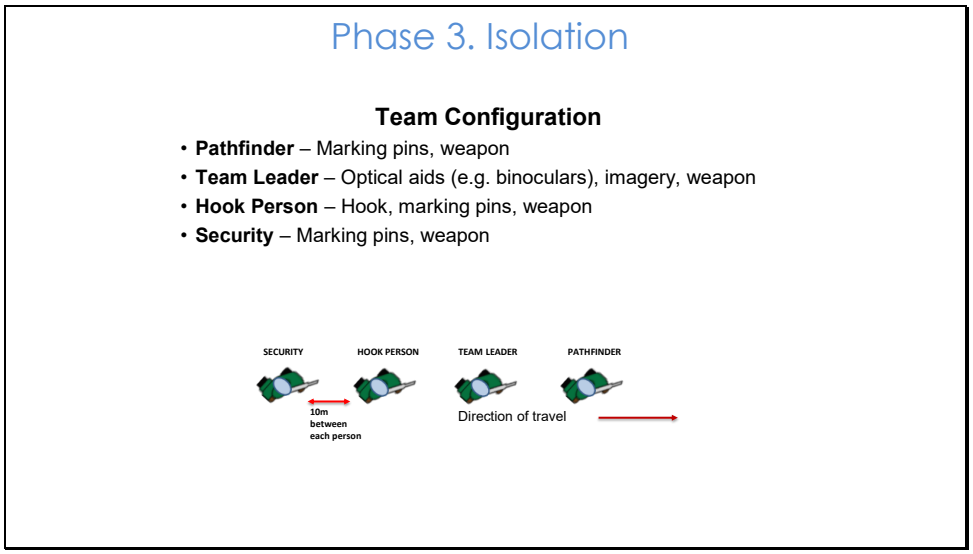
- Hook
- Binoculars
- Radio
- A marking system such as pin markers

Slide 52



Phase 3. Isolation
Roles and responsibilities of isolation team members:
Pathfinder – responsible for leading the isolation along the TL's pre-designated route while carrying out visual search
Hook Person – responsible for hooking linear features and likely command wire/pull locations
Team Leader – controls the isolation. Decides preferred route, maintains communications with ICP
Hook Person – responsible for hooking linear features and likely command wire/pull locations
Security – responsible for protection of the isolation party. If something is found, will swap roles with pathfinder on the team's return to the ICP.

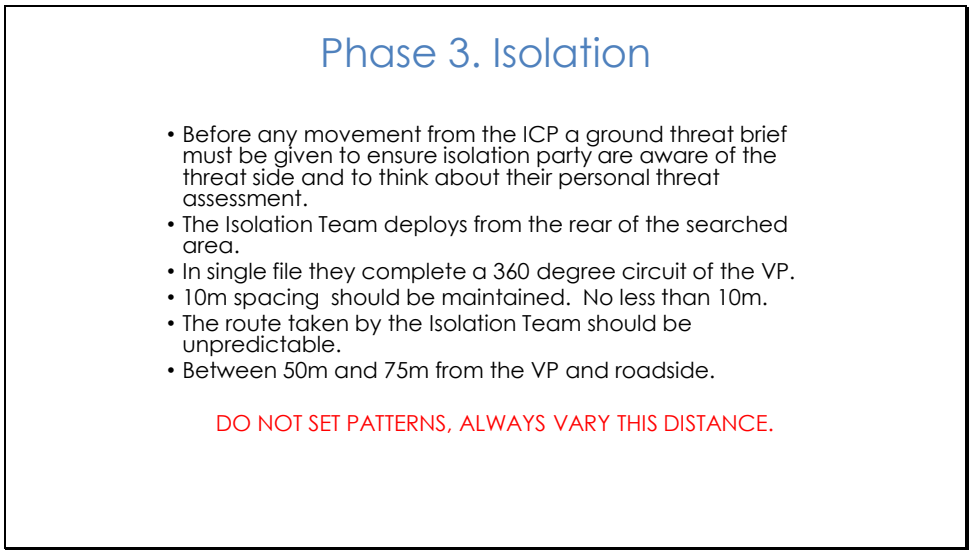
Slide 53



Phase 3 – Isolation
Team configuration
Explain each team member's place within the team.

- **Pathfinder** – Marking pins, weapon
- **Team Leader** – Optical aids (e.g. binoculars), imagery, weapon
- **Hook Person** – Hook, marking pins, weapon
- **Security** – weapon

Slide 54



Phase 3 – Isolation

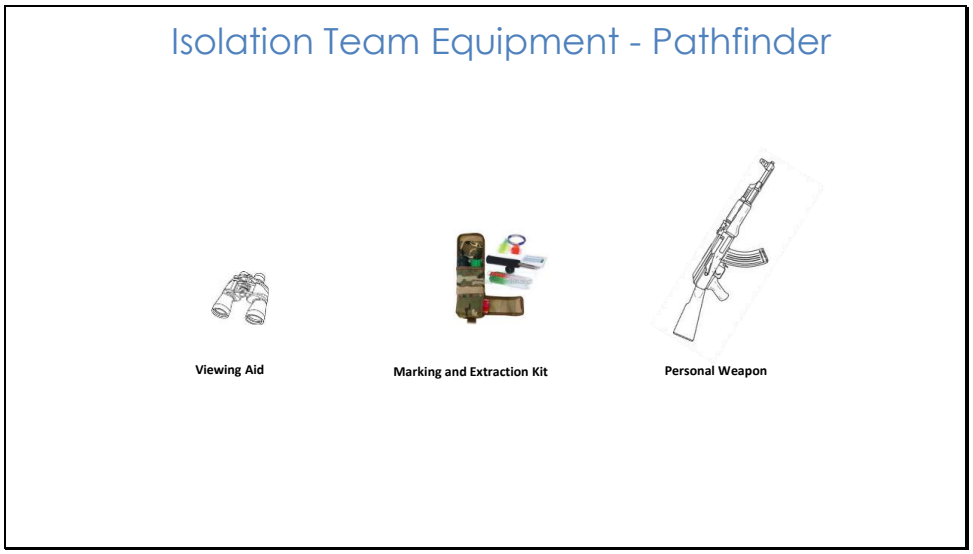
The isolation party deploy to the rear of the halt point, move out to 50-75 metres and commence the search in single file maintaining a minimum of 10 metre spacing.

- The route taken should be unpredictable, this will prevent pattern setting and targeting.
- A distance of 50-75 metres is to be maintained from the VP during the 360 degree navigation of the VP.
- An important task during the isolation is to identify potential firing points where triggermen could be.
- Remembering the need for aiming markers.

If viable firing points are identified the party should maintain a safe distance from the likely contact point and relay information back to commander on the road. Who will direct domination teams to concentrate on that area.

Should anything be discovered it is to be marked, the Convoy commander informed, and the team are to return to the safe area. 5Cs procedure will then be implemented.

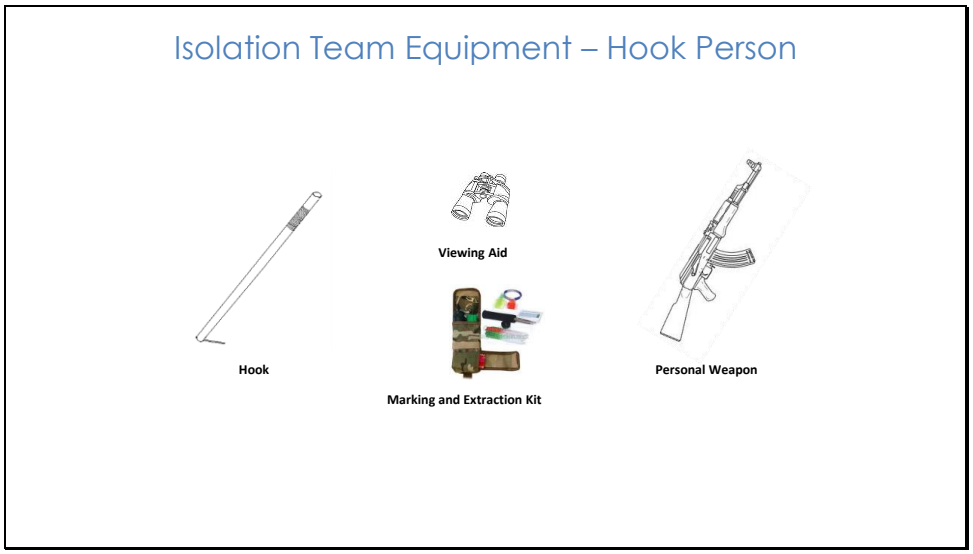
Slide 55



Isolation Team Equipment – Pathfinder
What the Pathfinder will carry

Viewing aid, sufficient marker pins, weapon

Slide 56

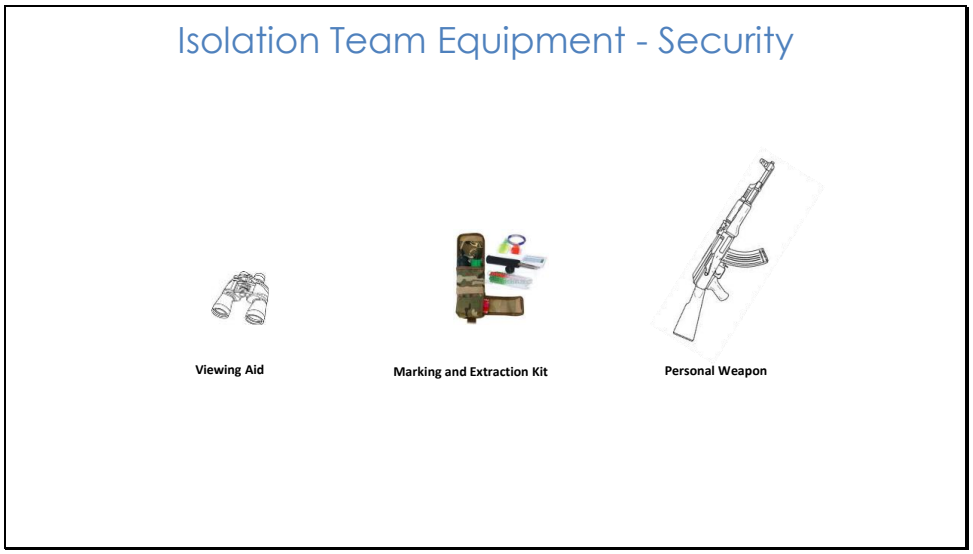


Isolation Team Equipment – Hook Person
Hook, viewing aid, sufficient marker pins, weapon

Slide 57

Isolation Team Equipment – Team Leader
Radio, GPS, map/aerial photo, viewing aid, sufficient marker pins, weapon

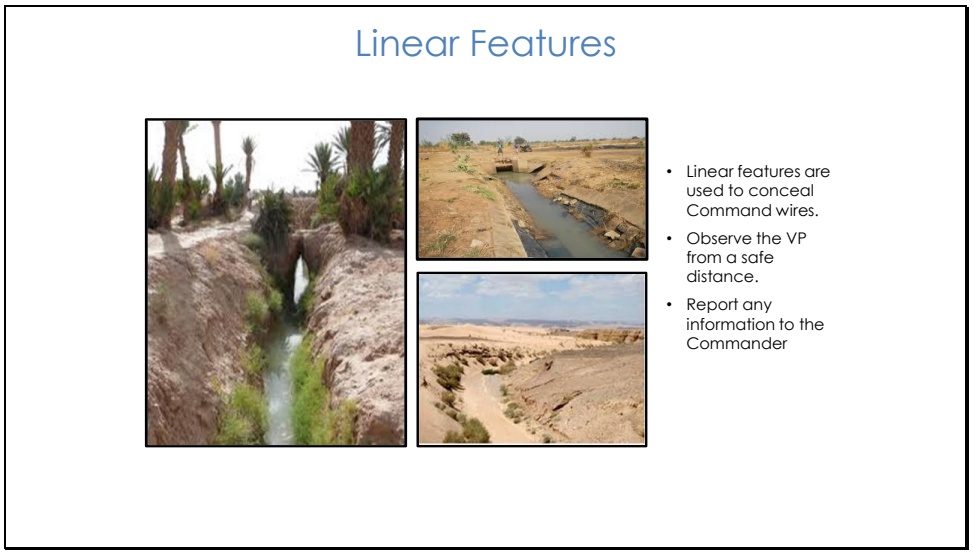
Slide 58



Isolation Team Equipment – Pathfinder
What the Pathfinder will carry

Viewing aid, sufficient marker pins, weapon

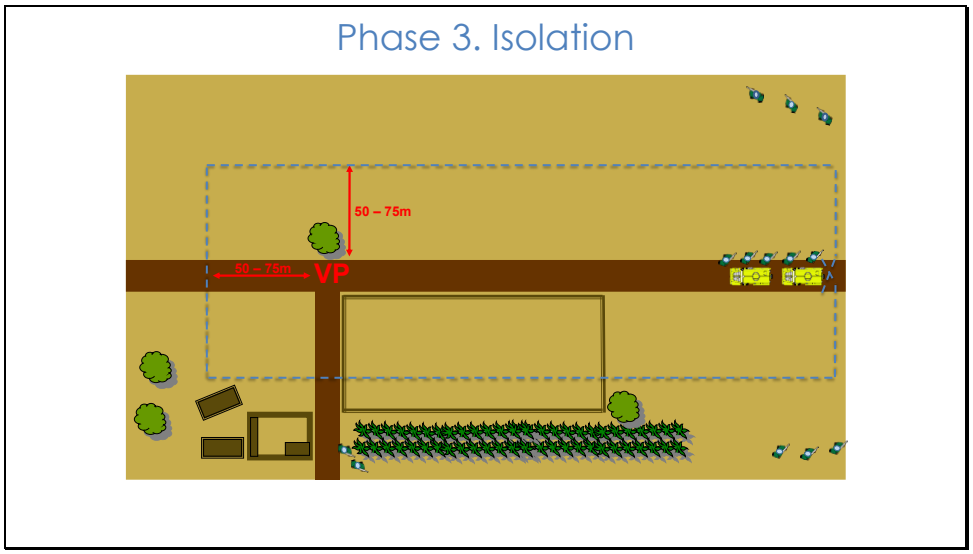
Slide 59



Linear Features

These are the types of locations that the Hook Persons are to check for command wire/pull

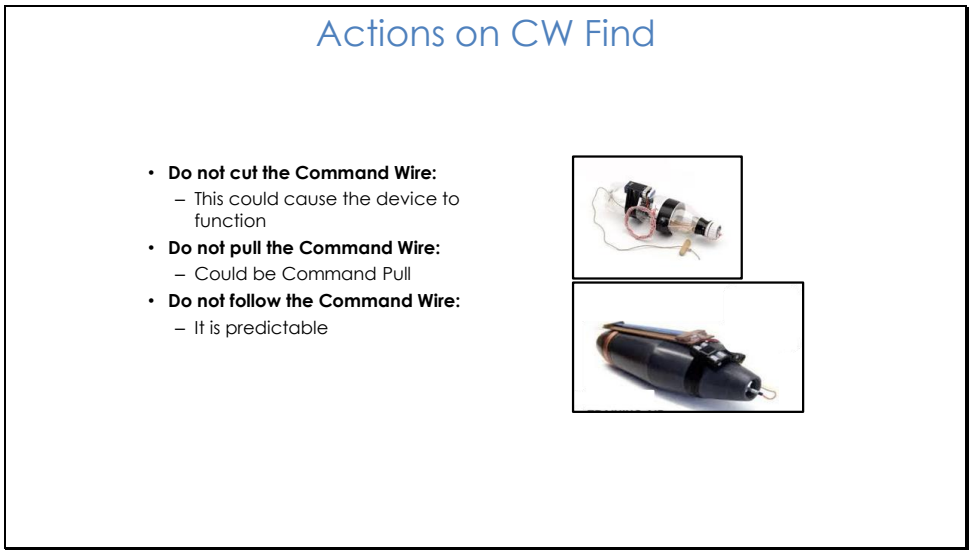
Slide 60



Phase 3. Isolation

The slide shows the conduct of the isolation. The instructor should highlight that the route is rectangular for instructional purposes. It does not need to be rectangular and should take the most tactically favourable route, avoiding setting patterns and avoiding VPs on the isolation route. The isolation team will ensure they visually observe the VP from multiple angles to identify GSA, command wires or receivers this can be aided using binoculars. They are also looking for Firing Points and triggermen. Linear features need to be "hooked" for command wires. The patrol needs to maintain an aggressive posture in case of ambush.

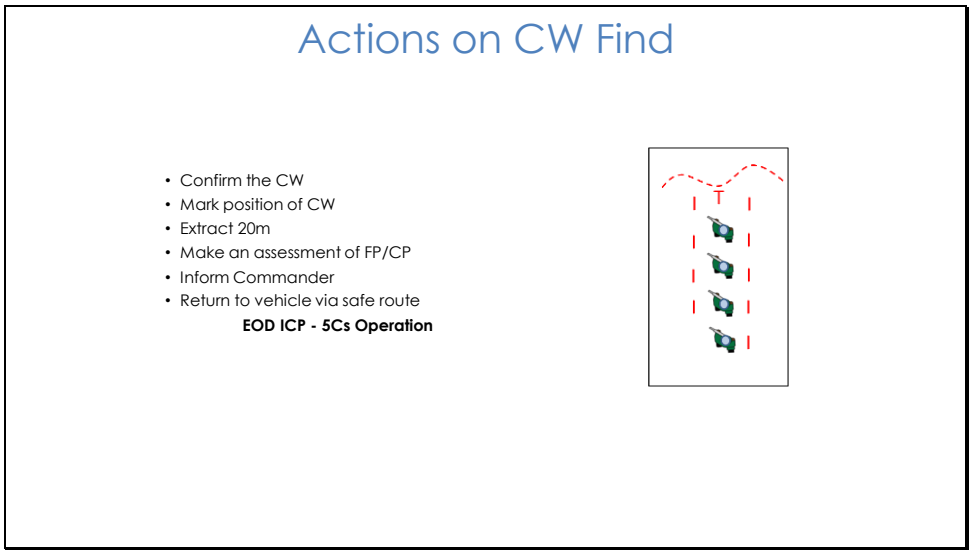
Slide 61



Actions On CW Find

- **Do not cut the Command Wire:**
  - This could cause the device to function
- **Do not pull the Command Wire:**
  - Could be Command Pull
- **Do not follow the Command Wire:**
  - It is predictable

Slide 62

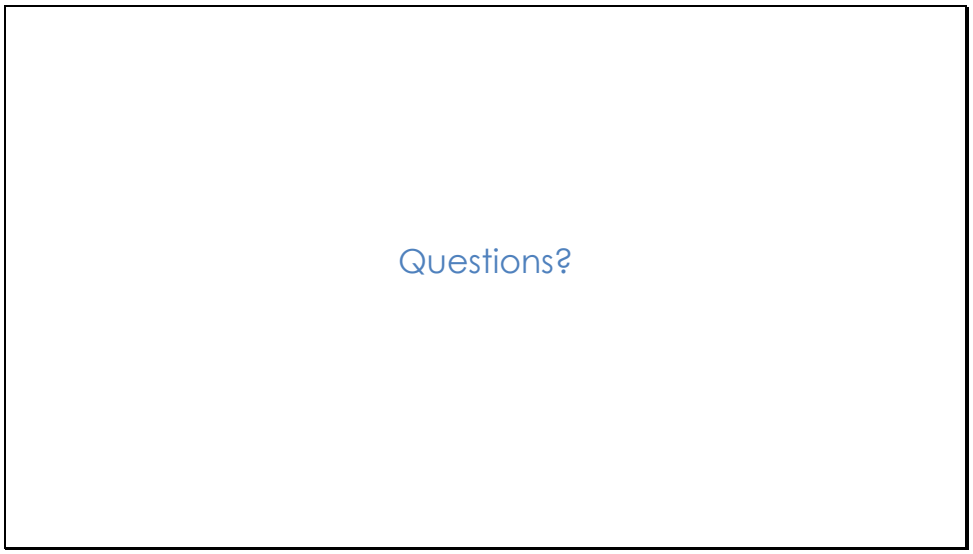


Actions On CW Find

- Confirm the CW
- Mark position of CW
- Extract 20m
- Assess FP/CP
- Inform Commander
- Return to vehicle via safe route

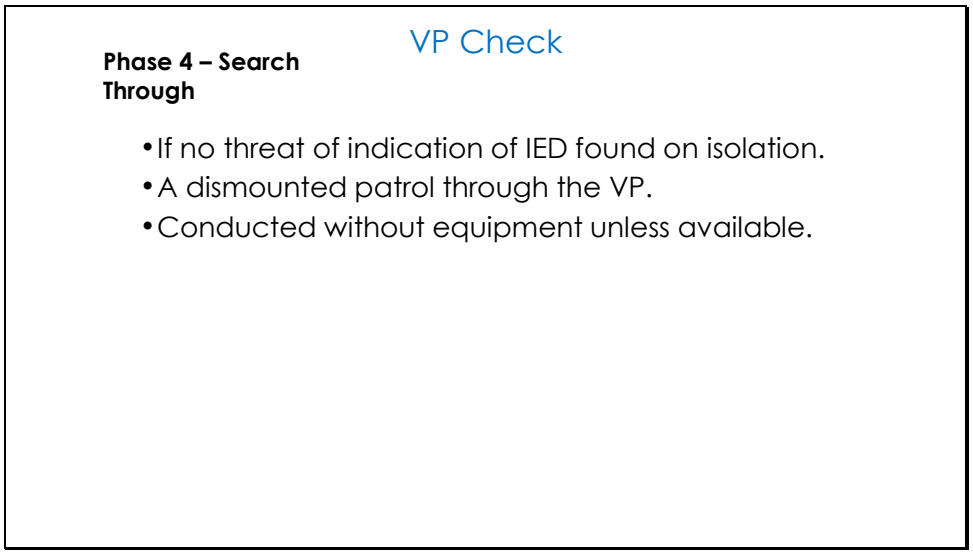
EOD ICP - 5Cs Operation

Slide 63



Are there any questions?
Pose questions to confirm the lesson stage since the last confirmation.

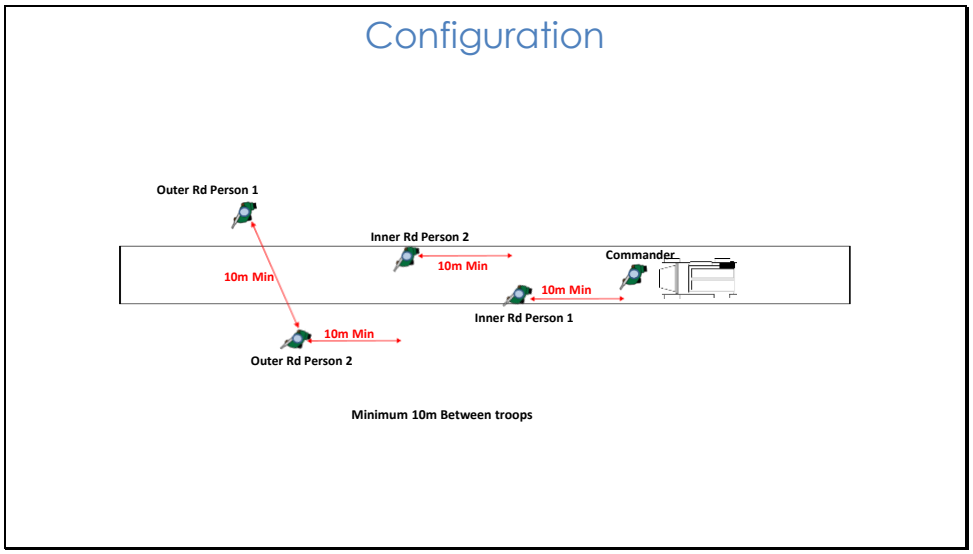
Slide 64



Phase 4. VP Search

If no threat or indication is found during isolation, the final phase is to conduct a search of the VP. In simple terms, this is a dismounted patrol through the VP using ground sign awareness to identify any potential IED. It is generally conducted without specialist equipment but if there are detectors available and there are trained persons, then they should be employed here.

Slide 65

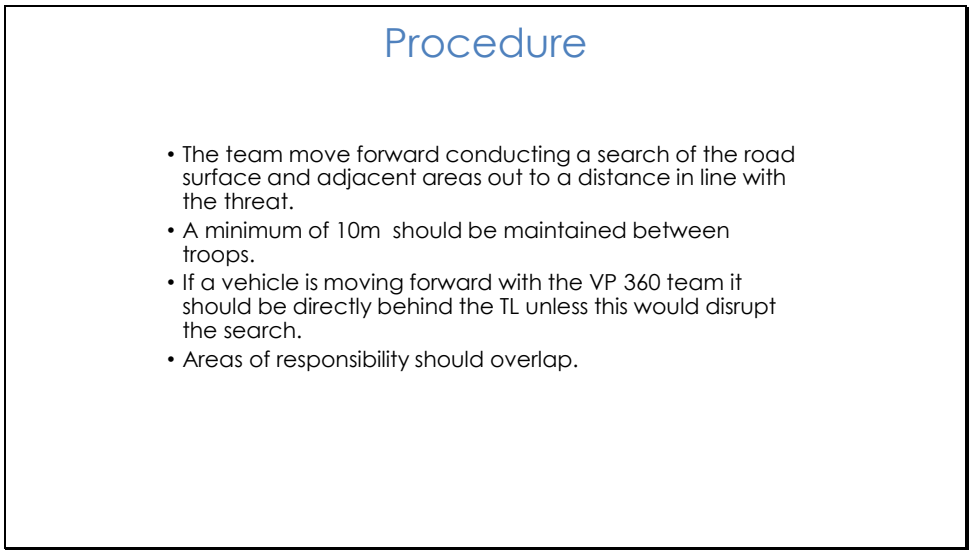


Phase 4 – Search Through
Configuration

Explain set up of VP Search Team.

- Note the 10m distance between all personnel; this is to be maintained throughout.

Slide 66

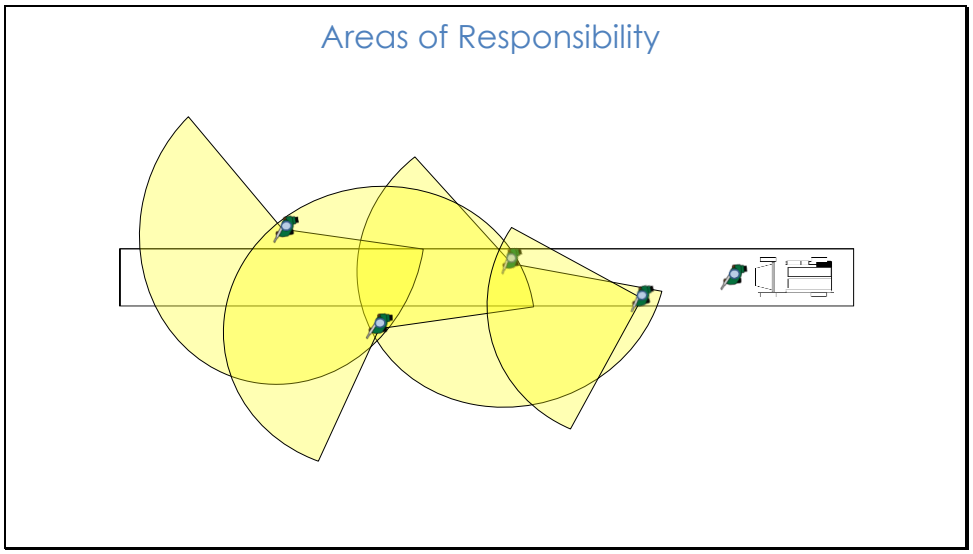


Procedure

- The VP 360 team move forward conducting a search of the road surface and adjacent areas out to a distance in line with the threat
- A minimum of 10m should be maintained between troops
- If a vehicle is moving forward with the VP 360 team it should be directly behind the TL unless this would disrupt the search
- Areas of responsibility should overlap

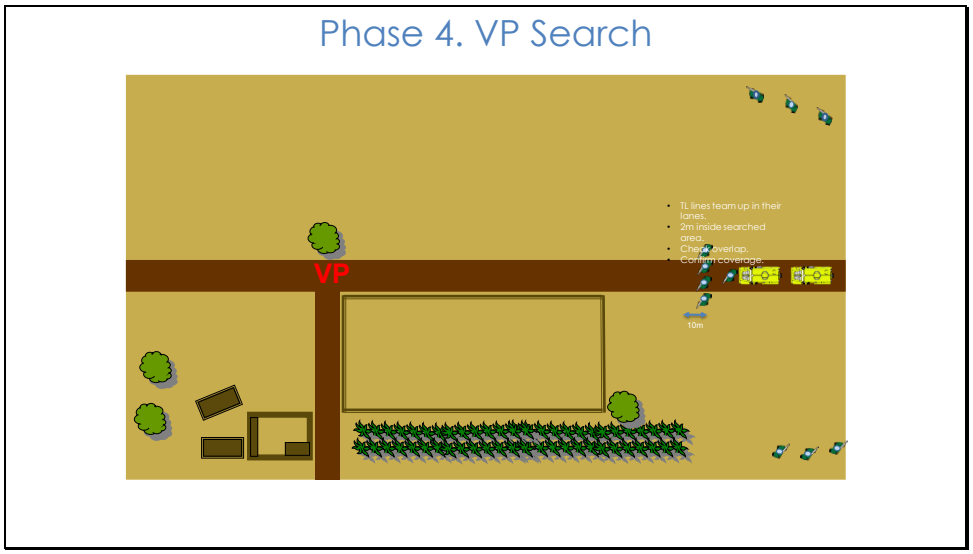
A physical and visual search is conducted looking for GSA, IED Indicators (CAGE)
The overlap is ensured through the TC/TL.

Slide 67



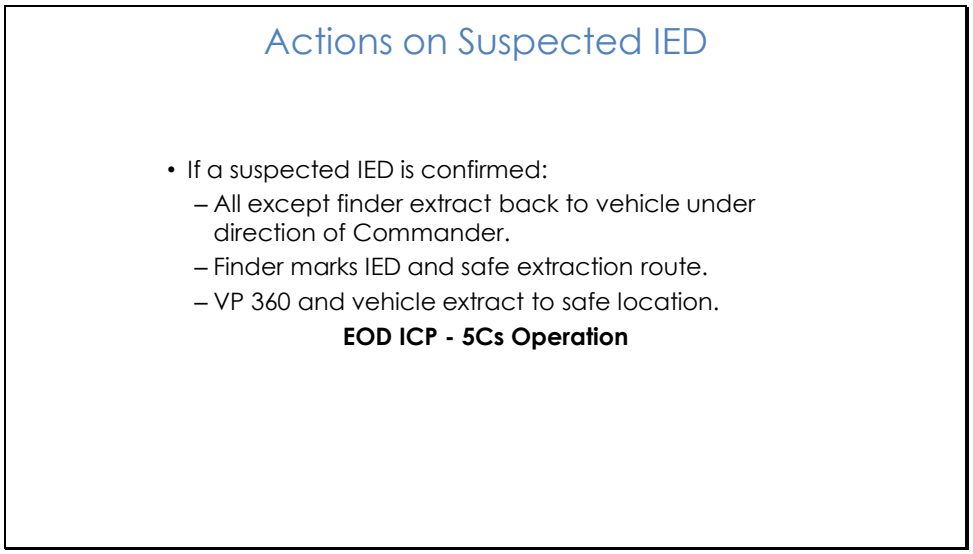
Areas of Responsibility
ORP – Wide arcs of view out to the flanks and into the route. This includes looking not only forwards but also back down the route into the areas where the IRP will search (Different perspectives will often show ground sign more clearly).
IRP – Narrower arcs of view required but maintain a look out to the flanks and visuals down the route.
On the last animation (All search areas visible) highlight how extensively searched the area has been.

Slide 68



Phase 4. Search through
This slide shows the procedure of the VP search

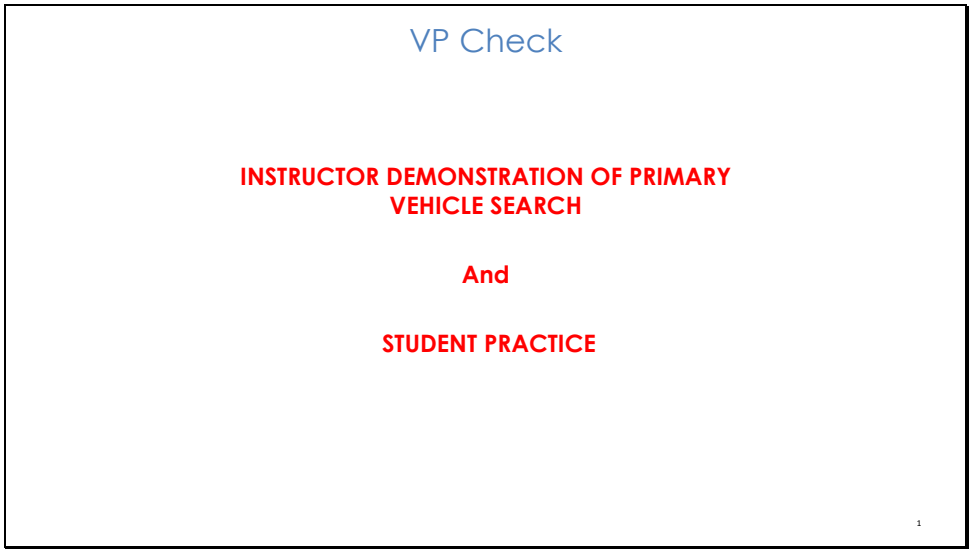
Slide 69



Actions on Suspected IED

- If a suspected IED is confirmed:
  - All except finder extract back to vehicle under direction of Commander
  - Finder marks IED and safe extraction route
  - VP 360 and vehicle extract to safe location
  - 5Cs operation commences

Slide 70



Instructor to carry a full demonstration of a detailed person search.

Slide 71

Questions?

UNMAS

2

Lesson

2.7

BASIC SEARCH (PERSON, VEHICLE, VP360)

The Lesson

Time. This module requires approximately 90 minutes to teach. 45 minutes of classroom theory followed by 45 minutes of practical training. See Annex B.

Performance Statement. At the end of this lesson, the participants will be able to describe the likely locations and indicators of minefields. The participants will be able to recall what measure can be taken to avoid minefields and demonstrate the actions taken when encountering a mined area.

Key Learning Points. The following main teaching points are contained in the delivery of this module:

(1) Mine awareness:
   a. Likely places
   b. Indicators
   c. Preventive and reactive measures

(2) Actions on:
   a. Mine find drill
   b. Emergency Evacuation drills
      i. Individual (self-extraction)
      ii. Casualty
      iii. Vehicle

Methodology. This Lesson will be introduced through the lecture method combined with the participatory approaches and exercises/demonstrations.

Infrastructure. Classroom with projection facilities, sandpit, and outside areas.

Equipment. Inert mines, 2 x shovels, 2 x pickaxe, 2 x bass broom, whiteboards, search equipment as decided by instructor.

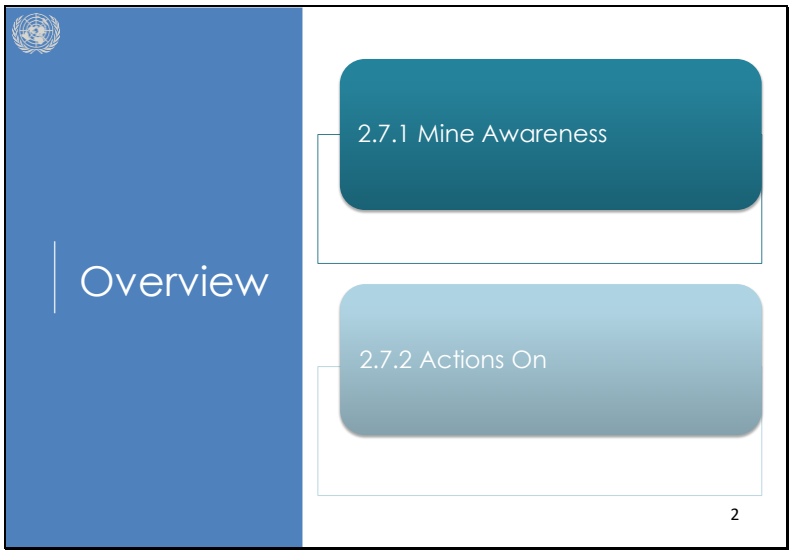
Slide 1

EHAT Lesson 2.7: Mine Awareness

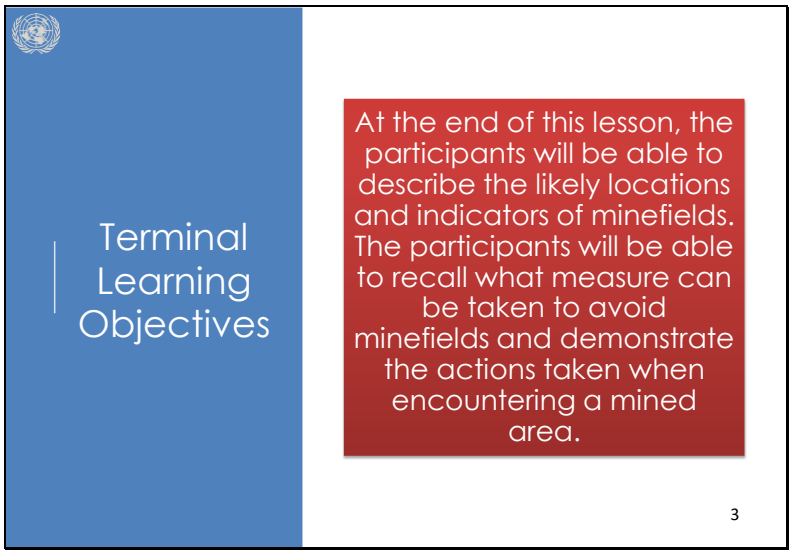
1

Find guidance inserted in the note section of each slide.

Slide 2

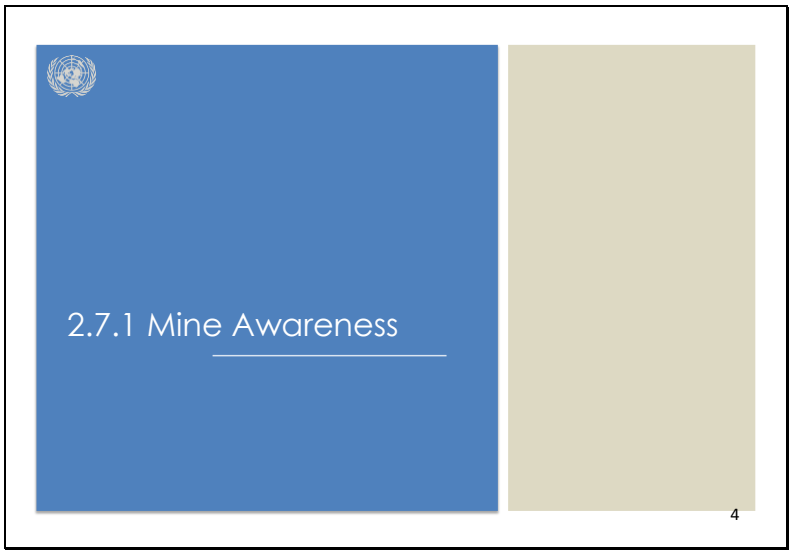


Slide 3



This lesson has been adapted from the UK MOD Mines Awareness Training.

Slide 4



Slide 5

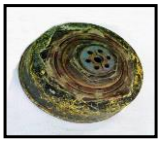
Mine Awareness

Mines Revision

What are the two main categories of land mines?
- *Anti-personnel and anti-vehicle/tank*

What are the four main types of anti-personnel mines?
- *Blast, Fragmentation, Bounding, Directional Fragmentation*

What are the two types of anti-vehicle mine?
- *Blast, Shape charge*



5

Slide 6

Mine Awareness

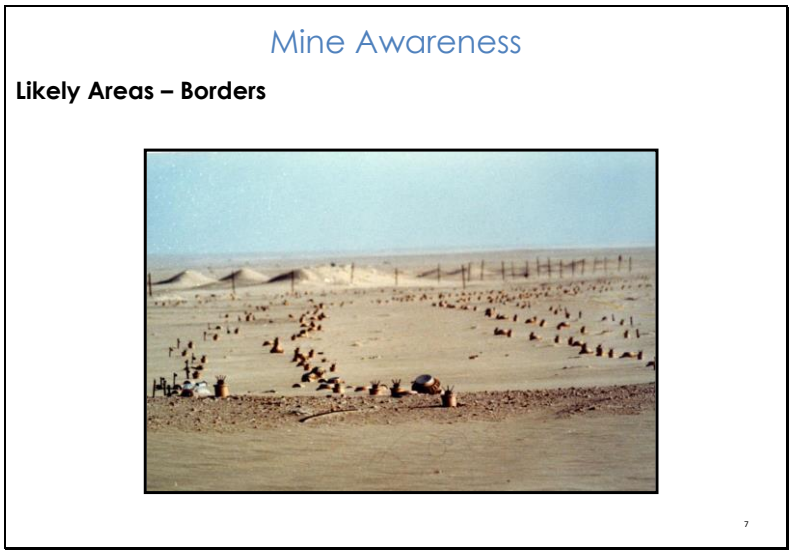
Likely Areas

- Border locations
- Former confrontation lines
- Strategic military sites
- Abandoned Buildings
- Former Military Positions
- Feeder Roads & Flanks of MSR's

6

Images courtesy of UK MOD.

Slide 7



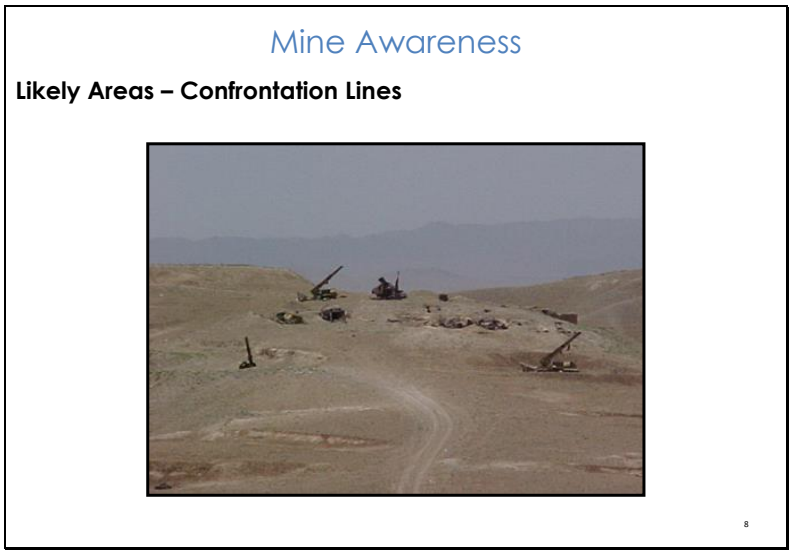
Borders.

Why? Countries borders will naturally be defended by some means. Where a particular country has had previous tensions with neighbouring countries an effective way to deter or channel a likely threat is by the emplacement of extensive minefields, be it AP, AV or a combination of both.

The slide shows an extensive overt minefield along the Iran/Iraq border.

Images courtesy of UK MOD.

Slide 8



Confrontation Lines.

Why? Former confrontation lines can be expected to be littered with UXO, booby traps and mines. Where confrontation lines were static for a period extensive minefield obstacles can be expected to be in place. Where one faction was in retreat you can expect an increase in hazards from mines and booby traps.
Images courtesy of UK MOD.

Slide 9

Strategic military sites.

Why? Strategically important military sites such as airports, docks, road junctions, tank parks, radar installations, Headquarters etc also require to be defended. Minefields can be expected to be used to contribute to the Defense of a particular strategically important area. Examples include the airbase of Bagram which was heavily mined to deter mujahadeen attacks.

Slide 10

Disused buildings

Why? Buildings that are not being used by the local population should be looked upon as extremely hazardous. The local population will utilize every resource including buildings. If a building is not being used the local population will have had a good reason not to have used it. Expect disused buildings to be mined/booby trapped or have a UXO hazard.

Images courtesy of UK MOD.

Slide 11

Former Military Positions

Why? Old military positions such as patrol harbors, defensive positions etc would have been defended. The warring factions would have used mines/booby traps to defend that position

Images courtesy of UK MOD.

Slide 12

Feeder and Tracks

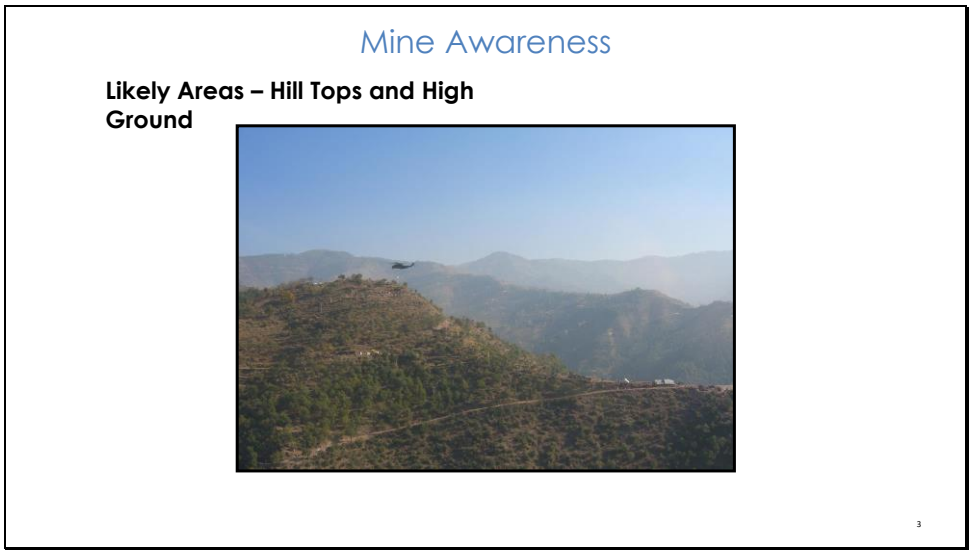
Why? Feeder roads and tracks are usually well worn and rutted and lend themselves to easy mine laying or ambush. The roads and tracks are natural passageways for vehicles and personnel to travel along in remote regions and lend themselves to greater disguise of digging activity.

The picture on the left shows how vehicles ruts on well-worn tracks are often targeted by insurgents observing patterns being set by opposition forces.

The picture on the right shows a near miss for the lead vehicle of a Soviet PMN AP Blast mine in Afghanistan. It also shows the effect of mine migration, as this mine had been deposited well away from its original emplacement by flooding of the seasonal river system.

Images courtesy of UK MOD.

Slide 13



Hill Top Locations

Forces are always going to want to dominate the high ground. Therefore, hilltops will always be keenly contested. The emplaced force may well employ mines to deny access to the high ground particularly in dead ground approaches such as re-entrants.

Soviet doctrine in Afghanistan was to scatter able mine dead ground and likely approach to their high OP's, and drop in the men by helicopter

Slide 14

Mined areas are often not visibly different from mine-free areas, as they may not be marked with any warning signs. As a rule, mines are often impossible to see; they are usually buried or concealed in undergrowth.12 Areas contaminated with other ERW may be more obvious, as there may be visible ammunition casings on the ground, unexploded ordnance, and so on. Booby traps and IEDs are mostly invisible, but the behaviour of the population and the recognition of markers and ground signs can assist to avoid a possible dangerous area. This section is intended to help readers recognize warning signs and clues. Constant vigilance will help you identify and steer clear of potentially dangerous areas.

OFFICIAL WARNING SIGNS

Sometimes you will come across official signs, erected by a government, a non-governmental organization (NGO), a United Nations agency or by some other organization, to warn you that mines or other explosive hazards are in the area. These warning signs may differ from one country to another, but are normally bright red, square or triangular, and made of metal, concrete, wood or plastic. The most common ways of marking a mined- or ERW-affected area with official signs are:

- Skull and crossbones sign in red and white, rarely yellow and black, often with the words "DANGER MINES" in English and/or the local language.
- The word "MINE" or "EXPLOSIVES" in English and/or the local language.
- Rope or tape usually coloured either yellow, red or blue.
- A red triangle, sometimes with a black dot or the word "mine" in the centre and
- A concrete or wooden post painted red on one side and white on the other. The red side indicates the side that is dangerous.

A conventional army sometimes uses barbed wire or high fences to section off an area of important military interest, especially around permanently strategic points like airports or ammunition depots. Additionally, these fences can be protected with mines.

In absence of suitable material official warning signs could look more improvised. Red or blue painted stones could also be a serious warning.
All warning signs are subject to deterioration over time, meaning you must be observant. Signs may have fallen, rusted away or become covered in vegetation or (seasonally) by snow. Poor construction materials along with low quality paint often result in signs becoming dislodged, broken or badly faded. Signs are also often stolen or not properly maintained or replaced.
Mine action programmes should use barbed wire or fences to warn and keep the local population from entering dangerous areas.

UNOFFICIAL (IMPROVISED)
WARNING SIGNS

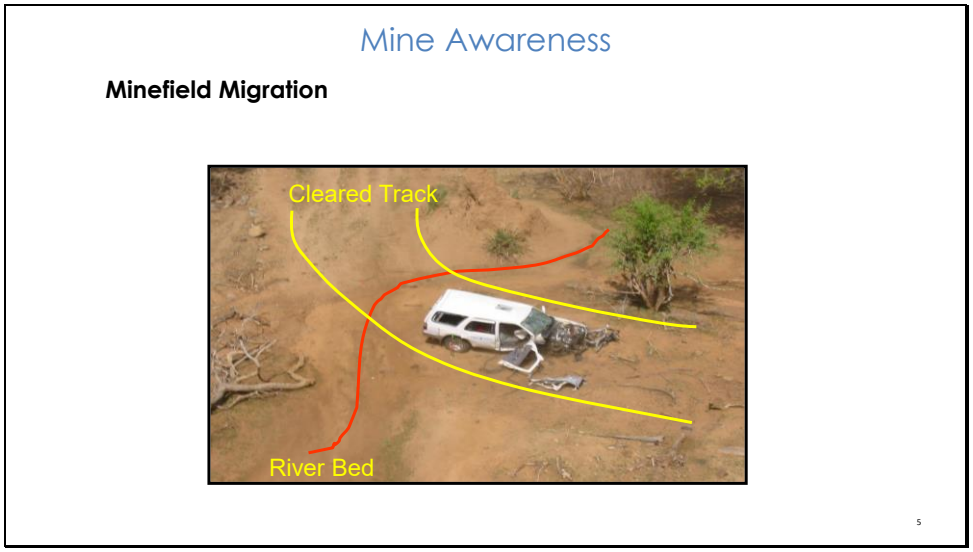
In addition to official signs designed to warn people, conventional army and other official responsible persons may use signs to indicate areas they have surveyed as dangerous and which they plan to clear or are in the process of clearing. In Afghanistan, such areas are marked with rocks painted red to indicate uncleared areas and painted white to show areas that are clear. Also, buildings, roads and trees may be painted red or white with map coordinates and minefield numbers, indicating that the area may be dangerous and has been surveyed.

In the absence of official signs, local people often develop their own techniques and signs for marking dangerous areas. Such techniques vary from one country to the next and even vary in different parts of the same country. With local signs there are no hard and fast rules, and they are often only obvious to local people. Such signs nonetheless have some common characteristics to represent danger ahead, and may include:

- A piece of cloth or plastic bag tied to a fence or tree.
- A can on a post;
- Small piles or circles of rocks;
- Rocks laid across a path;
- A clump of grass that has been tied in the middle;
- Sticks which have been tied to form a cross, then placed across a path or placed in the ground next to a path;
- Signs which have been cut into the bark of a tree and
- A shorn-off branch.

Because of their improvised nature, local signs often do not give a clue as to the precise location or particular nature of the threat. Imagine coming along a road or a path where you encounter a barrier. How will you know whether you are in front of the threat or already inside the hazardous area? Look for other indicators and consult with local people. Often these signs can also be used to represent other types of danger, like a damaged bridge, a pothole in the road and so on. Whatever the meaning, these local signs represent danger, and caution should always be exercised.

Slide 15



Whilst maps and warning signs may indicate the locations of mines when they were laid, mines may have moved over time. This is known as minefield migration. You can see in the image above how a seasonal river has carried mines downstream and deposited then on a previously cleared track. Mines can be migrated in many ways including flooding or even wind through sand dune migration. This is to say that the age of a marked minefield should be taken into consideration when moving.

Slide 16

Mine Awareness

Preventative Measures

DO NOT leave hard-standings
DO NOT park or drive on verges
DO NOT drive on un-cleared routes
DO NOT enter un-cleared buildings
DO NOT pick up souvenirs
DO NOT become a military tourist

6

Images courtesy of UK MOD.

Slide 17

STAY ON THE HARD STANDING

This image shows the result of failing to abide by one of the Basics.

Slide 18

DO NOT PARK OR DRIVE ON VERGES

Why? The hard standing offers protection as it is harder for mines to be deployed without detection

Images courtesy of UK MOD.

Slide 19

Mine Awareness

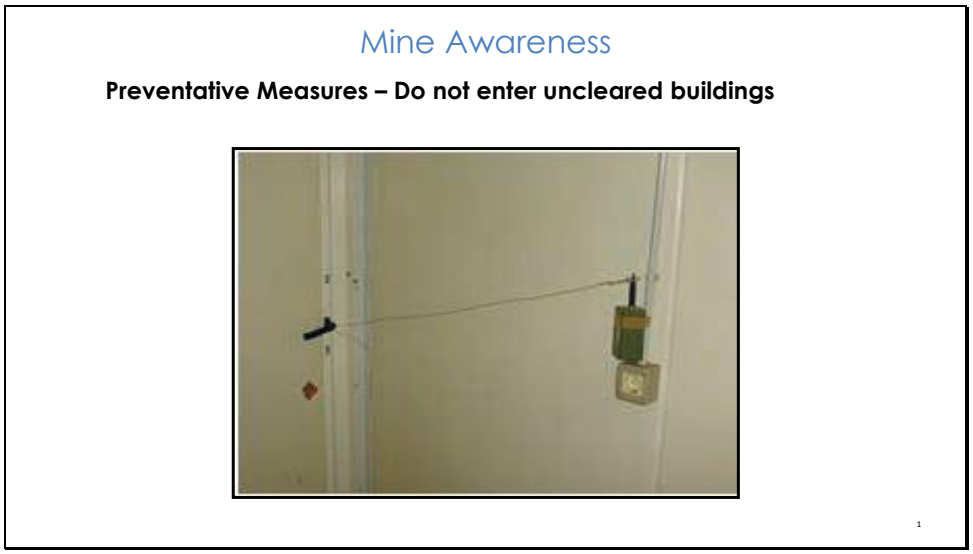
Preventative Measures – Do not use uncleared routes

9

DO NOT USE UNCLEARED ROUTES

Why? Any roads not cleared by the RMP or operations rooms are likely to be hazardous and must be treated with extreme caution. The chances of a mine strike increase significantly when driving on uncleared routes. Personnel are to plan their routes in advance and stick to the SOPs for route travel according to RMP units in theatre.

Slide 20



DO NOT ENTER UNCLEARED BUILDINGS

Why? Entering buildings which have not been cleared increase the risk of initiating devices. By not entering them you significantly reduce the risk of triggering a mine or booby trap.

Slide 21

Mine Awareness

Preventative Measures – Do not touch random/attractive items

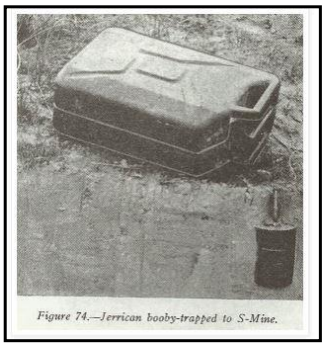


Figure 74.—Jerrican booby-trapped to S-Mine.

1

DO NOT BECOME A SOUVENIR HUNTER

Why? Souvenir collecting in former war zones is dangerous. By entering an area to collect attractive items you significantly increase the risk of initiating a device. An attractive item can and will be easily booby trapped. The former warring factions will play on human's curiosity and greed to lure him into a trap. Any items which are attractive and are in an unusual place should be regarded with deep suspicion.

Slide 22

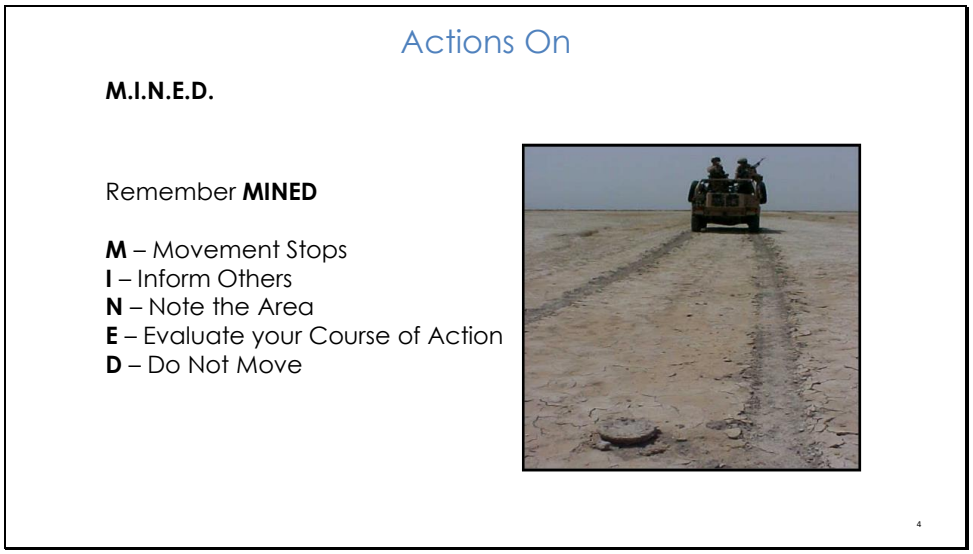
DO NOT BECOME A MILITARY TOURIST

Why? Discarded equipment, old battlefield sites attract the curious. Remember that previous conflict has taken place and the chances that booby traps, mines, and UXO are present in the vicinity will be extremely high. There is no guarantee that by stepping into the area to have a photo taken will not initiate unseen ordnance.

Images courtesy of UK MOD.

Slide 23

Slide 24



The two most likely ways you will discover that you are in a mined area are either that there is an explosion, or that you see a mine or mine sign. If someone has been injured, you should not rush in to help, as you will endanger yourself and others around you. If you find yourself in a minefield, stay calm and remember the pneumonic MINED

M Movement stops immediately. Stop! Remain still and do not move your feet.
I Inform and warn the people around you. Call for help but keep others away.
N Note the area. What else can you see: mines, tripwires, mine signs? Visually locate the nearest safe area: the last place you knew you were on a safe surface, such as a paved road, well used path, concrete or steel structure.
E Evaluate your course of action. Be prepared to take control.
D Do not move, if there is no indication of a safe area, or you can't reach it without stepping on unknown ground. Wait for help to arrive.

Images courtesy of UK MOD.

Slide 25

Actions On

Conditions For Extraction

- Life Threatening Situation – under attack
- No help coming
- Need to treat a injured person

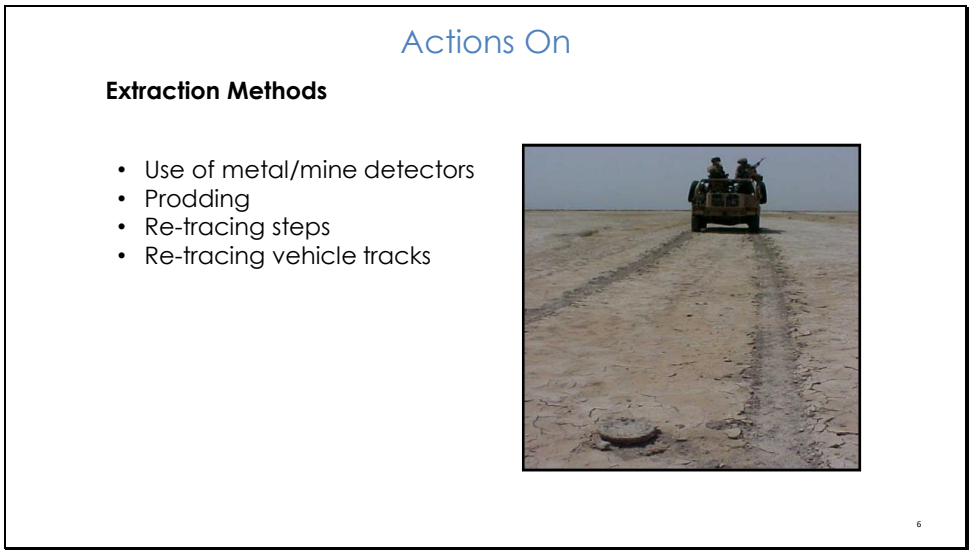
5

Although MINED states we should not move, this needs to be dictated by the tactical situation. There are some cases in which you will need to conduct and emergency mine field extraction. These include:

- Being in a Life-Threatening Situation such as being under attack and remaining will risk further lives.
- If no help is coming as there is no communications.
- Need to treat an injured person who if left un-treated will die.

Images courtesy of UK MOD.

Slide 26



If extraction is necessary, there are several ways in which this may be conducted.

- Use of metal/mine detectors. If detectors are available and there is a trained user, this is the ideal tool to find a clear route out of a minefield.
- Prodding. An emergency drill we will teach later in this lesson.
- Re-tracing steps & Re-tracing vehicle tracks. This is an extremely risky procedure which should only be taken as an absolute last resort when under time pressure. There is no assurance that previously stepped on or driven over area were mine free and they may function the second time.

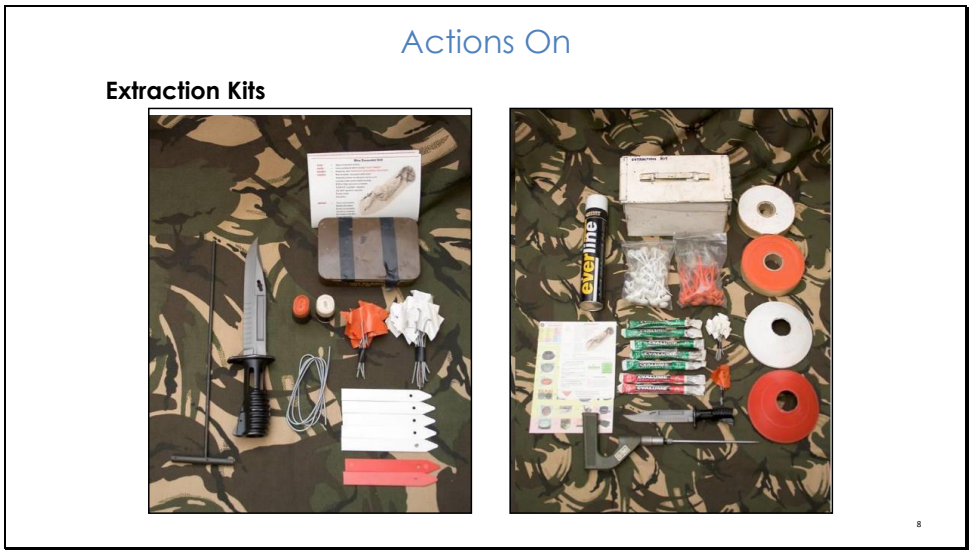
Images courtesy of UK MOD.

Slide 27

These images are examples of minefield extraction kits. These are issued kits, but improvised kit may be made and should be carried anywhere where there is a risk of mined fields.

Images courtesy of UK MOD.

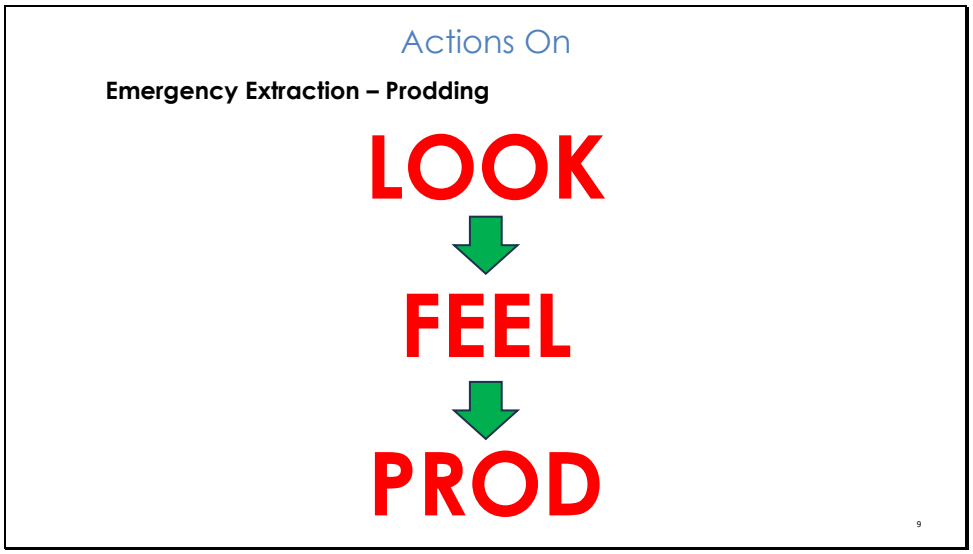
Slide 28



This is an example of an improvised kit. The left is a personal kit, the right for a vehicle.

Images courtesy of UK MOD.

Slide 29

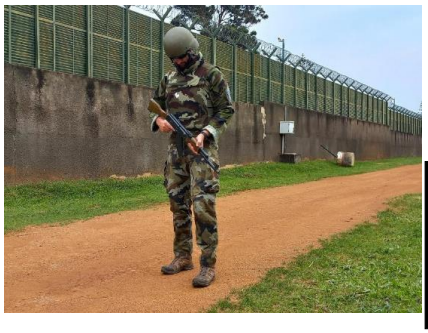


The sequence for prodding an emergency extraction drill is to
LOOK
FEEL
PROD

Slide 30

Actions On

Emergency Extraction – Prodding



LOOK

Without moving your feet look at the ground in front of you for any visible signs of mines, mine parts, ground sign or disturbance.

Do not attempt to turn round or check between your feet

If you can at this stage place on some eye protection

10

Slide 31

Actions On

Emergency Extraction – Prodding

In front of you create a box using white markers big enough for you to step into

Do not attempt to penetrate the ground at this stage

1

Slide 32

Actions On

Emergency Extraction – Prodding

FEEL

With your fingertips lightly feel within your boxed area for any protruding fuses or mine components

Do this systematically over the entire boxed area

2

Slide 33

Actions On

Emergency Extraction – Prodding

PROD

Prod every 25mm across your box at a 30° angle to the horizontal. Do not stab the ground or use excessive force but prod slowly and firmly. Prod until you feel excessive resistance.

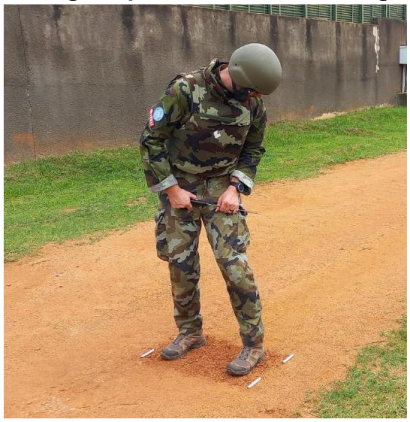
Again do this systematically over the entire boxed area

3

Slide 34

Actions On

Emergency Extraction – Prodding



Once cleared step into the box

Further assess your situation

You may want to extend your box for placing other equipment

4

Slide 35

Actions On

Emergency Extraction – Prodding

Look for a suitable route for your extraction lane

A patrol or group of individuals may have to join lanes together

You may want to consider your entry route into the minefield

5

Slide 36

Actions On

Emergency Extraction – Prodding

LOOK

↓

FEEL

↓

PROD

Continue to LOOK – FEEL – PROD, reducing your profile and extending the lane

6

Slide 37

Actions On

Emergency Extraction – Prodding

LOOK

↓

FEEL

↓

PROD

If required increase the width of your lane to a suitable size for you and your kit

7

Slide 38

Actions On

Emergency Extraction – Prodding

LOOK ➡ FEEL ➡ PROD

Continue until you can get into the prone position

8

Slide 39

Actions On

Emergency Extraction – Prodding

LOOK ➡ FEEL ➡ PROD

When able to do so prod at arms length keeping your spare hand protected and your legs crossed

9

Slide 40

Actions On

Emergency Extraction – Prodding

MARK

AVOID

MOVE ON

On locating a suspect item or area do not further investigate or attempt to confirm, just mark, avoid and move on

Place a red marker 300mm back from the suspect area and select an alternative route

10

Slide 41

Actions On

Emergency Extraction – Prodding

MARK

↓

AVOID

↓

MOVE ON

Continue to clear a lane avoiding the suspect area ensuring your body stays inside the cleared lane

11

Slide 42

Actions On

Emergency Casualty Drill

Conduct practical rehearsal prior to deployment

Carry an extraction kit on your person and in your vehicle

1. Casualty must remain as still as possible
2. Look, Feel, Prod up to, around & under the casualty
3. Give first aid
4. Assess - wait for help or extract

12

Slide 43

Questions?

UNMAS

13

Module

3

PRACTICAL APPLICATION

Module 3 at a Glance

Training Objective. The objective of this module is to validate the teaching points and practical skills taught throughout the week using a practical and realistic setting/scenario.

Lesson 3.1 – Practical Application (Mounted Patrol). At the end of this exercise, the participants will be able to demonstrate an understanding of explosive hazards and mitigation measures, including 5/25m checks, incident reporting, VP360 and GSA.

Lesson

3.1

PRACTICAL APPLICATION (MOUNTED PATROL)

The Lesson

Time. This module requires approximately 180 minutes to teach.

Performance Statement. At the end of this exercise, the participants will be able to demonstrate an understanding of explosive hazards and mitigation measures, including 5/25m checks, incident reporting, VP360 and GSA.

Exercise Guidance.

(1) The class will be divided into syndicates of no more than 8 pax, each given an assignment and undertake mounted operations. See details below.

(2) Each syndicate will be allowed time to consider the problem and plan on how to undertake the task.

Where no vehicles are available this exercise may be carried out as a dismounted Patrol.

Where possible, all students should be dressed in operational attire including body armour, helmet and weapon system.

Depending on the number of instructors, space and vehicles this exercise can be extended to use the full time available. If there is limited instructors each syndicate will need to carry out the exercise sequentially.

Methodology. This Lesson will be an outdoor exercise.

Details of the Exercise

The objective of this exercise is to validate the teaching points and practical skills taught throughout the week using a practical and realistic setting/scenario. This exercise allows the practice of the following core skills:

- GSA
- Identifying VA/VP
- CIED Checks (5/25m Drill)
- VP Check
- Actions on a find – 5Cs Drills

Instructor Set-Up

1. Identify a suitable training area that provides a road/track that will facilitate a mounted patrol exercise. There should be an obvious VP on this road/track, such as a bridge, culvert or intersection that cannot be avoided. The route length will be subject to available space but should not be too short to make the VP too obvious.

2. Ensure the availability of 2 vehicles that will facilitate 8 personnel minimum.

3. Place an inert IED in the VP in a realistic manner. There should be some ground sign but not too much that it too obvious and does not test the students.

4. Prepare a sketch of the route showing the start point and finish point but avoid highlighting the VP.

5. Assign a Trainee per syndicate as the "patrol commander". This should be the highest rank per syndicate. Take this "patrol commander" to one side and brief her/him on the scenario so (s)he can plan and brief her/his team.

The Scenario

"You are the patrol commander of a small team operating from a TOB. There has been a recent increase in IED strikes on UN patrols and convoys in your area of operation on several occasions in recent weeks."

Show the patrol commander the sketch of the route highlighting the start and finish point.

"You are to plan and lead you team on a patrol on this route. You have not travelled on this route before, but it has been used frequently by other UN troops. Due to the risk of IEDs you need to ensure you carry out the necessary drills to mitigate the threat to your patrol"

"You have 10 minutes to brief your team on the task. Your brief should include:

- *Your task. What have you been told to do.*
- *What is the threat*
- *Actions on Stops/halts*
- *Actions on VP*
- *Actions on IED find/Strike.*

Once you have briefed your team you should deploy as soon as possible"

Points the instructor should consider and look for:

Does the trainee devise a plan using what (s)he has been taught throughout EHAT?

Does the trainee brief her/his team on immediate actions drills in the event of VP/VA seen, IED seen/found etc? Are rehearsals considered?

Once the plan has been briefed and everyone know what is going to happen, they will move to the start position.

Does the patrol identify the VP and VA and halt the patrol at a suitable distance away?

Does the patrol carry out 5 and 25 metre checks correctly?

Additional guidance for Instructors:

Try to give minimal assistance to the commander but step in if necessary to ensure the right outcome and maximum practice of the lessons taught on course.

Oversee the procedures and correct where necessary making sure to maximize trainee mentoring and development.

This Scenario can be changed to suit the audience better or the training area, as long as it incorporates lessons taught throughout the course

Annex

B

SUPPLEMENTARY GUIDANCE FOR PRACTICAL ACTIVITIES

Demonstration

LESSON 1.2 – SERVICE MUNITION AND EXPLOSIVE REMNANTS OF WAR

Time Allocated. 90 minutes

Exercise Objective. To supplement the classroom lessons and reinforce the participants' understanding of identifying LSA and ERW.

Exercise Guidelines. Following the classroom lessons, the instructors should use inert munitions, where available, to improve the students understanding of lesson 1.1 and 1.2. This practical lesson can be taught in one or both of the following ways:

Option 1 – Static Display. The instructor should set up a display of various inert munitions. These munitions should be group based on their category of LSA to ensure conformity to the lesson. The instructor should encourage the students to explain what each item is before providing the answer.

Option 2 – Observation Stand. The instructor should identify and area of open terrain which can have various inert munition placed in a manner in which they may be encountered in real life. The student should then be given 5-10 minutes to identify as many of the items and then describe what each item is.

Demonstration

LESSON 1.3 – IED FUNDAMENTALS

Time Allocated. 90 minutes

Exercise Objective. To supplement the classroom lessons and reinforce the participants' understanding of identifying components of IEDs.

Exercise Guidelines. Following the classroom lessons, the instructors should use inert munitions and IED components to improve the students understanding of lesson 1.3. This practical lesson can be taught in the following ways:

Step 1: Static display of a/multiple complete IED that is laid out with all components visible. The instructor should encourage the student to point out all the various components of the IEDs.

Step 2: Five stands set up with IED component in each stand. These stands should have as many examples of each of the components as possible. This is to enable the students to develop familiarity with the components and be able to link everyday items with potential IEDs.

a. Stand 1: Explosive.
b. Stand 2: Power Source.
c. Stand 3: Initiator
d. Stand 4: Container and Enhancement
e. Stand 5: Switches

Demonstration/Exercise

LESSON 2.2 – INCIDENT RESPONSE (5Cs)

Time Allocated. 90 minutes

Exercise Objective. To supplement the classroom lessons and reinforce the participants' understanding of how to carry out a 5Cs drill.

Exercise Guidelines. Following the classroom lessons, the instructors should use an appropriate outside area to demonstrate a 5Cs operation. If possible, the instructor should use a vehicle(s) to enable the demonstration. the demonstration can either be done using other instructors as a prepared demonstration or, preferably, as an interactive walk through with the students.

Site selection and preparation. Instructor must select a location which is large enough to allow a full-size practice to the realistic distances required of a 5Cs. Ideally a location with a suitable VP should be chosen. If possible, an inert IED should also be realistically emplaced at the VP. The site should also be chosen such that it is not disrupted by routine activity such as traffic or pedestrian.

Training Aides. In addition to inert IED, the instructor should provide a printed 10 Liner to enable the student to practice a report (see below). If radios are available, they may be used to support this activity.

EOD 10 Liner

Line	Item	Sub item	
1	**DTG**	**A**	Date-Time-Group (DTG) DD, hh mm, Time Group, MMM,YY
2	**Reporting Unit**	**A**	Unit / Unit identifier
		B	Name
		C	Rank
3	**Location**	**A**	Link-up location
		B	Additional location information
		C	Avenue of safe approach
4	**Communication**	**A**	Link-up communication method and contact
5	**Type and description of EO**	**A**	EO/IED Type
		B	How many items were found
		C	Position
		D	Color
		E	Markings
		F	Size estimate
		G	NRBC or Toxic Industrial Materials
		H	Pictures taken
6	**Location of the EO/IED**	**A**	
7	**Tactical Situation**	**A**	Hostile Activity
		B	Fire hazard
		C	Unstable infrastructure
		D	Dangerous terrain
		E	Other Hazards
8	**Damage**	**A**	Collateral Damager
		B	What asset / resource is threatened?
		C	Impact on Mission
9	**Protective Measures taken**	**A**	Markers placed
		B	Evacuation Distance
		C	Other protective actions taken
10	**Recommended Priority**	**A**	**Immediate** **Urgent** **Routine** **No Threat**

Demonstration / Exercise

LESSON 2.3: INTRODUCTION TO GROUND SIGN AWARENESS (SIGN PIT)

Time Allocated. 90 minutes.

Exercise Objective. To practice the student in the practical application of GSA.

Exercise Guidelines. Following the classroom lessons, the instructors should use an appropriate outside area to demonstrate GSA and allow the students to apply the skills learned. This exercise requires significant preparation on the part of the instructors. This exercise will take place in 2 phases:

Phase 1 – Sign Pits. The instructor should identify a suitable outdoor area, ideally a sand pit or clean dirt area. The instructor should mark six (6) individual areas on the ground, each approx 2m x 2m. In each of these boxes the instructor should make/build/place examples of each of the characteristics of GSA. This should then be presented to each of the students to enable them to see a real-world example of GSA. Throughout this demonstration the instructor should try to gain as many answers as possible from the students and to encourage student participation.

Phase 2 – Recognition Lane. Instructor should prepare a training lane either on a road or track in which students can directly apply and practice the skills of GSA. The route length will be dependent on space and time available but should be between 200 and 300m long. Along the route the instructor should pre-emplace inert IEDs and/or ground sign that may indicate the presence of and IED. The lane must have at least one of each of the characteristics of ground sign. Where possible, a variety of types and sizes of IEDs should be used. The students should then be walked through the route collectively or in small groups and told to identify GSA and explain what this GSA might indicate. The instructor should describe each for the benefit of those who fail to identify the GSA.

Demonstration / Exercise

LESSON 2.4 – VULNERABLE POINTS AND VULNERABLE AREAS

Time Allocated. 90 minutes

Exercise Objectives. At the end of this exercise, the participants will be able to apply understanding of VA's and VPs to identify them by physical features on a map or model.

Exercise Guidelines. A practical demonstration using a trained instructor in an improvised model in a sandpit or outdoor area.

Instructor is to construct a model of a fictitious operational area. The area should include a route with several possible VPs and VAs. The route should connect friendly force locations e.g. Patrol Base and Logistics Base. There should also be alternative routes on the model.

Note. This model needs to be constructed ahead of time to allow quick transition between classroom lesson and this serial.

The model should have the following VPs/VAs included:

- Previous attack sites. The instructor should provide at least two previous attack sites; one should be historic and not be linked to the current operation which the students should be able to discount, the other should be recent which targeted a UN Patrol. The type of IED is the discretion of the instructor.
- Approach to friendly locations, e.g. FOBs.
- Re-occupation of previous locations. E.g. previous check point locations or overnight locations.
- Culverts.
- River crossing points and bridges
- Sharp turns
- Intersections
- Choke points
- Built up areas.
- Area of route dominated by high ground.
- An area of tactical importance such as an airfield.

The student should then be broken into small groups and given 10 minutes to identify all the VPs and VAs. One or all the groups should then present their finding. The instructor should guide the students, ensuring all VPs and VAs are understood. The students should be encouraged to use CAGES as a tool for identifying VPs and VAs.

Demonstration / Exercise

LESSON 2.5 – C-IED CHECKS - 5/25m CHECKS

Time Allocated. 135 minutes.

Exercise Objective. At the end of this exercise, the participants can apply C-IED Checks to operate safer in an Explosive Hazard environment.

Exercise Guidelines. This is a practical demonstration carried out by the instructors followed by an opportunity for students, in groups, to practice the drill. This will require the selection of a suitable outdoor area, preferably including a road or track. At least 1 vehicle, preferably multiple, are required for both demonstration and student practice. This should be carried out in 2 phases:

Phase 1 – Dismounted Demonstration and Practice (1 x 45 mins). The instructors should prepare and rehearse a demonstration of a dismounted patrol conducting a halt. If possible, the demonstration troops should be dressed in patrol equipment. The instructor may use students as demonstration troops if there are a lack of instructors, but this will require prior planning and rehearsal. The instructor should describe the process as the demonstration is being conducted. Once complete the instructor should break the student down into groups and allow them time to practice the drill. the instructor should observe all groups at least once.

Phase 2 – Mounted Demonstration and Practice (2 x 45 mins). The same process should be carried out for the mounted demonstration and rehearsal. As there may be limited vehicles, additional time is allocated to allow all students to practice this drill.

Note. If multiple instructors are available, these 2 phases may be conducted simultaneously with student groups rotating through both stands. This will allow more time per group to practice.

Demonstration / Exercise

LESSON 2.6 – BASIC SEARCH (Person, Vehicle and VP 360)

Time Allocated. 135 minutes

Exercise Objective. Practical demonstration of basic search procedures to reinforce learning.

Exercise Guidelines. This is a practical demonstration carried out by the instructors followed by an opportunity for students, in groups, to practice the drill. This will require the selection of a suitable outdoor area, preferably including a road or track. At least 1 vehicle, preferably multiple, are required for both demonstration and student practice.

Phase 1 – Person Search (1 x 45 mins). The instructors should carry out a demonstration of the correct procedure for carrying out a person search. This should be both Initial and Detailed. Following the demonstration the student should be broken down into groups of three to practice the detailed search. Each student should rotate through each of the role.

Phase 2 – Vehicle Search (1 x 45 mins). The instructors should carry out a demonstration of the correct procedure for carrying out a vehicle search. This should be both Initial and Primary. Following the demonstration the student should be broken down into manageable group sizes to practice the primary search.

Phase 3 – VP Drill (1 x 45 mins). The instructors should carry out a walk-through talk-through demonstration with the students of a complete VP Check drill. This demonstration will require selection and preparation of a suitable area with a VP and enough space to conduct a complete isolation. This lesson should include the use of a vehicle. If this lesson can be prepared with demonstration troops this may also be done. Key areas that should be highlighted by the instructor on the walk through are:

Arrival And Stop Short

- Ensure site selected in a tactically favourable position.

- Ensure 5/25m check is carried out as per lesson 2.5
- Point out the role of top cover.

Domination

- Tactical use of the ground
- Ensuring troops don't return to previously occupied locations
- If domination cannot be achieved due to vegetation and terrain it should be achieved using vehicle top cover.

Isolation

- Discuss the team make up
- Route selection should not follow previously used routes.
- Avoid VPs on the route
- Route does not need to be "square"
- Ensure eyes on the VP from multiple angles to identify GSA, command wires or receivers
- Looking for Firing Points
- Checking linear features for command wires
- Maintain an aggressive posture in case of ambush.

Search Through

- Layout and spacing of the team
- Discuss what the road-side men are looking for and what roadmen are looking for.
- Keeping the vehicle/convoy following
- Actions on a Find
- Actions once through the VP

Following the walk-through demonstration, the students should be broken down into groups to each practice the drill.

Demonstration / Exercise

LESSON 2.7 – MINES AWARENESS TRAINING

Time Allocated. 45 minutes

Exercise Objective. At the end of this exercise, the participants will be able to demonstrate ability in conduct an emergency minefield extraction drill.

Exercise Guidelines.

1. Participants will receive a demonstration on
    a. Mine find drill
    b. Extraction drill
        (i) Individual (self-extraction)

2. Participants will practice on
    a. Mine find drill
    b. Extraction drill
        (i) Individual (self-extraction)