

# HUMANITARIAN MINE ACTION GLOBAL Standing Operating Procedures SOPs

Release date: 2019



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PLEASE ACKNOWLEDGE THIS AS A SOURCE.

## **Disclaimer**

The author makes these Global SOPs available on condition that those using them accept full liability for errors or omissions. No part of the SOPs should be adopted before studying them closely and making changes to suit the needs of the organisation and the particular programme. The Chapters are linked with cross references and share a common terminology. When making terminology changes, users should ensure that all other Chapters are adjusted appropriately.

The author was an active member of the International Mine Action Standards (IMAS) Review Board for more than a decade and presents these SOPs as being fully IMAS compliant.

Any similarity between parts of these Global SOPs and the SOPs of specific organisations should be interpreted as a compliment. No parts have been copied, but many good ideas have been adopted and assimilated.

## **Dedication**

This document is dedicated to all those who have been injured in demining, and to the memory of my deceased friends Mark Tebbutt, Keith Byng, Hans Georg Kruessen and Christopher Marazani.

## **Acknowledgements**

While all of the individuals named below have had a positive influence on the content, any failings within these Global SOPs are the responsibility of the author alone.

Sincere thanks to Tomislav Vondracek, Roland Evans, Bill Bagley, Jan Erik Stoa and Damir Atikovic for substantive contributions resulting from their unusual professional commitment. Without lessons I have learned from these people, some of these SOPs could not have been completed.

With thanks to the following for comment on parts of the original SOP drafts: José Cambonjei; David Hewitson; Acai Muzusu; Reuben McCarthy; Bob Keeley; Pete Hindy; Gregory Crowther; Erik K. Lauritzen; Cris Chellingsworth; and to Jon Witsell for giving extensive editorial assistance with exceptional tolerance and patience.

With thanks to the following for influencing the content positively, whether intentionally or otherwise: William Lawrence; Chris Garrett; Matteo Zoppi; Firuz Asadbekov; Ben Remfrey; Phil Jowett, Abdusaloh Rasulov; Satwant Brar; Luke Atkinson; Lutz Kosewsky; Dieter Guelle; Prem Puri; Roger Hess; Andrey Kostyukov; K.P Raju; Craig Relyea, Rae McGrath; Resad Junuzagic; Richard Boulter; Christian Richmond; Mark Buswell; Barend Vermeulen; Abdulmain Karimov; Frank Masche, Roshan Christy; Tim Horner; Fadi Wazen; Hugh Graham; Hendrik Ehlers and Ken O'Connell.

Special thanks to MineLab for allowing the use of pictures from their F3 detector manual. Thanks also to Reuben McCarthy for making available a generic MRE SOP designed for use by a Mine Action authority or Mine Action Centre. This has been added because the MRE undertaken by demining groups should be coordinated with any national MRE programme.

## **Introduction**

These SOPs have been written for operations managers and field staff with the hope of providing a practical baseline from which they can develop their own improved SOPs. When they contain more detail than is conventionally included in SOPs, that is intended to serve as a training aid.

Released first in 2007, these SOPs were amended in 2009 and released as Version 2. There have been many hundreds of downloads since then and I have come across some translated into Russian, Arabic and Portuguese. A few separate SOPs have been added but it is nine years since any significant revisions were made, which is far too long. This 2018 version has incorporated many significant revisions, not least to terminology. Although there is no IMAS requirement to use the IMAS terminology I have done so whenever possible, only substituting terms to avoid ambiguity and introduce clarity. There is a full Glossary in this introductory Chapter and each separate Chapter is prefaced with a shorter Glossary explaining many of the terms used in it.

The inclusion of new SOPs covering HIEDC, Small Unmanned Aircraft, and Risk Management may be of special interest to those already using earlier versions (see Chapters 7, 10 and 14).

Please do not use any of these SOPs without studying them and making changes because your own experience needs to be added. Also, it is a principle of Quality Management that all procedures should be subject to regular and dispassionately critical review that leads to revisions appropriate to the time and place of use.

# HMA GLOBAL SOPS

*The organisation's Standard Operating Procedures (SOPs) for Humanitarian Mine Action activities are recorded in this document and its Annexes. The SOPs may be supported by detailed training materials that do not form a formal part of these SOPs. The training materials may be changed when required. All significant revisions to these SOPs must be detailed on the "Amendment record sheet" in this document.*

*This document has been prepared with reference to the guidelines of the International Mine Action Standards (IMAS) as a basis for international humanitarian demining activity. Different National Mine Action Authorities (NMAA) have varied requirements and these SOPs must be amended to meet national requirements whenever appropriate.*

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*This organisation does not accept any legal liability for any errors of fact or omission in this document. This organisation requests that the appropriate authorities subject it to close scrutiny for discussion and improvement as appropriate.*

**A reference copy of these SOPs should be available at each task site during demining activities.**

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## AMENDMENT RECORD

This page provides a record of revisions and appendices added to these SOPs after the publication date shown on the cover page.

Any amendments to this SOP must be approved by the operations manager before being included in the record below. For details of how to implement an amendment, see Chapter 1, Part 6. The operations manager must ensure that the users of these SOPs are informed about amendments promptly.

It is the responsibility of those using these SOPs to ensure that the amendment record below is kept up to date and that amendments or additions are inserted in appropriate places.

Amendment				
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## ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used throughout these SOPs.

AP (mine)	Anti-Personnel Mine
AT (mine)	Anti-Tank Mine
AXO	Abandoned eXplosive Ordnance
BAC	Battle Area Clearance
BACS	Battle Area Clearance Subsurface
CBRN	Chemical, Biological, Radiological, Nuclear (hazards)
CIED	Counter Improvised Explosive Device
EOD	Explosive Ordnance Disposal
ERW	Explosive Remnants of War
FRA	Field Risk Assessment
GPS	Global Positioning System
HF	High Frequency
HIEDC	Humanitarian Improvised Explosive Device Clearance
HMA	Humanitarian Mine Action
HPA	High Probability Area
HQ	Headquarters
IED	Improvised Explosive Device
IMAS	International Mine Action Standards
IMSMA	Information Management System for Mine Action
INGO	International Non-Governmental Organisation
ISO	International Standards Organisation
LPA	Low Probability Area
MEDEVAC	Medical Evacuation
MF-IED	Malign Fuzed Improvised Explosive Device
MTOW	Maximum Take Off Weight
NGO	Non-Governmental Organisation
NMAA	National Mine Action Authority
NTE	No Threat Evidence
PoD	Probability of Detonation
PPE	Personal Protective Equipment
QA	Quality Assurance (conducted during work)
QC	Quality Control (conducted when work is completed)
QM	Quality Management
REDS	Rake Excavation and Detection System
SHA	Suspected Hazardous Area
SoC	Severity of Consequences
SOPs	Standing (Standard) Operating Procedures
SUA	Small Unmanned Aircraft (Unmanned Aerial Vehicle, UAV)
TC	Task Conditions
TRA	Task Risk Assessment
UXO	UneXploded Ordnance
VHF	Very High Frequency

## GLOSSARY (Definitions)

The following definitions are used throughout these SOPs. The use of these terms allows internal consistency and clarity in an occupation that has become complicated by the use of contradictory terms as the HMA industry has developed.

**Accident (Demining accident):** following ordinary use of the term, an HMA 'accident' is any damaging or injurious event that occurs during working hours. This includes road traffic accidents and other events that give rise to injury which do not involve explosive hazards. Whenever an accident involving explosive hazards occurs (whether injurious or not), a detailed and objective accident report must be compiled and shared. Demining accident reports must be appended to the Field Risk Register and the appropriate risk mitigation strategies recorded. See also the entry for 'Incident (demining incident)'.

**Area Cancelled:** the 'Area Cancelled' is the area(s) of land cancelled during a task, or before starting a task, without any formal demining procedures being conducted on the land. Cancelled land must be released as 'Presumed Clear'.

**Area Cleared:** the area 'Cleared' is a defined area (or areas) that has been subjected to one or more demining Search & Clearance procedure(s) which guarantee(s) that a thorough search to the required depth has been conducted over the entire area(s). In all areas released as 'Cleared', the task supervisors must have full confidence that no explosive hazards remain to the specified search depth and must be prepared to demonstrate their confidence by walking or driving over the area. When no explosive hazards are located during Search & Clearance of an area, the area may still be released as 'Cleared' even though there were no explosive hazards to 'Clear'.

**Area preparation:** 'area preparation' involves the passage of a tool over a wide area to remove vegetation and/or prepare the ground surface before other demining procedures are conducted. The processing tool is generally attached to a machine that is suitably protected so that it can be safely driven over the area (often by remote control). Depending on need, the reliable depth of any ground processing may be important but is not critical because a ground engaging machine must always be followed by thorough Search & Clearance procedures if the land is to be released as 'Cleared'.

**Area Reduction:** 'Area Reduction' involves the Search & Clearance of a percentage of the ground in a manner that gives confidence that the larger area presents no threat from explosive hazards (there is No Threat Evidence, NTE). Area Reduction must not put the end-users or demining staff at greater risk than when full Search & Clearance demining procedures are used. Those making the decision to release land by Area Reduction must be prepared to demonstrate their confidence in the lack of explosive hazards by walking or driving over the area to be Reduced. Reduced areas must be released as 'Presumed Clear'.

**Area Released:** the sum of the areas 'Searched & Cleared', Reduced, Verified and Cancelled equal the area Released, which will usually be the entire task area.

**Area Verified (Area Verification):** an 'area Verified' is a part of a task area for which there is no evidence of any explosive hazards being present (No Threat Evidence, NTE) and on which one or more demining procedure(s) has been carried out. What is being 'Verified' is the belief that there is NTE in the area. The entire area Verified must be processed in a manner that increases confidence that formal Search & Clearance is not required in that area. Because there is NTE, the demining procedures used for area Verification need not equal thorough Search & Clearance of the area. If any evidence of hazards is discovered during area Verification, the status of the area changes and appropriate Search & Clearance procedures must be conducted. Those who make the decision that area Verification is all that is required must be prepared to walk or drive over the land that they have decided does not need to be thoroughly searched. After the area Verification, if No Threat Evidence has been found, the land may be released as 'Presumed Clear'.

**BAC - Battle-Area-Clearance:** 'BAC' is a visual search process that raises confidence that an area is free from explosive hazards on the ground surface without applying any subsurface search procedures. BAC cannot be used where the Task Assessment determines that there may be any buried explosive hazards that are pressure or movement sensitive. When there may be any other buried explosive hazards (such as common AXO and UXO), BAC must be followed with a reliable sub-surface Search & Clearance procedure. Areas subjected to BAC may be recorded as 'Surface Cleared'.

**BACS – Battle-Area-Clearance Subsurface:** ‘BACS’ is a search process involving the use of metal-detectors that raises confidence that an area is free from explosive hazards without applying procedures that would locate hazards with a small metal content. BACS cannot be used where the Task Assessment determines that there may be any anti-personnel mines, pressure or movement sensitive devices, or buried minimum-metal explosive hazards. The metal-detectors used must be able to reliably locate all of the anticipated hazards in the area. When used as described, areas subjected to formal BACS procedures may be recorded as having been ‘Cleared of hazards with a large metal content to a specified depth’.

**Booby-traps:** in common with the definition of anti-personnel mines in the Ottawa Convention, ‘booby-traps’ are victim-initiated devices that are not triggered remotely by command detonation. Designed to target anyone who disturbs them, they are manufactured in volume production and sold to armed forces as part of their arsenal. An example is the MS3 which looks similar to a PMN anti-personnel mine but functions when a weight is removed from on top of the device. The ML-7 has a similar function and is frequently placed beneath anti-personnel mines to target anyone lifting the mine.

**Capability Test:** a ‘capability test’ is a daily test of an MDD Set’s ability to find a target in ground similar to that in which it will work. This is analogous to the use of a metal-detector test-piece to check that the detector is working. It does not guarantee that the MDD will reliably locate the explosive hazards that may be present in the working area.

**Clear (Presumed Clear):** when applied to land, the word ‘Clear’ is used to describe land where there is no evidence of there being any explosive hazards (No Threat Evidence, NTE). When this is a result of the explosive hazards having been removed/destroyed during Search & Clearance, the area must be described as having been ‘Cleared’. When land has been released by area Reduction, Verification or Cancellation, it has not been ‘Cleared’ but can be ‘Presumed Clear’ because there is no evidence of it being likely to be contaminated with explosive hazards (No Threat Evidence, NTE). The distinction between the use of ‘Presumed Clear’ and ‘Cleared’ is important because it can be critical in cases of litigation.

**Clearance:** ‘clearance’ is the removal or destruction of explosive hazards. Most in the industry describe what they do as ‘clearance’. In fact what most field people are doing most of the time is preparing ground and searching. If there are no explosive hazards there, there is nothing to be ‘cleared’ so clearance cannot be happening. In these SOPs, the activity of searching for and removing or destroying explosive hazards is referred to as Search & Clearance despite the fact that, at some times, no hazards will be found and no ‘clearance’ will be required.

**Cleared (land):** ‘cleared land’ is a defined and mapped area that has been formally searched to a required depth and on which all explosive hazards have been removed or destroyed. An area can only be declared ‘Cleared’ after it has been subjected to disciplined Search & Clearance procedures that ensure the discovery and removal of all explosive hazards to a specified depth over the entire area. That depth must be determined during the Task Assessment and should be varied if devices are discovered at greater depths as work at the task progresses. If the depth that can be reliably searched using any one demining procedure is less than the requirement, additional search procedures must be used to gain confidence that thorough Search & Clearance to the required depth has been achieved before the area can be declared ‘Cleared’. Following Quality Management principles in pursuit of efficient Land Release, if no explosive hazards are found, an investigation should be made into why the task documentation indicated that the area was contaminated with explosive hazards when it was not.

**Confidence building:** ‘confidence building’ describes one or more demining procedure that does not search ground to the standard required for it to be declared ‘Cleared’ but does give confidence that there is No Threat Evidence (NTS) present, so Search & Clearance is not required in the area. As with all land to be released, the minimum level of confidence required is that those who make the decision to release the land must be prepared to walk or drive over it. See also the entry for ‘Verification’.

**Confirmed Hazardous Area (CHA):** in the IMAS, a ‘CHA’ is an area where the evidence that there are explosive hazards present has been confirmed. Unfortunately, with the exception of known, mapped and marked minefields and unless the hazards are visible, ‘confirmation’ can usually only happen after the hazards have been found. An explosive accident having occurred in an area does not ‘confirm’ the presence of other explosive hazards in the area although it may make the presence of other hazards ‘probable’. In these SOPs, the expression ‘High Probability Area’ (HPA) is used to describe an area where there is evidence that makes it probable that explosive hazards are present.



This covers places with visible hazards, known minefields, and all other areas where there is evidence that explosive hazards are probably present.

**Defined Hazardous Area (DHA):** in previous versions of the IMAS, a 'defined hazardous area' was defined as an area that is mapped and that must be subjected to thorough Search & Clearance. The perimeter of DHA were supposed to be precisely defined during Technical Survey. Accurately defining the perimeter of any hazardous area is only realistically possible after thorough search beyond that perimeter has been completed so the term DHA has been removed from the IMAS. DHA is not considered to be a practical pre-search concept so is not used in these SOPs.

**Deminer (Searcher):** a 'deminer' is a person engaged in Search & Clearance tasks in areas that may be contaminated with explosive hazards. A deminer must always be trained and qualified to carry out procedures related to searching. A deminer may also have EOD training, but does not have to be trained to appraise and manage the explosive hazards that are found. Persons with EOD training are called 'EOD specialists' and must also be trained as deminers/searchers.

**Demining procedure(s):** see the entry for 'procedure'.

**Demining task:** see the entry for 'task'.

**Device(s):** the term 'device' is sometimes used to describe any explosive hazard.

**Explosive hazard:** the term 'explosive hazard' is used to describe mines and ordnance whether fuzed, fired or otherwise, and all explosive devices whether mass-produced or improvised. It also covers hazardous parts of these devices, including detonators, propellants and pyrotechnics. Following the usage in international treaties and conventions, the IMAS distinguish between 'mines', 'submunitions' and 'Explosive Remnants of War' (ERW) and treats them separately. This is confusing because, in normal language, 'mines' and 'submunitions' are also 'ERW'. Rather than trying to reclaim the commonsense meaning of ERW, the term 'explosive hazard' is used in these SOPs.

**Explosive Remnants of War (ERW):** as defined in international treaties, the expression 'Explosive Remnants of War' covers all explosive devices (fired or unfired, fuzed or unfuzed) except mines and submunitions.

**HIEDC:** The acronym 'HIEDC' (Humanitarian Improvised Explosive Device Clearance) is used to describe those IED search & Clearance activities that are conducted in HMA. HIEDC differs from the counter IED work that is conducted by active combatants or security services because it prioritises the safe destruction of the hazard without adopting a forensic approach that is intended to assist in the identification of those who made or placed it.

**High Probability Area (HPA):** a 'High Probability Area' is a part of a task where there is a high probability that explosive hazards are present. This may be called a Confirmed Hazardous Area or CHA by other agencies. The threat in a High Probability Area is the same as that in a Low Probability Area when the same explosive hazards may be present. Typical HPA include mapped and marked minefields, areas where mines are visible, defensive positions, areas where there have been multiple explosive accidents, and areas where the presence of hazards has been reliably reported.

**IED (simple IED):** in these SOPs, a simple 'IED' is an 'improvised explosive device' which is an improvised munition, such as a mortar bomb, rocket, grenade, or a mine. The defining feature of a simple 'IED' is that it is designed to function in a way that parallels the conventional munition it is intended to emulate. See also the entries for 'IED bombs', 'MF-IEDs' and 'booby-traps'.

**IED bombs:** 'IED bombs' are improvised explosive hazards that are placed for timed or command detonation. Although placed during the conflict which should have ended before HMA activity began, improvised bombs may be encountered as legacy hazards. They may be unstable and may have MF-IED features. See also the entries for 'IEDs', 'MF-IEDs' and 'booby-traps'.

**Incident (Demining incident):** avoiding the confusion between 'accident' and 'incident' apparent in the IMAS, in these SOPs a 'demining incident' is the discovery of one or more explosive hazard(s) on land that has been declared 'Cleared' or 'Presumed Clear' and released to the end-users as part of Land Release. The rigorous and honest investigation of demining incidents is necessary to ensure that errors are identified and corrected in pursuit of the primary goal of HMA. Demining incident reports must be appended to the Field Risk Register and the appropriate risk mitigation strategies recorded. See also the entry for 'Accident (demining accident)'.

**Indication:** an ‘indication’ is the action of a Mine Detection Dog (MDD) when it detects the presence of a target which it has been trained to locate. An MDD indication may be at some distance from the target. See also the entry for ‘signal’.

**Land release, releasing land:** land that is designated a task area may only be ‘released’ after either being declared ‘Cleared’ or ‘Presumed Clear’. An entire task, or parts of the task area, can be released as ‘Searched & Cleared’, ‘Reduced’, ‘Verified’, or ‘Cancelled’ (see Chapter 3 for detailed explanations of these terms).

1. Land that is ‘Searched & Cleared’ of all explosive hazards to a known depth is declared ‘Cleared’.
2. Land that is ‘Reduced’ by processes that result in confidence that thorough ‘Search & Clearance’ is not necessary because there is No Threat Evidence (NTE) in the area can be declared ‘Presumed Clear’.
3. Land that is ‘Verified’ as having NTE in the area can be declared ‘Presumed Clear’.
4. Land that is ‘Cancelled’ as having NTE in the area can be declared ‘Presumed Clear’.

**Low Probability Area (LPA):** a ‘Low Probability Area’ is a part or parts of the task where it is possible that there are explosive hazards but there is not enough evidence of their presence to make it probable. Typically, land bordering a High Probability Area is a Low Probability Area. The threat in a Low Probability Area is the same as that in a High Probability Area when the same explosive hazards may be present.

**Malign fuzed IEDs (MF-IEDs):** an ‘MF-IED’ is an IED that has one or more initiation systems that is deliberately designed to be triggered by any attempt to approach, disarm, separate, disrupt or move all or part of the device. Any explosive hazard can be turned into an MF-IED by the addition of an initiation system designed to target those sent to find and destroy it. MF-IEDs may have several initiation systems, any one of which may be followed by a delay to give the impression that the hazard is safe, so maximising injury. See also the entries for ‘IEDs’, ‘IED bombs’ and ‘booby-traps’.

**MDD - Mine Detection Dog:** also known as EDD – Explosive Detection Dogs – an ‘MDD’ is a dog that has been trained to detect various target substances related to mines and explosive hazards. The target substances may include specific mines, certain types of explosives, surface and sub-surface ordnance, and fragments of mines and UXO/AXO.

**MDD handler:** an ‘MDD handler’ is a person who has been trained and certified to work with MDDs using the processes and procedures described in the MDD SOP. Handlers must also be experienced in the maintenance of their MDDs’ health and hygiene.

**MDD Set:** an MDD and its MDD handler is an ‘MDD Set’. A handler may have two or more MDDs, each of which is a separate MDD Set when working with the handler. All handlers and MDDs must be suitably trained and accredited for the duties they will perform.

**MDD team:** an ‘MDD team’ is an operational unit comprising one or more MDD Sets and sufficient deminers and support staff under the control of an MDD team leader.

**MDD trainer:** an ‘MDD trainer’ is a MDD handler who is trained, authorised and certified to plan and implement the training of MDDs and of MDD handlers in accordance with approved methods. This person may also serve as the MDD coordinator.

**MDD training:** in these SOPs, ‘MDD training’ describes things done to extend, improve or to maintain an MDD’s search capability. These SOPs do not cover the initial training of a dog so that it can become an MDD.

**No Threat Evidence (NTE):** any land that is not suspected of being contaminated with explosive hazards presents ‘No Threat Evidence’ (NTE) because there is no evidence that there may be explosive hazards there. The term should also be applied to any part of a task area where, after a Technical Survey and/or during subsequent demining activity there is found to be no evidence of the presence of explosive hazards. Areas processed using proven Search & Clearance procedures during a Technical Survey may be recorded as ‘Cleared’. Parts of a task that are Reduced, Verified or Cancelled as a result of demining activity must be recorded as presenting No Threat Evidence, so ‘Presumed Clear’.

**National Mine Action Authority (NMAA):** the NMAA is the national organisation mandated by the national government to control and monitor humanitarian mine action activities.

**Non-Technical Survey (NTS):** in the IMAS, a NTS is defined as, “the collection and analysis of data, without the use of technical interventions, about the presence, type, distribution and surrounding environment of [explosive hazard] contamination, in order to define better where...

contamination is present, and where it is not, and to support Land Release prioritisation and decision-making processes through the provision of evidence". Its main purpose is to identify recorded tasks (or parts of recorded tasks) for which there is No Threat Evidence (NTE). In this organisation, all NTS should involve a visit to the recorded task site and a visual survey which may be assisted by camera over-flights with SUA.

**Presumed Clear:** See the definition for 'clear'.

**Procedure(s), demining procedure(s):** 'demining procedures' are activities conducted on land that may be contaminated with explosive hazards as part of preparing it for land release. Searching with metal-detectors or MDDs are demining procedures. Cutting undergrowth or ground processing with a demining machine are also demining procedures. One or more procedure can be applied to process the same ground to give confidence that the area can be released. Not all procedures, or combinations of procedures, constitute full Search & Clearance and so guarantee that no explosive hazards remain to the required depth in the area. This is not important when there is found to be No Threat Evidence in an area and it can be reliably 'Presumed Clear'.

**REDS – Rake Excavation and Detection System:** REDS uses two specialist long-handled rakes to either excavate the ground where a metal-detector or MDD has signalled, or to conduct area excavation in search lanes. Used correctly in the search for anti-personnel pressure mines and anti-tank mines, the system has been as fast as other area-excitation or signal investigation method. The rakes effectively sift the ground and any explosive hazards are exposed without risk of initiation. The length of the rakes reduces the risk of severe injury in the event of an anti-personnel blast mine accident by keeping the deminer at a greater distance from the hazard.

**Releasing land:** land that is designated a task area may only be 'released' after either being declared 'Cleared' or 'Presumed Clear'. An entire task, or parts of the task area, can be released as 'Searched & Cleared', 'Reduced', 'Verified', or 'Cancelled' (see Chapter 3 for explanations of these terms).

**Risk Register:** a 'Risk Register' is a record of identified risks and the strategies adopted to manage them by reducing them (risk mitigation) or by avoiding them. Derived from as broad an evidence base as possible, it informs risk management decisions and allows experience to be shared and retained when staff move on. Two registers should be kept, a 'Programme Risk Register' and a 'Field Risk Register'.

**Safety distance:** the 'safety distance' is the distance at which all staff must be from a deliberate detonation in order to avoid injury. This is also the distance at which staff must be from a demining procedure that may predictably detonate some devices (such as processing the ground surface using a machine). See also the entry for 'working distances'.

**Search & Clearance (Searched & Cleared):** 'Search & Clearance' refers to the disciplined use of demining procedures that are reliably able to locate all anticipated explosive hazards to a specified depth beneath the ground surface and the removal/destruction of those hazards over an entire recorded area. Only areas that have been Searched & Cleared can be released as 'Cleared'.

**Search depth:** the 'search depth' is the depth beneath the ground surface to which reliable search for explosive hazards must be conducted. Unless otherwise directed by the NMAA or client, the search depth should be agreed during task planning and must be increased as soon as any evidence suggests that the hazards may be at a greater depth than was originally believed.

**Searcher:** See the entry for 'Deminer'.

**Signal:** a 'signal' is the sound and/or visual alert made by a metal-detector when the presence of metal is detected beneath or around the search-head. The position of the signal may be pinpointed with varied precision depending on the metal-detector and its settings. See also the entry for 'indication'.

**SUA or UAV:** The term 'Small Unmanned Aircraft' (SUA) is preferred by the Civil Aviation Authorities in Europe and so is used instead of Unmanned Aerial Vehicle (UAV). In this context, the terms are treated as synonyms. An SUA is an aircraft with a Maximum Take Off Weight (MTOW) of 7 kg or less. It may have rotors, fixed wings or gas lift in any combination and is controlled remotely by a pilot in real time or following a pre-programmed flight path.

**Suspected Hazardous Area (SHA):** at the start of a demining task, the entire task area is often referred to as a 'Suspected Hazardous Area (SHA)'. After a Technical Survey has been conducted and more becomes known as the task progresses, parts of the SHA should be designated Low Probability Areas (LPA) and High Probability Areas (HPA) where the 'probability' refers to the

probable presence of explosive hazards. HPA and LPA designations and the Task Release Plan should be reviewed and revised as soon as more evidence about the contamination in the SHA is gathered. As areas with No Threat Evidence are identified, they may be Reduced, Verified or Cancelled, as appropriate.

**Task (demining task):** a 'task' is a specified area of land on which a demining organisation must conduct activities detailed in a Task Release Plan in order to declare the area 'Cleared' or 'Presumed Clear' in preparation for land release.

**Task site (demining task site):** a demining 'task site' is any place where some or all of the ground is processed to find mines and/or explosive hazards in preparation for land release. The perimeter of the task site must be accurately recorded on the task map and on the ground whenever practicable. When a task is linear (as with routes), the perimeter may be marked and recorded as work progresses.

**Task Folder:** the NMAA (or other authority) should provide a 'Task Folder' containing all relevant survey data about the task being undertaken. Information gathered during this organisation's internal Task Assessment will be added to the Task Folder to allow an informed Task Risk Assessment to be made. The Task Folder and the Task Assessment also provide an evidence base on which to make a preliminary Task Release Plan. The Task Folder may include agreements about the demining assets and procedures that must be used at the task.

**Task Release Plan:** the 'Task Release Plan' is the schedule of all demining activities that will take place in a demining task area. It includes maps of HPA and LPA showing all areas that will be released as 'Cleared', Reduced, Verified or Cancelled. All Task Release Plans should be revised regularly as work progresses and more becomes known about the task area. This is essential to allow the work to be conducted efficiently, so protecting the donor/client from unnecessary costs. When the Task Release Plan must be approved by the NMAA, a provisional Task Release Plan sent to them before work starts should cover as many of the variations that may be required as can be reasonably predicted. When further revisions are required, the NMAA should appraise revised Task Release Plans without delay. When the revision is necessary to keep risk within tolerable limits, the NMAA should approve its immediate implementation pending the results of their formal appraisal.

**Task Risk Assessment (TRA):** a 'Task Risk Assessment' is a process designed to evaluate and manage risk before and during field tasks. A TRA takes account of all available information about conditions in the task area, the hazards present and the demining procedures that are available to be used. As work at the task progresses and more information becomes available, the TRA must be revised so that the work is always conducted in a manner that minimises the main risks during HMA field activities. The main risks are the risk of leaving explosive hazards in areas that will be released (demining incidents) and the risk of demining staff suffering explosive related injury (demining accidents).

**Technical Survey:** a 'Technical Survey' involves using demining Search & Clearance procedures over parts of a task area in order to try to determine parts that are High Probability Areas (HPA), parts that are Low Probability Areas (LPA), and parts where there is No Threat Evidence (NTE). A Technical Survey should precede wide-area Search & Clearance at all tasks where a Technical Survey has not already been conducted. When staff walk over the ground during the survey, the ground on which they walk must have been declared 'Cleared' or 'Presumed Clear'.

**Tolerable Risk:** a 'tolerable risk' is the risk remaining after having taken all reasonable measures to avoid the risk event and/or to minimise its undesirable consequences. The International Standards Organization (ISO) and the IMAS define 'tolerable risk' as "risk which is accepted in a given context based on current values of society". Every industry is intended to interpret that definition appropriately to reflect their working context. It would be inappropriate to adopt the high-risk mindset that may prevail in a post-conflict context because the current humanitarian values in peaceful and secure societies are the values of HMA and of those paying for the work. These are also the values that will be used to define what is 'tolerable' during any litigation that may follow accidents or incidents.

**Wide-area:** in these SOPs, the term 'wide-area' is used to describe large land areas over which Search & Clearance will be conducted. The breach lanes that are 'Cleared' during a Technical Survey are not conducted over wide-areas, but parallel breaches can be combined to provide wide-area Search & Clearance.

**Working distance:** the 'working distance' should make it unlikely that more than one person will be injured in a demining accident. Working distances can generally be shorter than safety distances

because demining accidents are rare and injuries to a second worker rarer still. Reduced working distances can increase safety by improving the ease of supervision which ensures that procedures are conducted correctly and risks are appropriately managed. See also the entry for 'safety distances'.

## Should, Must & Shall

Throughout these SOPs the distinction between the terms 'should' and 'shall' that is used by the International Standards Organisation (ISO) and in the International Mine Action Standards (IMAS) is adopted.

When 'shall' or 'must' is used, everyone working to these SOPs must comply with the requirements as they are written. No variation is permitted.

When 'should' is used, everyone working to these SOPs must follow the requirements unless they have a reason to vary them that has been approved by the senior staff with operational responsibility. Variations must be recorded in writing in the Task Release Plan and the person(s) making the variation must be identified.



# TABLE OF CONTENTS

## ACRONYMS, GLOSSARY

Each Chapter has its own detailed table of contents at the start.

### CHAPTER 1: *[Demining group name]*

This Chapter introduces *[Demining group name]*, describes its internal training courses, Quality Management philosophy and lists the responsibilities of all key staff. The SOP revision procedure is also covered here.

### CHAPTER 2: SAFETY

This Chapter introduces the integrated risk management approach, PPE requirements, and the management of visitors at task sites. It also details the calculation of working-distances and safety-distances, and describes both the communication requirements and the approved methods of communication.

### CHAPTER 3: RELEASING LAND

This Chapter defines the criteria for releasing hazardous areas, or part of them, by Search & Clearance, Reduction, Verification or Cancellation. It defines the Task Assessment and Technical Survey processes. The production of a preliminary Task Release Plan is also covered.

### CHAPTER 4: TASK SITE PREPARATION

This Chapter covers the requirements for preparation at a task site. It covers the MEDEVAC exercise and details the safe-area features required at various kinds of task.

### CHAPTER 5: MARKING SYSTEMS

This Chapter covers a range of approved marking systems including pickets, painted stones and flags. The variations required for manual demining, MDD and demining machines are also described. The permanent survey marking required at all task sites is also covered.

### CHAPTER 6: SEARCH & CLEARANCE

This Chapter describes all aspects of manual Search & Clearance, covering approved procedures from vegetation removal and the use of metal-detectors to area-excavation in detail. BAC, BACS and MDD support are covered, along with procedures to deal with obstructions in the task area and the discovery of human remains. It also covers MEDEVAC procedures during manual demining.

### CHAPTER 7: IED SEARCH & CLEARANCE

This Chapter describes approved approaches to improvised explosive hazards including improvised munitions (including mines), improvised bombs and improvised 'malign fuzed' IEDs designed to target those tasked with finding them. Designed solely for use in HMA, this SOP must be extended with additional details when the specific nature of the IED hazards, in particular their initiation systems, in the working area becomes known.

### CHAPTER 8: MECHANICAL DEMINING

This Chapter describes general principles behind the use of demining machines and the various mechanical demining procedures that may be used. It describes the management of mechanical assets, then gives detailed procedural instructions for a range of machines. The Chapter also covers MEDEVAC and machine recovery in the event of an accident involving a machine.

### CHAPTER 9: MINE DETECTION DOGS

This Chapter provides detailed operating procedures for the deployment of MDDs, covering search patterns, training requirements, accreditation, healthcare and the varied requirements of MDD Team management. The Chapter also covers MDD MEDEVAC procedures.



## **CHAPTER 10: USE OF SMALL UNMANNED AIRCRAFT (SUA)**

This Chapter describes the way in which SUA can be used during field operations, covering the restrictions on their use and relevant safety requirements. SUA may also be known as Unmanned Aerial Vehicles (UAV) or 'drones'.

## **CHAPTER 11: INTEGRATED SYSTEMS**

This Chapter describes the integration of machines and MDD with manual Search & Clearance operations, the variations to stand-alone procedures that are required, and the kind of tasks that can be conducted using integrated systems.

## **CHAPTER 12: DESTROYING MINES AND EXPLOSIVE HAZARDS**

This Chapter covers the destruction of mines and explosive hazards by explosive demolition, explosive disruption/deflagration, destruction in fires and destruction using chemical burning. Directions for the storage and transportation of explosive hazards and demolition consumables is given along with render safe procedures for some mines.

## **CHAPTER 13: MEDICAL SUPPORT**

This Chapter describes the minimum medical support requirements for field operations. It includes a list of compatible blood groups for safe transfusion and describes accident investigation procedures.

## **CHAPTER 14: RISK MANAGEMENT**

This Chapter explains how to conduct risk management in HMA programmes, covering general organisational risks and detailing procedures that must be followed when identifying and managing field specific risks.

## **CHAPTER 15: DOCUMENTATION**

This Chapter gives examples of some basic in-house documentation and reporting formats. Reporting formats required by the NMAA must be adopted whenever appropriate.

## **ANNEX A: MRE (MINE RISK EDUCATION)**

This Annex includes a set of SOPs for a national MRE programme and a separate SOP for a demining group conducting MRE independently.